

Student Guide 2004

North Karelia Polytechnic
Joensuu 2005

Publisher North Karelia Polytechnic

Layout Eija Piiparinen

North Karelia Polytechnic
Student Services
Tikkarinne 9
FIN-80200 Joensuu
Finland

tel. + 358 13 260 6412
fax +358 13 260 6411

opintotoimisto@ncp.fi
www.ncp.fi

CONTENTS

DEGREE PROGRAMME IN FINE ARTS	4
DEGREE PROGRAMME IN DESIGN	13
DEGREE PROGRAMME IN COMMUNICATION	25
DEGREE PROGRAMME IN BUSINESS INFORMATION TECHNOLOGY	35
DEGREE PROGRAMME IN RURAL INDUSTRIES	43
DEGREE PROGRAMME IN FORESTRY	59
DEGREE PROGRAMME IN FOREST PRODUCTS MARKETING	74
DEGREE PROGRAMME IN TOURISM	87
DEGREE PROGRAMME IN BIOMEDICAL SCIENCES	111
DEGREE PROGRAMME IN NURSING	128
DEGREE PROGRAMME IN SOCIAL WELFARE WORK	159
DEGREE PROGRAMME IN MECHANICAL AND PRODUCTION ENGINEERING	172
DEGREE PROGRAMME IN PLASTICS ENGINEERING	189
DEGREE PROGRAMME IN WOOD TECHNOLOGY	200
DEGREE PROGRAMME IN CIVIL ENGINEERING	210
DEGREE PROGRAMME IN ELECTRICAL ENGINEERING	224
DEGREE PROGRAMME IN INFORMATION TECHNOLOGY	232
DEGREE PROGRAMME IN ENVIRONMENTAL TECHNOLOGY	245
DEGREE PROGRAMME IN INTERNATIONAL BUSINESS	262
DEGREE PROGRAMME IN BUSINESS ECONOMICS	272

DEGREE PROGRAMME IN FINE ARTS

General description and aims of the degree

The degree programmes for fine art and design work in close co-operation and the degree programmes have common study modules.

The degree Programme for Fine Art (HK), and the degree programme for Design (HM) lead for the degree of culture. Both lead to a degree as Bachelor of Visual and Media Arts: a degree of Fine Art as a visual artist, (160 Finnish opintoviikko ov = 240 ECTS credit units) and a degree of Design as a craftsman-designer, (160 = 240 ECTS credit units). The degree is expressed as credit units (cu) which may be completed in approximately four years.

Structure and syllabus of the studies

THE DEGREE PROGRAMME FOR FINE ART
240 ECTS CREDIT UNITS (CU), 160 CREDITS (ov)

FINAL PAPER 15 ECTS CU (10 ov)

PRACTICAL TRAINING 30 ECTS CU (20 ov)

OPTIONAL COURSES 15 ECTS CU (10 ov)

SPECIALISED PROFESSIONAL STUDIES

120 ECTS CU (80 ov)

HP21 Art and manufacturing

HP22 Art and Culture

HP23 Art, environment and communication

HP24 Art and entrepreneurship

Development of professional skill and research

Project studies

BASIC STUDIES 60 ECTS CU (40 ov)

Orientative basic studies

Module: Visual communication

Module: Design and workshops

Orientation options / Elective studies

The main alternatives of fine art are painting, sculpture,

and printing (art graphics). The main alternatives in design are Design of hard materials, and Fibre, including textile and clothing design.

Given the commonalities of these two areas, the goal of the degree programme is to integrate the education of Fine Art and Design. Strong knowledge and experience in both fields yield unique, innovative degree programmes on the national

Educational and active co-operation between Fine Art, Design and Communication brings new entrepreneurship and knowledge into the province. Development focuses on professional activity and networking in close co-operation with the Service Resource Centre. Internal co-operation within the Polytechnic provides a field for early practical work and experience for the future in the international fields.

Adult Education leading to the Degree

It is possible to complete the previous professional certification or some other diploma into the Polytechnic Degree for Fine Arts by developing professional readiness and by adopting researching working method at development of the own professional field. Language and communication studies, project work, and the thesis are emphasized by side of the professional studies. The Degree is called Polytechnic Degree of Culture, artist (Polytechnic level). The degree takes 160 Finnish credits (240 ECTS credit units) The completing or distinctive studies take at least 40 Finnish credits (60 ECTS credit units). The studies consist of day studies. A personal study plan is based on the degree curriculum, and it is made in cooperation with the student. This study plan takes into consideration earlier studies at the colleges, studies at higher institutions, and domestic and international work practise.

BASIC STUDIES	Code	1. year	2. year	3. year	4. year
Orientative Studies	HP01				
Orientation into studies	HP1008	1	0	0	0
Basics for searching knowledge	HP1002	1	0	0	0
Basics of computing	HP1005	1	0	0	0
Individual development	HP1006	2	0	0	0
Visual Communication	HP02				
Interaction of Colours - Colour, Shape, Space	HP1009	2	0	0	0
Painting	HP1078	3	0	0	0
Plastic composition	HP1030	3	0	0	0
Spatial and Environmental Art (Public Art)	HP1012	2	0	0	0
Graphic Design	HP1014	4	0	0	0
Photography	HP1015	2	0	0	0
History of Art	HP1016	2	0	0	0
History of Design	HP1017	2	0	0	0
Design and Workshops	HP03				
Basics of Design Skill	HP1052	6	0	0	0
PROFESSIONAL STUDIES					
Fine Art Workshop	HK25				
Planning and Realization of Environmental Project	HK2137	0	4	0	0
Painting Workshop	HK2142	0	4	0	0
Art Graphics Workshop	HK2143	0	4	0	0
Sculpture Workshop	HK2144	0	4	0	0
Art and Culture	HK22				
History of Modern Art	HP2203	0	1	0	0
History of Design	HP2204	0	1	0	0
Manufacturing/Sculpture	HK2235	0	2	0	0
Manufacturing / Painting	HK2236	0	2	0	0
Design and Manufacturing, Art graphics	HK2239	0	2	0	0
Paper, Fibres and Experimental Art	HP2201	0	2	0	0
Art, Environment and Communication	HK23				
Communication	HP2305	0	0	1	0
Philosophy of Art and Design	HP2306	0	0	2	0
Art and Environment / Network publishing	HK2312	0	0	2	0
Art and Environment / Production	HK2313	0	0	9	0
Product and Entrepreneurship	HK24				
Entrepreneurship	HP2409	0	0	4	0
Designing and Production of Entrepreneur Project	HK2408	0	0	6	0
Developing Professional Skills and Research	HP25				
Orientation to Professional English	HP2510	0	2	0	0
Professional English for Artists and Designers	HP2511	0	2	0	0
Methods of Research 1	HP2515	0	0	1.5	0
Methods of Research 2	HP2516	0	0	0	1.5
Swedish, Social Contacts	HP2518	0	0	1	0
Professional Swedish for Artists and Designers	HP2519	0	0	2	0
Critique Work 1	HP2522	0	0	1	0
Critique Work 2	HP2523	0	0	1	0
Project Studies	HP26				
Project Planning and Management	HP2620	0	0	0	2
Project Realising	HP2621	0	0	0	10

Fine Arts

Elective studies		9	2	2	2
Basics of Prototype workshop 1	HP1032	3	0	0	0
Fibre studio 1	HP1053	3	0	0	0
Basics of Prototype Workshop	HP1034	6	0	0	0
Fibre studio 2	HP1035	3	0	0	0
Sculpture Workshop	HP1039	3	0	0	0
Art Graphics	HP1060	3	0	0	0
Croques drawing 1	HP2501	0	2	0	0
Drawing	HP2506	0	0	2	0
Model Drawing and Painting	HP2509	0	0	0	2
CNC -Programming	HP2507	0	0	2	0
Advanced Special Studies of Design Programs	HP2537	0	0	2	0
OPTIONAL STUDIES		0	5	5	0
PRACTICAL TRAINING		0	2	3	15
Practical Training	HP4221	0	0	0	20
THESIS		0	0	0	10
Thesis	HP4230	0	0	0	10

BASIC STUDIES

HP1002 Basics for searching knowledge, 1 crs/1,5 ECTS crs

Objectives of the course: The students learn to search information independently.

Contents of the course: The students get acquainted with the files of the library and the use of the library. They learn to use the Internet.

Prerequisites: not required

HP1005 Basics of computing, 1 crs/1,5 ECTS crs

Objectives of the course: The student reaches the basic skills of computing and the control of basic programmes, text processing, picture processing, learns concepts of the field and working principles and adapts his/her skills during whole education in different works.

Contents of the course: Text processing, picture processing, excel-programme and control of the equipment and the file.

Prerequisites: not required

HP1006 Individual development, 2 crs/3 ECTS crs

Objectives of the course: The student will learn a practise to follow his/her professional development and to influence on it.

Contents of the course: Different methods of assessment will be studied, as sample file, learning briefcase, process file, file of growth, self-assessment etc. The student makes a portfolio of each course of his/her professional studies proving the progress of skill and studies. The portfolio is closely linked with tutoring, critique practises and final paper. Lectures, independent and guided work.

Prerequisites: Not Required

HP1008 Orientation into studies, 1 crs/1,5 ECTS crs

Objectives of the course: Learning to know the multi-disciplinary North Karelia Polytechnic and how to study at NCP. Learning to know the working environments.

Contents of the course: The students start to make a personal study plan.

Prerequisites: not required

HP1009 Interaction of Colours - Colour, Shape, Space, 2 crs/3 ECTS crs

Objectives of the course: Interaction of colours and the relation of the colour into shape and place is studied.

Contents of the course: This study unit contains learning material and works that are to be found on the

home pages of the degree programmes of fine arts and design.

Prerequisites: not required

HP1012 Spatial and Environmental Art (Public Art), 2 crs/3 ECTS crs

Objectives of the course: The aim is to research the features of manufactured and natural environments as a starting point of art. Colour, shape and space impression. The past, the purpose and the users of the object are researched.

Contents of the course: The student plans and realises a piece of art into a public building, built and natural environment. Attendance, assignments, and self-assessment. The student makes a presentation portfolio of his/her developing process.

Prerequisites: Not Required

HP1014 Graphic Design, 4 crs/6 ECTS crs

Objectives of the course: Students learn the proportions of the picture and the text making invitation cards, brochures and posters.

Contents of the course: Working with word processing and graphics programmes. Presentation of the works, common critique.

Prerequisites: Not Required

HP1015 Photography, 2 crs/3 ECTS crs

Objectives of the course: The use of the camera is emphasised as a means of documentation and reports.

Contents of the course: The work is directed into one's own artistic production process for describing and reporting one's own experiences.

Prerequisites: Not Required

HP1016 History of Art, 2 crs/3 ECTS crs

Objectives of the course: The student learns the basic history of western art and becomes familiar with fine art of some cultures outside Europe. The students learn to analyse works of art as products of their own era, to adapt the history of art in their own work and to understand the impression of international art on national culture.

Contents of the course: This course includes art history of the world, history of western art, and history of Finnish art. Lectures, analysing exercises, independent essays and/or research, visits to exhibitions and museums (independent), and a written test.

Prerequisites: Not Required

HP1017 History of Design, 2 crs/3 ECTS crs

Objectives of the course: The student learns to know,

Fine Arts

recognise, and interpret periods and parts of design, schools, the most remarkable professionals and their production. Focus on pan-European and Finnish design language within applied arts, industry and handicraft.

Contents of the course: The studies are integrated into designing. The periods and features of design, with emphasis on the phenomena of the 20th century.

Prerequisites: Not Required

HP1030 Plastic composition, 3 crs/4,5 ECTS crs

Objectives of the course: The aim is to learn basic skills and concepts of plastic composition and the basics of three-dimensional pictures.

Contents of the course: The shapes of live models, movement and measures are researched by transferring them into clay. The basics of plaster casting are studied. 3-d works are made using different materials. Shape, movement and surface structure are studied; their impressions are discussed.

Prerequisites: Not Required

HP1052 Basics of Design Skill, 6 crs/9 ECTS crs

Objectives of the course: The aim of this workshop is to understand meaning of design skill for creative and sketching process and leaning how to make miniature models, technical basic skills, tools and methods. The students learn during this study unit the basics of design skill and theory and realise tasks from different points of view in artistic design.

Contents of the course: The meaning of theory is to give the student personal, working creative methods and techniques, so that the student will be able to understand his own working process and creative artistic development. The emphasis of theory lies on understanding artistic communication as tool of communication where the artistic message of the producer meets publicity. Theoretic understanding is deepened by comparing the function of fine art and processing of the artist with the function of design and the designer's way to process. The work end expression of the student is developed by means of companion assessment and common conversation and assessment.

Prerequisites: Not Required

HP1078 Painting, 3 crs/4,5 ECTS crs

Objectives of the course: The aim is to study basic skills, knowledge and concepts of painting. By painting objects, live models and environment the student learns perception.

Contents of the course: The study unit contains live model, environment and still life painting with water and cover colour and acryl painting techniques. The stu-

dent independently realises a given task in the class.

Prerequisites: Not Required

PROFESSIONAL STUDIES

HK2137 Planning and Realization of Environmental Project, 4 crs/6 ECTS crs

Objectives of the course: During the study unit a common art event will be planned and realised by the students. Common pieces of space art will be made. Space observation will be learned.

Contents of the course: The aim is to master also the environmental planning laws and basics of environmental psychology. Mastering the design and creative process is emphasised based on project learning. The starting point is the techniques of differentiating techniques.

Prerequisites: Basic Studies

HK2142 Painting Workshop, 4 crs/6 ECTS crs

Objectives of the course: The aim is that student can handle the technical basics of acryl, tempera and oil painting. Student knows how to make a foundation to canvas and develop his own technical know-how in the way of expression and production.

Contents of the course: The study unit contains material knowledge, portrait painting, living model and still life painting, also composition and chromatics are learned.

Prerequisites: Basic Studies

HK2143 Art Graphics Workshop, 4 crs/6 ECTS crs

Objectives of the course: Student learns to know printing techniques and to use them independently manufacturing a graphic print series or a similar wholeness. Learning to design and to set up an art exhibition independently or as a group.

Contents of the course: During the study unit student learns the basics of Non-Toxic gravure printing (metal graphic) and learns to apply different kind of techniques in art.

Prerequisites: Basic Studies

HK2144 Sculpture Workshop, 4 crs/6 ECTS crs

Objectives of the course: The aim is to give student basic knowledge about the materials, work methods, techniques and equipments that are used in sculpture. Student can work independently in workshops. Finding professional identity.

Contents of the course: Student executes a sculpture from different kinds on materials. Getting to know the traditions of the art of sculpture.

Prerequisites: Basic Studies

**HK2235 Manufacturing/Sculpture, 2 crs/
3 ECTS crs**

Objectives of the course: Conceptualisation of ideas and modelling skills are deepened. The goal is that the student will master moulding and casting techniques.

Contents of the course: A piece of art will be made using metal casting technique. At the end of the unit a joint exhibition will be organised. Also picture processing program is used.

Prerequisites: Basic Studies

**HK2236 Manufacturing / Painting, 2 crs/
3 ECTS crs**

Objectives of the course: Ideas and modelling skills are deepened. The student develops his/her own personal expression based on own plans.

Contents of the course: At the end of the unit a joint exhibition. Technical skill of painting is deepened, different technical adaptations. Questions of composition and colour theories are studied using history and culture as starting point.

Prerequisites: Basic Studies

**HK2239 Design and Manufacturing, Art graphics,
2 crs/3 ECTS crs**

Objectives of the course: The aim is that the student masters desing from an idea to a finished work. During the period, an art case or an art book based on a given theme is produced.

Contents of the course: Monotype printing, methods and monumental printing are studied, and the students learn to adapt different techniques together, creative and desing skills are deepened from the point of view of history of printing and culture.

Prerequisites: Basic Studies

**HK2312 Art and Environment / Network publishing,
2 crs/3 ECTS crs**

Objectives of the course: The aim is that the student learns to make homepages to present his/her skill, thoughts, and artistic image.

Contents of the course: This unit ponders the meaning of publicity and the public image of the artist. HTML; the most important commands of HTML and FTP file system are learned. Some aid programmes to be used when making web pages. The aim is that the student learns to make a web page independently. Adobe Golive; during this part controlling www-publishing programme Golive tools and work are learned, and publishing and dating pages.

Prerequisites: Basic Studies

**HK2313 Art and Environment / Production, 9 crs/
13,5 ECTS crs**

Objectives of the course: Pieces of art are designed from the point of view of philosophy and communication. Experimenting and new expression is emphasised in plans.

Contents of the course: Relation between man and nature is the starting point. The tasks study how art can impress environment and its development.

Prerequisites: Basic Studies

HK2408 Designing and Production of Entrepreneur Project, 6 crs/9 ECTS crs

Objectives of the course: The student learns to assess production and activity economically and to find ways of different work as an artist.

Contents of the course: The students plan a project where they use principles of entrepreneurship and calculation of costs. The studies take place in the workshops of fine art. The students learn to assess their own production and activity economically.

Prerequisites: Basic Studies

**HP2201 Paper, Fibres and Experimental Art, 2 crs/
3 ECTS crs**

Objectives of the course: The aim is with different kinds of paper mass, surface and finishing experiments to study visual expressions and functionality as a part of realization of work.

Contents of the course: Different kinds of materials are treated and finished with paint, glue, laminated, printed and assembled different ways.

Prerequisites: Basic Studies

HP2203 History of Modern Art, 1 crs/1,5 ECTS crs

Objectives of the course: The aim is to give a general idea about the development and goals of the latest fine arts. The emphasis is in the art from the 1960s to today.

Contents of the course: The period ponders on the meaning and function of fine arts as part of environmental planning. The period studies how multifaceted and electric means of depicting have changed the meaning and values of art. History of Modern art is part of professional studies where the student's working process turns to part of professional theory.

Prerequisites: History of Art 1

HP2204 History of Design, 1 crs/1,5 ECTS crs

Objectives of the course: To study the connection of pieces of art and design with the periods of design, international phenomena, and their connection with own culture and work.

Fine Arts

Contents of the course: The aim is to critically examine the meaning of art and design as philosophic, psychological, and social cultural phenomena.

Prerequisites: History of Design 1

HP2305 Communication, 1 crs/1,5 ECTS crs

Objectives of the course: The students learn to present their products and knowledge literally, orally and visually.

Contents of the course: Learning of different kinds on communication situations and making of an presentation literally and orally to different target groups.

Prerequisites: Basic Studies

HP2306 Philosophy of Art and Design, 2 crs/3 ECTS crs

Objectives of the course: The students learn to evaluate the meaning of fine art, design and environment critically as a social cultural phenomenon.

Contents of the course: The student is encouraged to ask questions about what fine art and design is, and how they impress in human interaction. Basics of the student's philosophical thinking are considered, and phenomena impressions in making fine art.

Prerequisites: Basic Studies

HP2409 Entrepreneurship, 4 crs/6 ECTS crs

Objectives of the course: Designing and production processes from the point of view of an entrepreneur is learned. The process pays attention to marketing, economic success, and basic questions of law of contract.

Contents of the course: The student makes own business strategy, estimates costs of designing and manufacturing process, makes calculations of profitability and marketing plan. The student learns also regulations and procedures of working life from the point of view of the worker and the employer.

Prerequisites: Not Required

HP2510 Orientation to Professional English, 2 crs/3 ECTS crs

Objectives of the course: The students learn to communicate in social situations and matters of their own education.

Contents of the course: Oral and written exercises concentrating on personal and professional subjects. Group work. Independent homework. The emphasis lies on the communicative side of the language. Written tests.

Prerequisites: English test

HP2511 Professional English for Artists and Designers, 2 crs/3 ECTS crs

Objectives of the course: To learn to search independently professional information and to present it logically both orally and in writing.

Contents of the course: Making either individually or in pairs a portfolio/report based on the information gathered from the Internet and its oral presenting. Pair and group work, listening comprehension exercises.

Prerequisites: English 1

HP2515 Methods of Research 1, 1,5 crs/2,25 ECTS crs

Objectives of the course: Introduction to the research of applied arts, fine arts and design research, and philosophy of science.

Contents of the course: The interests of knowledge and the concept of the features of knowledge, the concept of paradigm theory, and basic concepts of research. Different logical and strategic choices.

Prerequisites: Not Required

HP2516 Methods of Research 2, 1,5 crs/2,25 ECTS crs

Objectives of the course: Student learns to use methods of research in practise.

Contents of the course: Practical research, methods of collecting Information, writing a report and preliminary seminar work. Lectures, work.

Prerequisites: Methods of Research 1

HP2518 Swedish, Social Contacts, 1 crs/1,5 ECTS crs

Objectives of the course: The student can communicate in Swedish.

Contents of the course: Basic study material of the field in Swedish, oral exercises and independent work.

Prerequisites: Preliminary test. The students with a vocational education are recommended to take a repetition course .

HP2519 Professional Swedish for Artists and Designers, 2 crs/3 ECTS crs

Objectives of the course: The student can communicate orally and literally about the current features of the field, and knows professional language of the field.

Contents of the course: Professional language of the field, oral and written works, varying exercises.

Prerequisites: Swedish, Social Contacts

HP2522 Critique Work 1, 1 crs/1,5 ECTS crs

Objectives of the course: Development of the students skills to assess their own and other students artistic production and development.

Contents of the course: The students solve the given problem individually or in a team. Each student assesses another student's work orally and literally. A portfolio is made out of the critique works. The students document their own experience visually and literally and incorporate the phases of design. They also receive written comments from the teacher. Four critique works are done during one study year.

Prerequisites: Basic Studies

HP2523 Critique Work 2, 1 crs/1,5 ECTS crs

Objectives of the course: Development of the students skills to assess their own and other students artistic production and development. The students solve the given problem individually or in a team. Each student assesses another student's work orally and literally.

Contents of the course: A portfolio is made out of the critique works. The students document their own experience visually and literally and incorporate the phases of design. They also receive written comments from the teacher. Four critique works are done during one study year.

Prerequisites: Basic Studies

HP2620 Project Planning and Management, 2 crs/3 ECTS crs

Objectives of the course: The student learns product development processes, network structures and networking.

Contents of the course: Project planning, financing systems, scheduling, managing and documenting are learned.

Prerequisites: Basic and Professional Studies

HP2621 Project Realising, 10 crs/15 ECTS crs

Objectives of the course: Student learns to realise a multidisciplinary or artistic and technical project.

Contents of the course: A multidisciplinary or artistic and technical project is realised. During the project, the student becomes acquainted with network and teamwork.

Prerequisites: Basic and professional studies

PRACTICAL TRAINING**HP4221 Practical Training, 20 crs/30 ECTS crs**

Objectives of the course: The aim of the module is to get practical experience in the student's own field.

Contents of the course: During orientation training, students become acquainted with the tasks and conditions of their own field. The training place must always be accepted by the degree programme.

Prerequisites: Basic Studies

THESIS**HP4230 Thesis, 10 crs/15 ECTS crs**

Objectives of the course: The final paper proves the professional maturity of the student and ability to independent, researching work in the central or specially problematic field of his/her own study area. It is an individual proof of the student's own field, or multidisciplinary work. It can also be a common project of two or more students. Everybody's individual part must be visible.

Contents of the course: The final paper is assessed in a public seminar, where the students, the opponent and tutors assess the work including processes.

Prerequisites: Basic and Professional studies

Elective studies**HP1032 Basics of Prototype workshop 1, 3 crs/4,5 ECTS crs**

Objectives of the course: The student learns to work in a goal-directed way in different phases of work including work safety, equipment, machinery, tools and maintenance.

Contents of the course: Correct working techniques and ways of working are learned. Professional vocabulary and concepts. Model Worksp Passport.

Prerequisites: Not Required

HP1034 Basics of Prototype Workshop, 6 crs/9 ECTS crs

Objectives of the course: The goal of this course is to expand the student's knowledge of building models. Experiments with materials, combinations of materials, proper working methods and safety.

Contents of the course: Manufacturing a product, designed and visualised during the Basics of design skill.

Prerequisites: Basics of Prototype Workshop 1

HP1035 Fibre studio 2, 3 crs/4,5 ECTS crs

Objectives of the course: The students learn about the fields of fashion and sewing.

Contents of the course: Students are guided to work in teams and projects in a purposeful way in different working phases

Prerequisites: Basics of Design Skill, Fibre studio 1

Fine Arts

HP1039 Sculpture Workshop, 3 crs/4,5 ECTS crs

Objectives of the course: Dialogue between the shape, space and material is studied with live model.

Contents of the course: Model working, different kinds of castings.

Prerequisites: Not Required

HP1053 Fibre studio 1, 3 crs/4,5 ECTS crs

Objectives of the course: The unit gives basic readiness to work in the workshops following safety rules.

Contents of the course: Concepts and vocabulary of the fibre field are studied, as using materials in different painting, dyeing, finishing and sewing methods.

Prerequisites: Not Required

HP1060 Art Graphics, 3 crs/4,5 ECTS crs

Objectives of the course: The student learns a universal idea of the methods and possibilities of art graphics, and about the history of the printed image, book printing in relation to the more common art history.

Contents of the course: The unit supports the student in his/her choice of studies. Basics of wood print are learned. Motifs are given the students. The students learn to independent work and techniques, equipment, materials and ergonomics.

Prerequisites: Not Required

HP2501 Croques drawing 1, 2 crs/3 ECTS crs

Objectives of the course: Observing and drawing live human model.

Contents of the course: The aim is to observe and draw shape, movement and rhythm quickly.

Prerequisites: Basic Studies

HP2506 Drawing, 2 crs/3 ECTS crs

Objectives of the course: The aim is to support the student's drawing skills with different tasks.

Contents of the course: The students learn to observe, draw and express themselves with different drawing methods and techniques.

Prerequisites: Basic Studies

HP2507 CNC -Programming, 2 crs/3 ECTS crs

Objectives of the course: The aim is to deepen 3D-design skills with different kinds of Cad- and Cam-programmes

Contents of the course: During the study unit student learns the use of CNC - machine tool and gets to know the possibilities that the machine offers. Student learns realisation of different kinds of machine tooling lanes with CAM-programmes. The products are visualised and elucidated with computer.

Prerequisites: Tecnical Documentation, 3D-Design

HP2509 Model Drawing and Painting, 2 crs / 3 ECTS crs

Objectives of the course: Expression through drawing and painting, maintaining observation skills.

Contents of the course: Observation training is drawn and painted with different means. The students produces an presentation portfolio of the works. The unit is realised during the 2nd, 3rd and 4th year of studies.

Prerequisites: Basic Studies

HP2537 Advanced Special Studies of Design Programs, 2 crs/3 ECTS crs

Objectives of the course: The aim is to deepen the computing skills needed in textile and cloth design.

Contents of the course: Content is to repeat and deepen the capacity and possibilities of PrimaVision. Phos-hop and Freehand programmes in textile and cloth design and presentation. During the study unit presentation technical practises are realised.

Prerequisites: Basic Studies, Computer aided design

DEGREE PROGRAMME IN DESIGN

General Aims

The degree programmes for fine art and design work in close co-operation and the degree programmes have common study modules. The degree Programme for Fine Art (HK), and the degree programme for Design (HM) lead for the degree of culture. Both lead to a degree as Bachelor of Visual and Media Arts: a degree of Fine Art as a visual artist, (160 Finnish opintoviikko ov = 240 ECTS credit units) and a degree of Design as a craftsman-designer, (160 = 240 ECTS credit units). The degree is expressed as credit units (cu), which may be completed in approximately four years.

Structure and syllabus of the studies

THE DEGREE PROGRAMME FOR DESIGN

240 ECTS CREDIT UNITS (CU)

160 CREDITS (10 ov)

FINAL PAPER 15 ECTS CU (10 ov)

PRACTICAL TRAINING 30 ECTS CU (20 ov)

OPTIONAL COURSES 15 ECTS CU (10 ov)

SPECIALISED PROFESSIONAL STUDIES

120 ECTS CU (80 ov) HP21 Art and manufacturing

HP22 Art and Culture

HP23 Art, environment and communication

HP24 Art and entrepreneurship

Development of professional skill and research

Project studies

BASIC STUDIES 60 ECTS CU (40 ov)

Orientative basic studies

Module: Visual communication

Module: Design and workshops

Orientation options / Elective studies

The main alternatives of fine art are painting, sculpture, and printing (art graphics). The main alternatives in design are Design of hard materials, and Fibre, including textile and clothing design. Given the commonalities of these two areas, the goal of the degree programme is to integrate the education of Fine Art and Design. Strong knowledge and experience in both fields yield unique, innovative degree programmes on the national Educational and active co-operation between Fine Art, Design and Communication brings new entrepreneurship and knowledge into the province. Development focuses on professional activity and networking in close co-operation with the Service Resource Centre. Internal co-operation within the Polytechnic provides a field for early practical work and experience for the future in the international fields.

Adult Education leading to the Degree

It is possible to complete the previous professional certification or some other diploma into the Polytechnic Degree for Design by developing professional readiness and by adopting researching working method at development of the own professional field. Language and communication studies, project work, and the thesis are emphasized by side of the professional studies. The Degree is called Polytechnic Degree of Culture, designer (Polytechnic level). The degree takes 160 Finnish credits (240 ECTS credit units). The completing or distinctive studies take at least 40 Finnish credits (60 ECTS credit units). The studies consist of day studies. A personal study plan is based on the degree curriculum, and it is made in cooperation with the student. This study plan takes into consideration earlier studies at the colleges, studies at higher institutions, and domestic and international work practice.

Design

BASIC STUDIES	Code	1. year	2. year	3. year	4. year
Orientative Studies	HP01				
Orientation into studies	HP1008	1	0	0	0
Basics for searching knowledge	HP1002	1	0	0	0
Basics of computing	HP1005	1	0	0	0
Individual development	HP1006	2	0	0	0
Visual Communication	HP02				
Interaction of Colours - Colour, Shape, Space	HP1009	2	0	0	0
Painting	HP1078	3	0	0	0
Plastic composition	HP1030	3	0	0	0
Spatial and Environmental Art (Public Art)	HP1012	2	0	0	0
Graphic Design	HP1014	4	0	0	0
Photography	HP1015	2	0	0	0
History of Art	HP1016	2	0	0	0
History of Design	HP1017	2	0	0	0
Design and Workshops	HP03				
Basics of Design Skill	HP1052	6	0	0	0
PROFESSIONAL STUDIES					
Entrepreneurship	HM24				
Entrepreneurship	HP2409	0	0	4	0
Entrepreneurship training	HM2416	0	0	6	0
Developing Professional Skills and Research	HP25				
Orientation to Professional English	HP2510	0	2	0	0
Professional English for Artists and Designers	HP2511	0	2	0	0
Methods of Research 1	HP2515	0	0	1.5	0
Methods of Research 2	HP2516	0	0	1.5	0
Swedish, Social Contacts	HP2518	0	0	1	0
Professional Swedish for Artists and Designers	HP2519	0	0	2	0
Critique Work 1	HP2522	0	0	1	0
Critique Work 2	HP2523	0	0	0	1
Project Studies	HP26				
Project Planning and Management	HP2620	0	0	0	2
Project Realising	HP2621	0	0	0	10
STUDIES OF THE ORIENTATION OPTION		0	26	14	0
Textile Design					
Material Knowledge	HM25				
Design	HM211				
Designing Printed Cloth	HM2158	0	2	0	0
Computer Aided Design	HM2159	0	2	0	0
Material Theory	HM2156	0	3	0	0
Textile Design 1	HM2154	0	2	0	0
Modelling	HM212				
Cloth dyeing and cloth printing/modelling	HM2157	0	3	0	0
Textile technique	HM2138	0	4	0	0
Visuality	HM26				
Professional History	HM2216	0	1	0	0
History of Modern Art	HP2203	0	1	0	0
History of Design	HP2204	0	1	0	0
Paper, Fibres and Experimental Art	HP2201	0	2	0	0
Computer Aided Presentation Techniques	HM2252	0	1	0	0
Textile Design 2	HM2217	0	1	0	0
Textile Technique 2	HM2219	0	3	0	0

Customer Orientation	HM27				
Communication	HP2305	0	0	1	0
Philosophy of Art and Design	HP2306	0	0	2	0
Production planning	HM2322	0	0	2	0
Manual Presentation Techniques	HM2333	0	0	1	0
Textile design	HM2324	0	0	4	0
Textile technique 3	HM2326	0	0	4	0
Industrial Design					
Module Furniture Design	HM21				
Furniture design	HM2122	0	3	0	0
Production planning	HM2109	0	2	0	0
Technical documentation	HM2133	0	4	0	0
Prototype workshop 1	HM2124	0	7	0	0
Module Stone Product Design	HM22				
History of Modern Art	HP2203	0	1	0	0
History of Design	HP2204	0	1	0	0
Design	HM2204	0	2	0	0
3D -design	HM2207	0	2	0	0
Stone materials	HM2208	0	1	0	0
Prototype workshop 2	HM2209	0	3	0	0
Module Industrial Design	HM23				
Communication	HP2305	0	0	1	0
Philosophy of Art and Design	HP2306	0	0	2	0
Design	HM2301	0	0	4	0
Prototype workshop 3	HM2314	0	0	3	0
Model workshop of industrial design	HM2312	0	0	2	0
Product testing	HM2310	0	0	1	0
Plastic materials	HM2311	0	0	1	0
Cloth Design					
Material Knowledge	HM25				
Design.	HM211				
Designing Printed Cloth	HM2158	0	2	0	0
Computer Aided Design	HM2159	0	2	0	0
Material Theory	HM2156	0	3	0	0
Clothing Design 1	HM2155	0	2	0	0
Modelling.	HM212				
Cloth dyeing and cloth printing/modelling	HM2157	0	3	0	0
Clothing 1	HM2139	0	4	0	0
Visuality/Cloth Design	HM26				
Professional History	HM2216	0	1	0	0
History of Modern Art	HP2203	0	1	0	0
History of Design	HP2204	0	1	0	0
Paper, Fibres and Experimental Art	HP2201	0	2	0	0
Computer Aided Presentation Techniques	HM2252	0	1	0	0
Clothing Design 2	HM2218	0	1	0	0
Clothing 2	HM2251	0	3	0	0
Customer Orientation/Cloth Design	HM27				
Communication	HP2305	0	0	1	0
Philosophy of Art and Design	HP2306	0	0	2	0
Production planning	HM2322	0	0	2	0
Manual Presentation Techniques	HM2333	0	0	1	0

Design

Clothing Design 3	HM2328	0	0	4	0
Clothing 3	HM2329	0	0	4	0
Elective studies		9	3	2	1
Basics of Prototype workshop 1	HP1032	3	0	0	0
Fibre studio 1	HP1053	3	0	0	0
Basics of Prototype Workshop	HP1034	6	0	0	0
Fibre studio 2	HP1035	3	0	0	0
Sculpture Workshop	HP1039	3	0	0	0
Art Graphics	HP1060	3	0	0	0
Croques drawing 1	HP2501	0	2	0	0
Drawing	HP2506	0	0	2	0
Model Drawing and Painting	HP2509	0	0	0	2
CNC -Programming	HP2507	0	2	0	0
Advanced Special Studies of Design Programs	HP2537	0	2	0	0
OPTIONAL STUDIES		0	5	5	0
PRACTICAL TRAINING		0	2	3	15
Practical Training	HP4221	0	0	20	0
THESIS		0	0	0	10
Thesis	HP4230	0	0	0	10

BASIC STUDIES

HP1002 Basics for searching knowledge, 1 crs/ 1,5 ECTS crs

Objectives of the course: The students learn to search information independently.

Contents of the course: The students get acquainted with the files of the library and the use of the library. They learn to use the Internet.

Prerequisites: Not Required

HP1005 Basics of computing, 1 crs/1,5 ECTS crs

Objectives of the course: The student reaches the basic skills of computing and the control of basic programmes, text processing, picture processing, learns concepts of the field and working principles and adapts his/her skills during whole education in different works.

Contents of the course: Text processing, picture processing, excel-programme and control of the equipment and the file.

Prerequisites: not required

HP1006 Individual development, 2 crs/3 ECTS crs

Objectives of the course: The student will learn a practise to follow his/her professional development and to influence on it.

Contents of the course: Different methods of assessment will be studied, as sample file, learning briefcase, process file, file of growth, self-assessment etc. The student makes a portfolio of each course of his/her professional studies proving the progress of skill and studies. The portfolio is closely linked with tutoring, critique practises and final paper. Lectures, independent and guided work.

Prerequisites: Not Required

HP1008 Orientation into studies, 1 crs/ 1,5 ECTS crs

Objectives of the course: Learning to know the multi-disciplinary North Karelia Polytechnic and how to study at NCP. Learning to know the working environments.

Contents of the course: The students start to make a personal study plan.

Prerequisites: not required

HP1009 Interaction of Colours - Colour, Shape, Space, 2 crs/3 ECTS crs

Objectives of the course: Interaction of colours and the relation of the colour into shape and place is studied.

Contents of the course: This study unit contains lear-

ning material and works that are to be found on the home pages of the degree programmes of fine arts and design.

Prerequisites: not required

HP1012 Spatial and Environmental Art (Public Art), 2 crs/3 ECTS crs

Objectives of the course: The aim is to research the features of manufactured and natural environments as a starting point of art. Colour, shape and space impression. The past, the purpose and the users of the object are researched.

Contents of the course: The student plans and realises a piece of art into a public building, built and natural environment. Attendance, assignments, and self-assessment. The student makes a presentation portfolio of his/her developing process.

Prerequisites: Not Required

HP1014 Graphic Design, 4 crs/6 ECTS crs

Objectives of the course: Students learn the proportions of the picture and the text making invitation cards, brochures and posters.

Contents of the course: Working with word processing and graphics programmes. Presentation of the works, common critique.

Prerequisites: Not Required

HP1015 Photography, 2 crs/3 ECTS crs

Objectives of the course: The use of the camera is emphasised as a means of documentation and reports.

Contents of the course: The work is directed into one's own artistic production process for describing and reporting one's own experiences.

Prerequisites: Not Required

HP1016 History of Art, 2 crs/3 ECTS crs

Objectives of the course: The student learns the basic history of western art and becomes familiar with fine art of some cultures outside Europe. The students learn to analyse works of art as products of their own era, to adapt the history of art in their own work and to understand the impression of international art on national culture.

Contents of the course: This course includes art history of the world, history of western art, and history of Finnish art. Lectures, analysing exercises, independent essays and/or research, visits to exhibitions and museums (independent), and a written test.

Prerequisites: Not Required

Design

HP1017 History of Design, 2 crs/3 ECTS crs

Objectives of the course: The student learns to know, recognise, and interpret periods and parts of design, schools, the most remarkable professionals and their production. Focus on pan-European and Finnish design language within applied arts, industry and handicraft.

Contents of the course: The studies are integrated into designing. The periods and features of design, with emphasis on the phenomena of the 20th century.

Prerequisites: Not Required

HP1030 Plastic composition, 3 crs/4,5 ECTS crs

Objectives of the course: The aim is to learn basic skills and concepts of plastic composition and the basics of three-dimensional pictures.

Contents of the course: The shapes of live models, movement and measures are researched by transferring them into clay. The basics of plaster casting are studied. 3-d works are made using different materials. Shape, movement and surface structure are studied; their impressions are discussed.

Prerequisites: Not Required

HP1052 Basics of Design Skill, 6 crs/9 ECTS crs

Objectives of the course: The aim of this workshop is to understand meaning of design skill for creative and sketching process and leaning how to make miniature models, technical basic skills, tools and methods. The students learn during this study unit the basics of design skill and theory and realise tasks from different points of view in artistic design.

Contents of the course: The meaning of theory is to give the student personal, working creative methods and techniques, so that the student will be able to understand his own working process and creative artistic development. The emphasis of theory lies on understanding artistic communication as tool of communication where the artistic message of the producer meets publicity. Theoretic understanding is deepened by comparing the function of fine art and processing of the artist with the function of design and the designer's way to process. The work end expression of the student is developed by means of companion assessment and common conversation and assessment.

Prerequisites: Not Required

HP1078 Painting, 3 crs/4,5 ECTS crs

Objectives of the course: The aim is to study basic skills, knowledge and concepts of painting. By painting objects, live models and environment the student learns perception.

Contents of the course: The study unit contains live model, environment and still life painting with water and cover colour and acryl painting techniques. The student independently realises a given task in the class.

Prerequisites: Not Required

PROFESSIONAL STUDIES

HM2416 Entrepreneurship training, 6 crs/9 ECTS crs

Objectives of the course: The study unit is based on commissions and concentrates on learning different development phases of entrepreneurship. The studies are taken in the D'art Design Resource Centre. The enterprise training is integrated with model workshops, graphic design and project studies based on the situation.

Contents of the course: The study unit includes space design, working with companies, creating contacts with customers, and negotiations. Passing this unit means commitment to the projects and e.g. Fair construction, co-ordinating the co-operation with customers, and readiness to work at flexible times. The studies are taken in the D'art Design Resource Centre. The student has a possibility to start his/her entrepreneurship in the premises of Dart which give him/her a possibility to develop own products and modelling own business. When assessing, self-guidance, total control of production process and communication skills are essential. The process is followed and guided at regular intervals in guidance sessions.

Prerequisites: Not Required

HP2409 Entrepreneurship, 4 crs/6 ECTS crs

Objectives of the course: Designing and production processes from the point of view of an entrepreneur is learned. The process pays attention to marketing, economic success, and basic questions of law of contract.

Contents of the course: The student makes own business strategy, estimates costs of designing and manufacturing process, makes calculations of profitability and marketing plan. The student learns also regulations and procedures of working life from the point of view of the worker and the employer.

Prerequisites: Not Required

HP2510 Orientation to Professional English, 2 crs/3 ECTS crs

Objectives of the course: The student is able to use English in various social situations. He/she learns the basic professional vocabulary.

Contents of the course: Cases and role play in different communicational situations. Listening comprehension tasks. Elaboration of professional texts. Oral presentations. Use of Internet.

Prerequisites: English test

HP2511 Professional English for Artists and Designers, 2 crs/3 ECTS crs

Objectives of the course: To learn to search independently professional information and to present it logically both orally and in writing.

Contents of the course: Making either individually or in pairs a portfolio/report based on the information gathered from the Internet and its oral presenting. Pair and group work, listening comprehension exercises.

Prerequisites: English 1

HP2515 Methods of Research 1, 1,5 crs/ 2,25 ECTS crs

Objectives of the course: Introduction to the research of applied arts, fine arts and design research, and philosophy of science.

Contents of the course: The interests of knowledge and the concept of the features of knowledge, the concept of paradigm theory, and basic concepts of research. Different logical and strategic choices.

Prerequisites: Not Required

HP2516 Methods of Research 2, 1,5 crs/ 2,25 ECTS crs

Objectives of the course: Student learns to use methods of research in practise.

Contents of the course: Practical research, methods of collecting Information, writing a report and preliminary seminar work. Lectures, work.

Prerequisites: Methods of Research 1

HP2518 Swedish, Social Contacts, 1 crs/ 1,5 ECTS crs

Objectives of the course: The student can communicate in Swedish.

Contents of the course: Basic study material of the field in Swedish, oral exercises and independent work.

Prerequisites: Preliminary test. The students with a vocational education are recommended to take a repetition course .

HP2519 Professional Swedish for Artists and Designers, 2 crs/3 ECTS crs

Objectives of the course: The student can communicate orally and literally about the current features of the field, and knows professional language of the field.

Contents of the course: Professional language of the field, oral and written works, varying exercises.

Prerequisites: Swedish, Social Contacts

HP2522 Critique Work 1, 1 crs/1,5 ECTS crs

Objectives of the course: Development of the students skills to assess their own and other students artistic production and development.

Contents of the course: The students solve the given problem individually or in a team. Each student assesses another student´s work orally and literally. A portfolio is made out of the critique works. The students document their own experience visually and literally and incorporate the phases of design. They also receive written comments from the teacher. Four critique works are done during one study year.

Prerequisites: Basic Studies

HP2523 Critique Work 2, 1 crs/1,5 ECTS crs

Objectives of the course: Development of the students skills to assess their own and other students artistic production and development. The students solve the given problem individually or in a team. Each student assesses another student´s work orally and literally.

Contents of the course: A portfolio is made out of the critique works. The students document their own experience visually and literally and incorporate the phases of design. They also receive written comments from the teacher. Four critique works are done during one study year.

Prerequisites: Basic Studies

HP2620 Project Planning and Management, 2 crs/ 3 ECTS crs

Objectives of the course: The student learns product development processes, network structures and networking.

Contents of the course: Project planning, financing systems, scheduling, managing and documenting are learned.

Prerequisites: Basic and Professional Studies

HP2621 Project Realising, 10 crs/15 ECTS crs

Objectives of the course: Student learns to realise a multidisciplinary or artistic and technical project.

Contents of the course: A multidisciplinary or artistic and technical project is realised. During the project, the student becomes acquainted with network and teamwork.

Prerequisites: Basic and professional studies

Design

HM2109 Production planning, 2 crs/3 ECTS crs

Objectives of the course: Controlling the production process is emphasized.

Contents of the course: Timing, purchasing of materials, packaging, transport automation. Visits to companies.

Prerequisites: Basic Studies

HM2122 Furniture design, 3 crs/4,5 ECTS crs

Objectives of the course: The unit concentrates on designing a piece of furniture of wooden material. In addition to wood, other materials can be used. The meaning of ergonomic and structural solutions in designing and manufacturing the furniture is emphasized.

Contents of the course: Exercise is done together with all design students. Also a product design project is done together with D'art Design resource Centre.

Prerequisites: Basic Studies, Basics of Proto workshop

HM2124 Prototype workshop 1, 7 crs/10,5 ECTS crs

Objectives of the course: The aim is to produce a prototype of a piece of furniture whose main material is wood or wood based processed material.

Contents of the course: The students learn about different techniques of manufacturing and structures that can be adopted in wooden, metal and stone materials. The student knows the basic features of wooden materials and wood based processed materials, and recognizes domestic species of wood. He can also use glues and surface finishing treatments in a right way and following the safety regulations.

Prerequisites: Basics of Prototype workshop 1

HM2133 Technical documentation, 4 crs/6 ECTS crs

Objectives of the course: To give deepening knowledge of demonstration methods of design.

Contents of the course: The unit contains technical drawing and deepening perspective drawing and the basic course of CAD drawing.

Prerequisites: Basic Studies

HM2138 Textile technique, 4 crs/6 ECTS crs

Objectives of the course: The aim is to study different weaves and materials in textile structures.

Contents of the course: The emphasis is in experimental work. Computer aided programmes are used.

Prerequisites: Basic Studies

HM2139 Clothing 1, 4 crs/6 ECTS crs

Objectives of the course: The aim is to give the student good basic knowledge of professional theory of

clothing field.

Contents of the course: The students learn professional terminology of clothing, measurement systems of ladies wear, pattern, pattern altering, manufacturing process of the garment, technical structures and drawing with Grafix -programme. Exercise and small collections of outfits.

Prerequisites: Basic Studies

HM2154 Textile Design 1, 2 crs/3 ECTS crs

Objectives of the course: The starting point of work is colour, surfaces and materials.

Contents of the course: Design is made manually and with computer aided programmes.

Prerequisites: Basic Studies

HM2155 Clothing Design 1, 2 crs/3 ECTS crs

Objectives of the course: The basics of clothing design are studied.

Contents of the course: Models, collections are designed for chosen target groups.

Prerequisites: Basic Studies

HM2156 Material Theory, 3 crs/4,5 ECTS crs

Objectives of the course: The student learns to know manufacturing and finishing processes of different fibres, yarns and fabrics.

Contents of the course: Different material mixtures and their properties are learned through experimental processes and tests.

Prerequisites: Not Required

HM2157 Cloth dyeing and cloth printing/modeling, 3 crs/4,5 ECTS crs

Objectives of the course: The aim is to learn the basic techniques of dyeing.

Contents of the course: The student gets familiar with dyeing cellulose fibres and protein fibres, using reactive and acid colours, cold/hot dyeing and dip/stoppage methods. When printing, the aim is to learn the basic techniques of cloth printing. The student gets familiar with pigment printing, reactive and reactive-reserve printing, etching and exposure methods.

Prerequisites: Fibre studio 1 and Designing printed cloth

HM2158 Designing Printed Cloth, 2 crs/3 ECTS crs

Objectives of the course: Manual designing process is learned during the study unit.

Contents of the course: Designing a Printed Cloth from given subject.

Prerequisites: Basic Studies

HM2159 Computer Aided Design, 2 crs/3 ECTS crs

Objectives of the course: CAD designing process are learned during the study unit.

Contents of the course: When planning print reports and colour ranges, the design program Primavision is used.

Prerequisites: Basic Studies

HM2204 Design, 2 crs/3 ECTS crs

Objectives of the course: Objectives of the course: Anything man has made or toughs of culture, and each product originates from socio-cultural factors linked with time, place, and group. The starting point of textile design is different cultural elements from different periods of culture and traditions, different areas of culture etc.

Contents of the course: The cultural message and the function of the product in different meanings and contexts are studied. Before designing the product, some original cultural context is learned, about which the students try to find information and write a report. With this research the culture is brought into the current product.

Prerequisites: Proto workshops

HM2207 3D -design, 2 crs/3 ECTS crs

Objectives of the course: The aim is to learn the use of 3D-programmes

Contents of the course: Based on the design studies, the student draws surface or space models and visualises them with different computer programs.

Prerequisites: Technical documentation

HM2208 Stone materials, 1 crs/1,5 ECTS crs

Objectives of the course: Student knows the most common minerals and stones and knows how to make choose a material in stone design.

Contents of the course: Basics of geology and mineralogy, recognising minerals and stone qualities, choice, purchasing and use of construction stone, chemical and physical properties of stone. Testing stone materials, cleaning and servicing stone products.

Prerequisites: Basic studies

HM2209 Prototype workshop 2, 3 crs/4,5 ECTS crs

Objectives of the course: Based on the studies of design and modelling.

Contents of the course: Maquettes and miniature models are made using stone, wooden, metal and plastics materials.

Prerequisites: Prototype workshop 1

HM2216 Professional History, 1 crs/1,5 ECTS crs

Objectives of the course: During the study unit students learn international history of textile and clothing.

Contents of the course: During the study unit students learn international history of textile and clothing.

Prerequisites: Not Required

HM2217 Textile Design 2, 1 crs/1,5 ECTS crs

Objectives of the course: Shape and structure are studied, and their visual character.

Contents of the course: The base of design is the knowledge about the backgrounds of the history of textile and clothing. This knowledge is adapted into current social and cultural environment.

Prerequisites: Basic Studies, Textile Design 1

HM2218 Clothing Design 2, 1 crs/1,5 ECTS crs

Objectives of the course: The aim is to get acquainted wider than during the previous study unit with different clothing and model collections.

Contents of the course: The influence of the fashion and the tradition are taken into consideration.

Prerequisites: Basic Studies, Cloth Design 1

HM2219 Textile Technique 2, 3 crs/4,5 ECTS crs

Objectives of the course: The aim is to get acquainted with the structural properties and the appearance of woven cloth based on a design task.

Contents of the course: The emphasis is on the surface and visual look of the fabric.

Prerequisites: Textile technique 1

HM2251 Clothing 2, 3 crs/4,5 ECTS crs

Objectives of the course: The aim of the unit is to learn professional theory of clothing wider, and details of the garments to be made.

Contents of the course: Work in customer-based projects.

Prerequisites: Clothing 1

HM2252 Computer Aided Presentation Techniques, 1 crs/1,5 ECTS crs

Objectives of the course: The study unit concentrates on producing presentation pictures.

Contents of the course: Producing presentation pictures for the specialisation field using adaptable modelling and image processing computer programs. This is joined with design tasks.

Prerequisites: Basic studies

Design

HM2301 Design, 4 crs/6 ECTS crs

Objectives of the course: The functions of products are studied from the point of view of the needs of different groups of customers. The ability of the product to satisfy the consumer's material and symbolic values and to communicate wanted things as the image of the company is studied.

Contents of the course: The emphasis of design is in the product designed for industry. The aim is to create connections with industrial companies and to study the chain from a design into an industrial product.

Prerequisites: Basic Studies and 2nd year Professional Studies

HM2310 Product testing, 1 crs/1,5 ECTS crs

Objectives of the course: The aim of the unit is to get acquainted with standards, norms, and legislation of product testing.

Contents of the course: The working environment is the product-testing laboratory of the Learning Centres.

Prerequisites: Basic Studies, 2nd year Professional Studies

HM2311 Plastic materials, 1 crs/1,5 ECTS crs

Objectives of the course: The student gets familiar with plastic materials and their possibilities in industrial products.

Contents of the course: Get to know the most common plastic materials, their quality and use

Prerequisites: Basic Studies, 2nd year Professional Studies

HM2312 Model workshop of industrial design, 2 crs/3 ECTS crs

Objectives of the course: The student learns to work in the workshops from the point of view of an co-operation company.

Contents of the course: Skills of ergonomics, furniture building, and different materials are deepened. Visual expression, packaging planning, and building the product aims at the quality demanded by industry taking into consideration different surface finishing methods.

Prerequisites: Basic Studies, 2nd year Professional Studies

HM2314 Prototype workshop 3, 3 crs/4,5 ECTS crs

Objectives of the course: The emphasis of the workshops is closely connected with the demands of industrial co-operation.

Contents of the course: The works are made in the workshops using many materials. Visits to companies, lectures by experts, and feedback is included.

Prerequisites: Basic Studies, 2nd year Professional Studies

HM2322 Production planning, 2 crs/3 ECTS crs

Objectives of the course: The aim is to get acquainted with planning the production at a small or medium-sized company. Visits to the companies of textile and clothing field are joined to the study unit.

Contents of the course: The aim is to get acquainted with planning the production at a small or medium-sized company. Visits to the companies of textile and clothing field are joined to the study unit.

Prerequisites: Basic Studies

HM2324 Textile design, 4 crs/6 ECTS crs

Objectives of the course: The starting point is different cultural references. When designing, the customer based design is pondered, background information is looked after, team work methods are learned.

Contents of the course: The students learn to create demonstrative material and presentation pictures to be shown to the customer.

Prerequisites: Basic Studies

HM2326 Textile technique 3, 4 crs/6 ECTS crs

Objectives of the course: Collections or products for small industry connected with commissions are made, and usability of materials is tested.

Contents of the course: Collections or products for small industry connected with commissions are made, and usability of materials is tested.

Prerequisites: Basic Studies, 2nd year Professional Studies

HM2328 Clothing Design 3, 4 crs/6 ECTS crs

Objectives of the course: The students learn with the customer oriented design aspects for people with special needs.

Contents of the course: Marketing, commerce, and production as part of designing process are learned. Design skill is widened with presenting mode drawings manually and with the computer.

Prerequisites: Cloth Design 1 and 2

HM2329 Clothing 3, 4 crs/6 ECTS crs

Objectives of the course: The aim is to study professional and technical special features connected with clothing for people with special needs.

Contents of the course: Work in commission based projects.

Prerequisites: Clothing 1 and 2

HM2333 Manual Presentation Techniques, 1 crs/1,5 ECTS crs

Objectives of the course: The aim is to learn to use different kinds of manual equipments and techniques that are needed to manufacture a sketch.

Contents of the course: With exercises the use of pencil, drawing ink, coloured pencil, watercolours, pastel and wax chalk are trained to picture a human and different kinds of materials. Making a portfolio.

Prerequisites: Basic Studies, 2nd year Professional Studies

HP2201 Paper, Fibres and Experimental Art, 2 crs/3 ECTS crs

Objectives of the course: The aim is with different kinds of paper mass, surface and finishing experiments to study visual expressions and functionality as a part of realization of work.

Contents of the course: Different kinds of materials are treated and finished with paint, glue, laminated, printed and assembled different ways.

Prerequisites: Basic Studies

HP2203 History of Modern Art, 1 crs/1,5 ECTS crs

Objectives of the course: The aim is to give a general idea about the development and goals of the latest fine arts. The emphasis is in the art from the 1960s to today.

Contents of the course: The period ponders on the meaning and function of fine arts as part of environmental planning. The period studies how multifaceted and electric means of depicting have changed the meaning and values of art. History of Modern art is part of professional studies where the student's working process turns to part of professional theory.

Prerequisites: History of Art 1

HP2204 History of Design, 1 crs/1,5 ECTS crs

Objectives of the course: To study the connection of pieces of art and design with the periods of design, international phenomena, and their connection with own culture and work. **Contents of the course:** The aim is to critically examine the meaning of art and design as philosophical, psychological, and social cultural phenomena.

Prerequisites: History of Design 1

HP2305 Communication, 1 crs/1,5 ECTS crs

Objectives of the course: The student learns to present their products and knowledge literally, orally and visually.

Contents of the course: Learning of different kinds on communication situations and making of an presentation literally and orally to different target groups.

Prerequisites: Basic Studies

HP2306 Philosophy of Art and Design, 2 crs/3 ECTS crs

Objectives of the course: The students learn to evaluate the meaning of fine art, design and environment critically as a social cultural phenomenon.

Contents of the course: The student is encouraged to ask questions about what fine art and design is, and how they impress in human interaction. Basics of the student's philosophical thinking are considered, and phenomena impressions in making fine art.

Prerequisites: Basic Studies

PRACTICAL TRAINING**HP4221 Practical Training, 20 crs/30 ECTS crs**

Objectives of the course: The aim of the module is to get practical experience in the student's own field.

Contents of the course: During orientation training, students become acquainted with the tasks and conditions of their own field. The training place must always be accepted by the degree programme.

Prerequisites: Basic Studies

THESIS**HP4230 Thesis, 10 crs/15 ECTS crs**

Objectives of the course: The final paper proves the professional maturity of the student and ability to independent, researching work in the central or specially problematic field of his/her own study area. It is an individual proof of the student's own field, or multidisciplinary work. It can also be a common project of two or more students. Everybody's individual part must be visible.

Contents of the course: The final paper is assessed in a public seminar, where the students, the opponent and tutors assess the work including processes.

Prerequisites: Basic and Professional studies

Elective studies**HP1032 Basics of Prototype workshop 1, 3 crs/4,5 ECTS crs**

Objectives of the course: The student learns to work in a goal-directed way in different phases of work including work safety, equipment, machinery, tools and maintenance.

Contents of the course: Correct working techniques and ways of working are learned. Professional vocabulary and concepts. Model Workshop Passport.

Prerequisites: Not Required

Design

HP1034 Basics of Prototype Workshop, 6 crs/9 ECTS crs

Objectives of the course: The goal of this course is to expand the student's knowledge of building models. Experiments with materials, combinations of materials, proper working methods and safety.

Contents of the course: Manufacturing a product, designed and visualised during the Basics of design skill.

Prerequisites: Basics of Prototype Workshop 1

HP1035 Fibre studio 2, 3 crs/4,5 ECTS crs

Objectives of the course: Student's material and expressional know-how of the fibre field are deepened and widened.

Contents of the course: A whole created, during the unit, is made using a team and project working method. The process is gathered into a portfolio.

Prerequisites: Fibre studio 2

HP1039 Sculpture Workshop, 3 crs/4,5 ECTS crs

Objectives of the course: Dialogue between the shape, space and material is studied with live model.

Contents of the course: Model working, different kinds of castings.

Prerequisites: Not Required

HP1053 Fibre studio 1, 3 crs/4,5 ECTS crs

Objectives of the course: The unit gives basic readiness to work in the workshops following safety rules.

Contents of the course: Concepts and vocabulary of the fibre field are studied. as using materials in different painting, dyeing, finishing and sewing methods.

Prerequisites: Not Required

HP1060 Art Graphics, 3 crs/4,5 ECTS crs

Objectives of the course: The student learns a universal idea of the methods and possibilities of art graphics, and about the history of the printed image, book printing in relation to the more common art history.

Contents of the course: The unit supports the student in his/her choice of studies. Basics of woodprint are learned. Motifs are given the students. The students learn to independent work and techniques, equipment, materials and ergonomics.

Prerequisites: Not Required

HP2501 Croques drawing 1, 2 crs/3 ECTS crs
Objectives of the course: Observing and drawing live human model.

Contents of the course: The aim is to observe and draw shape, movement and rhythm quickly.

Prerequisites: Basic Studies

HP2506 Drawing, 2 crs/3 ECTS crs

Objectives of the course: The aim is to support the student's drawing skills with different tasks.

Contents of the course: The students learn to observe, draw and express themselves with different drawing methods and techniques.

Prerequisites: Basic Studies

HP2507 CNC -Programming, 2 crs/3 ECTS crs

Objectives of the course: The aim is to deepen 3D-design skills with different kinds of Cad- and Cam-programmes

Contents of the course: During the study unit student learns the use of CNC -machine tool and gets to know the possibilities that the machine offers. Student learns realisation of different kinds of machine tooling lanes with CAM-programmes. The products are visualised and elucidated with computer.

Prerequisites: Technical Documentation, 3D-Design

HP2509 Model Drawing and Painting, 2 crs/3 ECTS crs

Objectives of the course: Expression through drawing and painting, maintaining observation skills.

Contents of the course: Observation training is drawn and painted with different means. The students produces an presentation portfolio of the works. The unit is realised during the 2nd, 3rd and 4th year of studies.

Prerequisites: Basic Studies

HP2537 Advanced Special Studies of Design Programs, 2 crs/3 ECTS crs

Objectives of the course: The aim is to deepen the computing skills needed in textile and cloth design.

Contents of the course: Content is to repeat and deepen the capacity and possibilities of PrimaVision. Photoshop and Freehand programmes in textile and cloth design and presentation. During the study unit presentation technical practises are realised.

Prerequisites: Basic Studies, Computer aided design

DEGREE PROGRAMME IN COMMUNICATION

Communication studies in the NCP Media Production and Culture programme emphasise content and production management. During the studies students learn skills in communication and artistic expression alongside pre-production planning and scheduling. The studies familiarise students with the different fields of the communication process, from personal expression to competences in communication technologies. Practical skills are learned in the various media production projects while theoretical studies compose the basis for students to be able to evaluate their own orientations and projects. These studies include lectures, workshops and various writing assignments, which are geared towards the demands of professional work.

The different study orientations include image and light, scriptwriting, audio, and multimedia. These orientation studies and the language studies provide the students with the necessary professional skills to enter professions in the field of media and to further their studies nationally or abroad if they wish to do so.

After the the students have graduated as Media Artists (polytechnic) they are able to plan, execute and direct media productions in their chosen orientation fields; they are competent for various communications professions and to become media entrepreneurs.

BASIC STUDIES

	Code	1. year	2. year	3. year	4. year
Introduction to Polytechnic Studies A	HD1040A	1,5	0	0	0
Introduction to Polytechnic Studies B	HD1040B	0	1,5	0	0
Introduction to Information management	HD1041	1,5	0	0	0
Basics of Data Processing	HD1043	1,5	0	0	0
Finnish and Communication I	HD3005	4,5	0	0	0
Finnish and Communication II	HD3006	0	1,5	0	0
Spoken Swedish	HD1083	1,5	0	0	0
Written Swedish	HD1084	0	1,5	0	0
Swedish for the Media Industry	HD1085	0	1,5	0	0
Media Speech	HD1093	1,5	0	0	0
Writing at Work	HD1094	1,5	0	0	0
English for Media Industries	HD1095	0	1,5	0	0
Introduction to Media Culture	HD2002	3	0	0	0
Research in Media Culture	HD2005	4,5	0	0	0
Analysis of Media Contents	HD 2216	0	3	0	0
Current Issues in Media Culture	HD2217	0	3	0	0
History of Art and Culture I	HD2604	3	0	0	0
History of Art and Culture II	HD2605	0	4,5	0	0
Media and Entrepreneurship	HD2024	0	3	0	0
Music Studies	HD2608	0	3	0	0
History of Film	HD2609B	0	3	0	0
Media Journalism	HD2610	1,5	0	0	0

Communication

Basics of Multimedia	HD2023	0	6	0	0
Digital Image Processing	HD2064	3	0	0	0
Basics of Network	HD2215	3	0	0	0
Digital Photography	HD2602	3	0	0	0
Visual Design	HD2606	3	0	0	0
Basics of Scriptwriting A	HD2612B	1,5	0	0	0
Basics of Scriptwriting B	HD2612B	1,5	0	0	0
Basics of Scriptwriting C	HD2612C	0	3	0	0
Basics of Scriptwriting D	HD2612D	0	1,5	0	0
Information Technology and Safety	HD3007	1,5	0	0	0
Basics of Video I	HD2613A	6	0	0	0
Basics of Video II	HD2613B	0	3	0	0
Introduction to Audio Communication	HD3008	6	0	0	0
Introduction to Audio Communication II	HD3009	0	3	0	0
Job Descriptions in Audiovisual Field	HD2616	0	4,5	0	0
Producing and Directing	HD3010	0	3	0	0
Iconic Media Legends	HD3021	0	7,5	0	0
Image and Lightning Expression	HD2618B	0	9	0	0
Audio Expression	HD2615	0	9	0	0
Multimedia and Web Design	HD2219	0	9	0	0
Audiovisual Scriptwriting	HD3011	0	9	0	0
PROFESSIONAL STUDIES					
Documentary TV-Production	HD2635	0	0	x	x
Digital TV-Production	HD2620	0	0	x	x
Music Video and Experimental Video Production	HD2621	0	0	x	x
Film Production	HD2212	0	0	x	x
Sound Narration in Radio Play	HD2627	0	0	x	x
Live Audio	HD2628	0	0	x	x
Music Recording	HD2228	0	0	x	x
Audio for Cinema	HD2503	0	0	x	x
Offline – multimedia	HD2247	0	0	x	x
Designing New Media	HD2625	0	0	x	x
Web Production	HD2239	0	0	x	x
Digital Still Photography	HD2626	0	0	x	x
3D- Graphics and Animation	HD3014	0	0	x	x
Design of Print Publication	HD6051	0	0	x	x
Scriptwriting for Television	HD6052	0	0	x	x
Documentary Scriptwriting	HD6053	0	0	x	x
Scriptwriting Workshop	HD6060	0	0	x	x
Media Production	HD2630	0	0	x	x
OPTIONAL STUDIES		x	x	x	x
PRACTICAL TRAINING		0	0	x	x
THESIS PROJECT		0	0	x	x

BASIC STUDIES

HD1040A and B Orientation to Polytechnic Studies, 2 crs

Objective: Students become familiarised with the basic principles of their study in the North Carelia Polytechnic and with the special characteristics of the Degree Programme in Media Production and Culture and the North Carelia Polytechnic.

Content: Students are acquainted with the Polytechnic as a part of the society's educational structure together with the structure, objectives, evaluation process and the learning environment of the North Carelia Polytechnic and the Degree Programme in Media Production and Culture. The students prepare for studying and study planning, independent and directed study guidance, and for outlining their own study guide (HOPS).

Prerequisite:—

HD1041 Introduction to Information Management, 1 crs

Objective: Students become familiarised with the fundamentals and sources of information management and with their usage as needed in the study of communication and professionally.

Content: Students get acquainted with the libraries, the Internet, electric publications and databases fundamental in information management.

Prerequisite:—

HD1043 Basics of Data Processing, 1 crs

Objective: Students become familiarised with computers and the principles of operating systems.

Content: Students get acquainted with the basic usage of computers and application programs: operating systems, working in the web-environment, word processing and spreadsheets.

Prerequisite: —

HD3005 Finnish and Communication I, 3 crs

Objective: Students become familiarised with the fundamentals of the Finnish language and communication. The goal is to become efficient in verbal and written communication for study and professional work.

Content: The course includes verbal and written communication, their fundamentals and specifics, managerial communication and the language skills maintenance.

Prerequisite:—

HD3006 Finnish and Communication II, 1 crs

Objective: Students learn to perform and express themselves in a natural, clean and expressive manner.

They acquire the basics of the relationship between the performer and the audience and the fundamentals of performing with microphones and cameras.

Content: Students try and rehearse techniques to free the expression and imagination for different media.

Prerequisite:—

HD1083 Muntlig kommunikation, 1 crs

Objective: Students develop their skills in spoken Swedish and develop competence to express their professional matters in Swedish.

Content: Students learn the central vocabulary and idioms of their profession. The study consists of dialogue and speaking rehearsals in small groups.

Prerequisite:—

HD1084 Skriftlig på jobbet, 1 crs

Objective: Students prepare to use and understand written Swedish language in their field.

Content: Written electronic communication at work, preparing official documents, summaries and reports, command of the Swedish language's structure.

Prerequisite: HD1083 Muntlig kommunikation

HD1085 Svenska för mediaindustrin, 1 crs

Objective: Students learn to communicate both in verbal and written Swedish in demanding media related job situations.

Content: Students analyse currently relevant language materials, report their own projects and learn professional negotiations in Swedish.

Prerequisite: Muntlig kommunikation and HD1084 Skriftligt på jobbet

HD1093 Media Speech, 1 crs

Objective: Students improve their verbal skills in situations related to study and work.

Content: The course includes conversation and speech training in small groups, simulation of phone conversations, verbal presentations and practice in understanding spoken language.

Prerequisite:—

HD1094 Writing at Work, 1 crs

Objective: The goal is to improve student's skills in written expression with special emphasis on text readability and fluency.

Content: The course concentrates on the issues of style and readability in the context of journalism, formal letters, abstracts, reports and fictive writing.

Prerequisite: HD1093 Media Speech

Communication

HD1095 English for Media Industries, 1 crs

Objective: Students improve their verbal and written communication skills in the context of media.

Content: Students analyse current materials, report their own projects, present both the different stages of the projects' development and the work environment, and discuss negotiation and conference techniques.

Prerequisite: HD1093 Media Speech and HD1094 Writing at Work

HD2002 Introduction to Media Culture, 2 crs

Objective: Students become familiarised with the fundamentals, concepts, research and history of media culture.

Content: Students get acquainted with communication, media and information technology from the viewpoint of cultural research and establish an overall understanding of media culture processes.

Prerequisite: —

HD2005 Research in Media Culture, 3 crs

Objective: The aim is to develop student's competence in theoretical and analytical discourses of media culture research.

Content: The course builds upon themes introduced in the Introduction to Media Culture (HD2002) and approaches media culture phenomena from varying perspectives.

Prerequisite: —

HD2216 Analysis of Media Contents, 2 crs

Objective: Students learn critical media analysis through lectures and writing essays.

Content: Students prepare, write and present critical analyses of different media examples selected by themselves.

Prerequisite: —

HD2217 Current Issues in Media Culture, 2 crs

Objective: The goal is to familiarise students to different expert perspectives on temporary media culture processes and their contexts.

Content: The course addresses current issues in media culture by using local and visiting lecturers under a varying annual theme.

Prerequisite: —

HD2604 History of Art and Culture I, 2 crs

Objective: Introduction to understanding European art. Students learn the basics in analysing the history, phenomena, outlook and influences of European art.

Content: Students watch and analyse European visual art to acquire a basic understanding of its historical development. Students will learn how to read visual material and understand their complex meanings: esthetical, historical, psychological and sociological. The students will prepare an essay, an analysis or a presentation in their chosen media based on a Finnish or European work of art.

Prerequisite: —

HD2605 History of Art and Culture II, 3 crs

Objective: Students improve their understanding of the artistic phenomenon and the effects of art in the society, culture and personal life. Students will acquire a basic understanding of world's visual art at different times and of world's mythical traditions and their effects on art and worldview.

Content: Students watch and analyse visual world art to acquire a basic knowledge of art history around the world and of art's meaning within different societies and cultures. Students familiarise themselves with a particular world myth and prepare an essay or a presentation about the myth's appearance in everyday life or in works of art. (Study takes place in pairs in the context of video, radio or the World Wide Web.)

Prerequisite: History of Art and Culture I

HD2024 Media and Entrepreneurship, 2 crs

Objective: Students are introduced to specificities in audiovisual entrepreneurship and learn their fundamentals from the business perspective. Students learn the different company formats and their suitability in audiovisual business alongside the requirements of AV-entrepreneurship, with attention to aspects of success and failure.

Content: Introduction to the Finnish scene of audiovisual business and entrepreneurship, the relationship between media and small enterprises, and operating opportunities in audiovisual business.

Prerequisite: —

HD2608 Music Studies, 2 crs

Objective: Students become familiar with the world of music.

Content: Students get acquainted with the music cultures of the world, music history, styles and music's conformity to law. Music is considered both as an individual art form as well as a supporting structure to movies, video performances and multimedia. Students learn to critique and acquire music within the context of media.

Prerequisite: —

HD2609B History of Film, 2 crs

Objective: Students learn the early history of film and its main genres, and their development until today.

Content: The archaeology of film, film periods, genres and film history in the different continents.

Prerequisite: —

HD2610 Media Journalism, 1 crs

Objective: Students learn to acquire and organise information according to its relevance. They can adapt information into news, documentaries or other manuscripts. Students learn to master the different media formats in news journalism and learn to produce reliable and objective news to their chosen media. The course introduces students to the various actors and their working methods in news journalism.

Content: Educational video series, *Median silmässä* (YLE), introduces students to the basic characteristics of mass media, their audiences and producers.

Prerequisite: —

HD2023 Basics of Multimedia, 4 crs

Objective: Students get acquainted with the contextual, visual and practical principals of multimedia. Students become familiar with systems and application programs required to produce and realize multimedia presentations.

Content: Students learn to produce multimedia and become familiar with application programs and systems. Students design and realize small multimedia presentations using required application programs and equipment.

Prerequisite: Introduction to Information Management, Digital Photography, Visual Design, Digital Image Processing

HD2064 Digital Image Processing, 2 crs

Objective: Students learn to use basic skills of digital image processing in different media productions.

Content: Students are familiarised with colour scales and systems and other the digital image fundamentals, such as digitalisation and image processing alongside the relevant software applications with special attention to Adobe Photoshop 7.

Prerequisite: Introduction to Information Technology, Digital Photography, Visual Design

HD2215 Basics of Network, 2 crs

Objective: Students learn the fundamentals of web communication and acquires skills to plan and realise a simple website.

Content: Characteristics and basics of web communi-

cation, website design and structure; HTML language, images, animation and interactivity; how to use Adobe ImageReady and Macromedia Dreamweaver in website design; how to plan and realise one's own website.

Prerequisite: Digital Photography, Visual Design, Digital Imaging

HD2602 Digital Photography, 2 crs

Objective: Students familiarise themselves with photography, digital photography and the basic usage of digital images in the media.

Content: Students get acquainted with photography, basic visual narrative and the functions of a digital camera.

Prerequisite: —

HD2606 Visual Design, 2 Crs

Objective: Students become competent in visual design and know the basics in web-based graphics.

Content: Students learn the fundamentals in visual communication and design, typography, color systems and the basics of the vector graphics program.

Prerequisite: —

HD2612A Basics of Scriptwriting A, 1 crs

Objective: Students learn the essential concepts in storytelling and how to adapt them into their own projects. They learn constructive criticism alongside the complexity and relativity of varying interpretations in creative work and how these relate to the communication process.

Content: Students screen and analyse films by writing essays and a minor manuscript draft.

Prerequisite: —

HD2612B Basics of Scriptwriting B, 1 crs

Objective: Students realise the meaning of manuscript as the manual for a piece of work or application. They learn what a manuscript is, what it should contain and what a scriptwriter's work consists of. Students learn to write audiovisual manuscripts with a special software application and acquire competence in scriptwriting minor pieces of work.

Content: Students are introduced to the different formats and parts of scriptwriting and manuscripts, their basic concepts and structures. They practice by writing with audiovisual scriptwriting software.

Prerequisite: —

HD2612C Basics of Scriptwriting C, 2 crs

Objective: Students deepen their understanding of the dramaturgy in narration. They learn the dimensions of

Communication

open dramaturgy and narrative prospects in interactive scriptwriting. Students learn the basics in textual analysis and how to apply these skills in their own writing.

Content: Students write minor manuscripts, analyse existing professional texts and eventually realise their own works or plans to their chosen media.

Prerequisite: Basics of Scriptwriting A, B

HD2612D Basics of Scriptwriting D, 1 crs

Objective: Students achieve competence to outline contents, synopsis and the manuscript for commissioned briefs.

Content: Students familiarise themselves with commissioned projects from the perspective of scriptwriting and their ideas. Students write plans and a synopsis based on such briefs.

Prerequisite: Introduction to Scriptwriting A, B, C

HD3007 Information Technology and Safety, 1 crs

Objective: 1. Students learn to use audiovisual equipment in a safe and technologically correct manner. 2. Students learn the standard mathematical capacity and loading calculation formulas 3. Students acquire practices in preproduction tasks, maintaining the equipment and simple equipment services.

Content: The course emphasises hands-on learning in which students get acquainted with typical work situations and ways to prevent foreseeable situations of danger with correct and safe habits.

Prerequisite: —

HD2613A Basics of Video I, 4 crs

Objective: Students acquire fundamental understanding, perceiving and discerning of audiovisual material. Students know the different stages in video production and can build upon this knowledge. Students learn to work in groups in a respectful manner. Students learn how to produce a small video project and how to work on all of its stages including sound recording, shooting, postproduction, producing and scriptwriting. Students become familiar with different editing facilities and they learn editing techniques and styles as well as designing and realizing editing projects in a digital environment.

Content: Students learn video production through different production assignments. Students become familiar with both artistic and technical video production processes through using the equipment, shooting and editing.

Prerequisite: —

HD2613B Basics of Video II, 2 crs

Objective: Students improve their competence in audiovisual thinking and perception.

Content: Different video productions and their aspects are analysed from the perspectives of aesthetics and technology: the production process, shooting, equipment handling, basics of visual narration and editing.

Prerequisite: HD2613A

HD3008 Introduction to Audio Communication, 4 crs

Objective: Students become familiar with the structure of sound, electric acoustics, and thinking through sound. Students learn to produce their own audio and understand its inherent problems. In addition, students prepare for in-depth study.

Content: Sound as a phenomenon 1. The definition of sound; 2. The source (impulse, resonance, sound wave, frequency...); 3. Medium (air, speed, wave length); 4. Source's strength and density; 5. Receiving sound (ear); 6. Sound sensors (brain); 7. What is sound?: 1. Sound characteristics; 2. The resonance phenomenon; 3. Sources; 4. The effect of direction and spectrum; 5. Trembling surfaces; 6. Sounds of flow; 7. Sounds of blow; 8. The movement of sound and the fading of sound; 9. The Doppler-phenomenon; 10. Deflection; 11. Reflection; 12. Still waves; 13. Insulation matter and structures. Psycho-acoustics: 1. Loudness; 2. Elevation; 3. Drowning effect; 4. Processing; 5. Equipment for effects; 6. Equalization equipment; 7. Amplifiers; 8. Loudspeakers; 9. Minidisk recorders; 10. Dat-recorders; 11. Pro Tools.

HD3009 Introduction to Audio Communication II, 2 crs

Objective: Students develop their skills to describe audio structures and electroacoustics including digital editing and thinking through sound. Students acquire the basic ideas of producing their own auditive materials and the related problematics.

Content: Digital technology in audio productions, psychoacoustics, relevant technology

Prerequisite: Introduction to Audio Communication I

HD2616 Job Descriptions in Audiovisual Field, 3 crs

Objective: Students are familiarised with different audiovisual professions and their specificities to be able to comprehend an overall understanding of these professions.

Content: The relevant audiovisual professions are introduced by visiting professionals and their experiences.

Prerequisite: —

HD3010 Producing and Directing, 2 crs

Objective: Students are introduced to the professions of producers and directors. They learn the common agreements and work legislation; how to organise production budgets, marketing and product design.

Content: Scriptwriting from the director's perspective; students rehearse to direct one scene. They calculate a production budget and learn the different stages of productions.

Prerequisite: —

HD3021 Iconic Media Legends, 5 crs

Objective: Students are introduced to essential works of literature, film, radio, television and multimedia that have been fundamental in the development of electronic media. The goal is to help students to understand their own activity within this context.

Content: In the summer period students read 3 literary works and write an analytical essay based on them. In the Fall these works are analysed in a seminar, and the analysis of films, radio plays, television programmes and multimedia will follow in consecutive courses along the academic year.

Prerequisite:

HD2618 B Image and Lighting Expression, 6 crs

Objective: Students become familiar with the practices and different working methods of filmmaking.

Content: Students make a short fiction film and learn the different stages of film production.

Prerequisite: Basics of Video Production

HD2635 Documentary TV-Production, 5 crs

Objective: Students learn the techniques and making of documentary projects. Students acquire objectivity and truthfulness in handling non-fiction material.

Content: Students watch and analyse different documentary programs and practice making documentaries. Students plan and make a short documentary program.

Prerequisite: Image and Lighting Expression

HD2620 Digital TV-Production, 10 crs

Objective: Students learn to work in TV-production in different capacities including: photographer, controller, mixer, director, gaffer, sound designer, development and production.

Content: Students plan and direct the work related to their chosen area. They work as responsible members in a three camera setting.

Prerequisite: Image and Lighting Expression

HD2621 Music Video and Experimental Video Production, 5 crs

Objective: Students the music video tradition and means of expression alongside experimental video traditions in Finland and elsewhere.

Contents: Students are familiarised with national and international music video and video art traditions and languages.

Prerequisite: Image and Light Expression

HD2212 Film Production, 10 crs

Objective: Students learn the 16 mm filming technology and shooting on film. They are acquainted with the different film materials and filmic expression with the goal to establish an overall understanding of the filmic process: idea creation, preproduction, production, postproduction.

Content: The learning of film camera technique and practice, film materials, exposure, filming with the camera, lighting. Filmed materials are transferred into the digital format and editing is done with Avid. The course is executed together with the Film Sound course.

Prerequisite: Image and Light Expression

HD2615 B Audio Expression, 6 crs

Objective: Students learn both fiction and non-fiction sound narration and master the required techniques. Students solve artistic and technical questions inherent in different production models and they become familiar with the standard structures in audio production. In addition, students get acquainted with the sound designer's job description and practice working in that capacity.

Content: The course includes hands-on teaching, analysis, and working with studio systems in productions. Each student prepares a demanding fiction or non-fiction audio project.

Readings: Suntola, Silja: Luova studiotyö; Lewis: Practical art of motion picture sound; Yewdalla, M.P.S.E, Davis, Cary & Jones, Ralph: Sound Reinforcement Handbook.

Prerequisite: Introduction to Audio Communication

HD2627 Sound Narration in Radio Play, 5 Crs

Objective: Students learn the principles of fiction sound narration. Students analyse professional radio plays. Students become familiar with fiction sound design and understand the special quality of expression through radio.

Content: Students design a small-scale work in sound or take part in a more demanding production of a radio play. Students edit radio broadcasts and take part in live

Communication

radio broadcasts and day-to-day studio work and programming.

Prerequisite: Introduction to Audio Communication and Audio Expression

HD2628 Live Audio, 5 crs

Objective: Students develop their competence in understanding the structure of live sound and electroacoustic problems alongside developing their practical skills in the field.

Content: Audio system operations in live situations; problems, interferences and their analysis; the relevant technology and their related practices; the tuning and documenting of audio systems in live situations; analogical and digital sound characteristics in practice; environment acoustics; relevant legislation.

Prerequisite: The Basics of Audio I, II; Audio Expression

HD2228 Music Recording, 10 crs

Objective: Students prepare a CD-quality recording from the demo stage to the final product. Students work as sound editors and record audio.

Content: Students become familiar with acoustics, the sound of acoustic and electric instruments, recording classical and pop music and work habits in a studio and live environments. Students learn to record musical groups with different microphone techniques and other recording formats, they process and work with recorded music within the stylistic parameters, and they become familiar with CD pre-mastering and surround technology.

Prerequisite: Introduction to Audio Communication and Audio Expression

HD2503 Audio for Cinema, 10 crs

Objective: Students improve their competence in fictional audio narration and their techniques in film. They learn to operate as responsible sound recorders within a production team.

Content: Students prepare in practice the preproduction stages of film productions, their audio recording and production, synchronic transfer, audio design, editing and mastering.

Prerequisite: Basics of Audio Work, Audio Design

HD2219 Multimedia and Web Design, 6 Crs

Objective: Students become familiar with the fundamentals of multimedia and web design. Students learn the specifics of design, realization and production in new media and know how to use the tools needed in production.

Content: Students go through visual design and digital image production as well as the functions of the required tools. Students analyze existing multimedia presentations and web pages. Students learn the required application programs. Students design and realize either a small-scale web page or a multimedia presentation.

Prerequisite: Basic Studies and Orientations

HD2247 Offline-multimedia, 10 crs

Objective: Students learn how to apply principles related to content, visuality and the realization of offline-multimedia expression. They learn to evaluate the different technical and software environments from these perspectives and how these can be used in producing and realizing multimedia presentations.

Content: Students familiarise themselves with the systems and programs needed in multimedia presentations, and they also plan and realize their own projects.

Prerequisite: First and second year studies

HD2625 Designing New Media, 5 crs

Objective: Students learn how to apply principles of visual design to realise visual elements in new media productions. They understand the specific character of designing visual elements for monitor screens.

Content: Students evaluate visuality in different new media products and deepen their understanding and skills related with the relevant programs and systems. Students plan and design the visual outlooks for different new media products and user interfaces.

Prerequisite: First and second year studies

HD2239 Web Production, 10 crs

Objective: Students are able to apply the fundamental aspects of website productions in terms of content, structure, visuality and usability.

Content: Students learn aspects of usability alongside the relevant software applications and systems. Students plan and realise in groups projects of web communication.

Prerequisite: First and second year studies

HD2626 Digital Still Photography, 5 crs

Objective: Students learn to apply photography expression, narration and digital technology solutions, including imaging software in varying photography sessions and the production of images. They are competent in selecting images for the different media.

Content: Students analyse and learn photos, photography technologies and systems while realising digital photo projects. Students produce their own photo portfolios.

Prerequisite: First and second year studies

HD3014 3D -Graphics and Animation, 5 crs

Objective: Students learn the fundamentals in 3D -graphics and animation and use the acquired skills in their assignments.

Content: Fundamentals in 3D -graphics and animation, programs, applications and independent assignments.

Prerequisite: Multimedia and Web-Design

HD6051 Design of Print Publication, 5 crs

Objective: Students design a small-scale print publication ready for publishing. Students learn to evaluate content and methods of production for print publications. Students become efficient in using programs and applications needed to design and produce print publications.

Content: Students further their skills in visual design and digital image processing. Students become familiar with the materials used in print and publishing. Students design small-scale print publication, covers for cassettes and records, pamphlets and posters.

Prerequisite: Multimedia and Web-Design

HD3011 Audiovisual Scriptwriting, 6 crs

Objective: Students learn to write a script for audiovisual media. Students become aware of the different demands posed for writers by the different media. Students learn to evaluate the production value of ideas aimed at different audiences. Students understand the writer's role as a team member in the production process.

Content: Students learn to write with different audiovisual equipments by writing short stories. Students become familiar with the principles of storytelling. Students get acquainted with different genres through their own presentations. Students practice by finding an idea and developing their observational skills to help the process. Students write during every class and discuss their writings together.

Prerequisite: Basics of Scriptwriting

HD6052 Scriptwriting for Television, 10 crs

Objective: Students familiarise themselves with a television movie, miniseries, serial, sitcom, quiz and reality-tv scriptwriting through analysis, assignments and lectures.

Content: Students analyse different television genres and write minor assignments related to them. Students select a particular genre as the basis of their personal project and write original television manuscripts based on that.

Prerequisite: Audiovisual scriptwriting

HD6053 Documentary Scriptwriting, 5 crs

Objective: Students familiarize themselves with the meaning and possibilities of documentary storytelling. Students discover ideas for documentaries and learn to write synopsis and treatments.

Content: Local and visiting lecturers; the analysis of documentaries; writing of synopsis and treatments.

Prerequisite: The Basics of Scriptwriting

HD6060 Scriptwriting Workshop, 10 crs

Objective: Students master enduring professional scriptwriting processes. They are able to realise original manuscripts ready for production in their chosen media and audience. Students are able to operate in groups by managing and utilising criticism.

Content: Students set their scriptwriting goals to be achieved during the workshop and works towards that goal throughout the workshop.

Prerequisite: Audiovisual Scriptwriting

HD2630 Media Production, 10 crs (5+5)

Objective: Students learn to work as a responsible member of an audiovisual production team in different capacities including: designer, producer, photographer, lighting designer, director, sound designer or scriptwriter. Students learn to "think with their feet" and make decisions in a fast and efficient manner. Students acquire a clear vision of and skills in production, and they define their own place in it.

Content: Students become familiar with the different aspects of audiovisual production and work in managerial, directorial and organizational capacities in student productions. Students plan and produce audiovisual productions or parts of productions. First, students present the production plan to the person in charge. An approved plan is given a production number, which facilitates the actual production. After the production phase, students follow it up with a production rapport and a self-evaluation, and finally release a copy of the completed project for evaluation.

Prerequisite: Image and Lighting Expression, Multimedia and Networks, Audio Expression, AV Scriptwriting or Literary Analysis.

Communication

Practical Training

Objective: Students work in different companies in the media and acquire skills to facilitate their transition to working life. Practical training provides industry connections and helps to improve the students' performance in line-specific studies. In addition to the training, students keep a diary to trace their development. It is recommended to complete part of the practical training abroad.

Content: Orientation and the tasks assigned in training. Students also keep a diary on the training and complete assigned reports. Readings: Degree Programme in Communication: Guide to Practical Training

Thesis Project

Objective: Students administer their artistic and technical maturity to produce an independent media work or an independent research project based on their line-specific studies. Students also administer their skills in analysing media productions.

Content: Students prepare an independent work in media and/or related research project. Thesis should always be accompanied by a written report. Readings: Hirsjärvi, Remes, Sajavaara: Tutki ja kirjoita. Juha T. Hakala: Opinnäytetyö luovasti, Degree Programme in Communication: Guide to Practical Training

Electives, 10 Crs

Studies on the Polytechnic level chosen from students' own school or other programmes including university studies.

DEGREE PROGRAMME IN BUSINESS INFORMATION TECHNOLOGY

General description and aims of the degree

From the student's perspective

Prepares students for the professional duties of software engineering, internet programming and software marketing in national and international operational environments

From the perspective of working life

Produces capable personnel for information technology. Supports and develops regional commerce and industry through cooperation. Encourages and supports entrepreneurship.

Structure and syllabus of the studies

Business Information Technology Degree Program 140 crs / 210 ECTS crs.

Basic Studies 40 crs.

Professional Studies 60 crs. in specialized studies

Optional Studies 10 crs. - e.g. in other fields of study

Practical Training 20 crs. - 5 months

Thesis 10 crs. - as an assignment for enterprises

Specialized Studies

Software engineering, Internet programming, International software marketing. Every year at least two of the most popular specialized studies are carried through. All three specialized studies are carried through in year 2003

BASIC STUDIES

Basic studies

	Code	1. year	2. year	3. year	4. year
	BCP1				
Introduction to Software Engineering	BC1000	2	0	0	0
Computer Equipment	BC1002	2	0	0	0
Relational Databases	BC1003	3	0	0	0
Operating Systems	BC1006	3	0	0	0
Statistics	BC1010	0	2	0	0
Computing English 1	BC1020	2	0	0	0
Computing English II	BC1021	0	2	0	0
Spoken and Written Business Communication	BC1022	2	0	0	0
Spoken Communication, Team Work	BC1023	0	2	0	0
Muntlig kommunikation (Swedish course)	BC1026	0	1	0	0
Svenska för IT-branchen (Swedish course)	BC1027	0	2	0	0
Programming technics	BC1028	3	0	0	0
Introduction to Economics	BC1030	2	0	0	0
Information Acquisition, study guidance	BC1100	1	0	0	0
Business tools	BC1001	2	0	0	0
Access basics	BC1033	1	0	0	0
Introduction to Company Economics	BC1946	2	0	0	0
Applied Mathematics	BC1978	2	0	0	0
Programming 1	BC1990	3	0	0	0
Introduction to Data Processing	BC1997	2	0	0	

Business Information Technology

0PROFESSIONAL STUDIES

Compulsory professional studies

BCA2

Instructor training, theory	BC2024A	0	1	0	0
Instructor training, practice	BC2024B	0	1	0	0
Communications and Local Area Networks	BC2200	3	0	0	0
Logistics	BC2203	0	0	3	0
Information Management	BC2204	0	3	0	0
Graphical User Interface Design	BC2205	2	0	0	0
Software Commoditization	BC2206	0	0	3	0
Building a Data System	BC2208	0	0	5	0
Software Production Project Work	BC2210	2	0	0	0
Quality Control Systems	BC2211	2	0	0	0
Linux	BC2212	0	2	0	0
HTML and XHTML	BC2213	2	0	0	0
Product Marketing	BC2250	2	0	0	0
Spoken English	BC2251	0	2	0	0
Business Accounting	BC2252	0	2	0	0
Business and Contract Law	BC2253	0	4	0	0
Probability Calculus and Sequence Theory	BC2254	0	2	0	0
Management and Personnel Management	BC2255	0	0	2	0
Methods and Techniques of Software Engineering	BC2302	0	3	0	0
Business Game	BC2256	0	1	0	0
Towards the thesis	BC2900A	0	0	0,5	0
Towards the thesis	BC2900B	0	0	0	0,5

Optional professional studies

BCV1

Java programming	BC2201	0	3	0	0
C++	BC2209	0	4	0	0
C-programming	BC2114	2	0	0	0
Introduction to eBusiness	BC2414	0	1	0	0
XML programming	BC2415	0	2	0	0
PHP-programming	BC2416	0	2	0	0
Data Structures	BC2962	0	0	3	0
Application Developers and Databases I	BC2982	0	3	0	0
Database Programming II	BC2983	0	0	3	0
Image processing and using images in www-documents	BC3331	0	2	0	0
International Marketing	BI2090A	0	4	0	0
Selling	BI2091B	0	1	0	0
Meetings and Negotiations	BI2091E	0	0	1,5	0
Foreign Trade Legislation	BI2093A	0	1	0	0
EU Legislation	BI2093B	0	1	0	0
Basic Russian I	BI1125	0	3	0	0
Basic Russian II	BI1126	0	3	0	0

OPTIONAL STUDIES

PRACTICAL TRAINING

THESIS

	0	0	0	0	0
	0	0	20	0	
	0	0	0	10	

BASIC STUDIES

BC1000 Introduction to Software Engineering, 2 crs/3 ECTS crs

Objectives of the course: The course provides an overall picture of software engineering and different phases related to a software project: definition, design, documentation and data modelling.

Contents of the course:

Prerequisites: None

BC1001 Business tools, 2 crs/3 ECTS crs

Objectives of the course: This course teaches students to utilize wordprocessing, spreadsheet computation and graphics programs and to work in the Windows 2000 environment.

Contents of the course:

Prerequisites:

BC1002 Computer Equipment, 2 crs/3 ECTS crs

Objectives of the course: This course provides students with an understanding of the basic technology of computer hardware and functioning of a computer, processors, peripheral devices and machine language.

Contents of the course:

Prerequisites:

BC1003 Relational Databases, 3 crs/4,5 ECTS crs

Objectives of the course: This course teaches students the functioning of a relational database and how to use SQL.

Contents of the course:

Prerequisites: None

BC1006 Operating Systems, 3 crs/4,5 ECTS crs

Objectives of the course: This course acquaints students with the Win NT operating system and covers such areas as managing an NT-workstation, user management, sharing folders, printer and network services, and network protocols. Basic use of UNIX.

Contents of the course: Windows 2000, Unix principles and usage

Prerequisites: none

BC1010 Statistics, 2 crs/3 ECTS crs

Objectives of the course: This course provides students with a general idea of the different phases of statistical research, descriptions of sets of data, direct distribution, dependency of two variables and modelling, frequency distributions, the most common statistical numbers and the principles of regression analysis.

Contents of the course:

Prerequisites: None

BC1020 Computing English 1, 2 crs/3 ECTS crs

Objectives of the course: This module familiarises the student with the basic business concepts and the vocabulary needed in data processing with the help of field-specific texts. The student will learn how to make use of dictionaries and other resources in interpreting the texts. The student will improve his/her learning skills in order to be self-directive in developing and maintaining his/her language skills. A variety of written and oral communication skills needed in successful communication in common working life as well as leisure time situations will be practised during this module.

Contents of the course: Education and career orientation: description of one's own educational background and work. An overview of the vocabulary concerning applications and equipment of Information Technology. Central situations in working life: telephoning, giving instructions, advising and consulting, and describing processes.

Prerequisites: Matriculation examination or equivalent language skills

BC1021 Computing English II, 2 crs/3 ECTS crs

Objectives of the course: This course helps consolidate students' oral skills and self-expression through exercises in various business and everyday situations (bank, telephone, travel, company activities).

Contents of the course: Texts and exercises related to IT field, writing an application and cv, conducting a job interview. Improving language accuracy (passive voice, prepositions, syntax), principles of writing an abstract.

Prerequisites: Computing English I.

BC1022 Spoken and Written Business Communication, 2 crs/3 ECTS crs

Objectives of the course: Having practise in communicating verbally and literarily in different business life situations. Mastering grammatical correctness.

Contents of the course: Oral and written exercises, writing letters and documents.

Prerequisites: None

BC1023 Spoken Commucation, Team Work, 2 crs/3 ECTS crs

Objectives of the course: Students know the principles of team work and are able to act naturally in different kinds of interaction situations (teams and meetings).

Contents of the course: Essence of teams, meeting

Business Information Technology

and negotiation skills, presenting matters, skills of listening and giving feedback.

Prerequisites: None

BC1026 Muntlig kommunikation (Swedish course), 1 crs/1,5 ECTS crs

Objectives of the course: To develop speech expression in Swedish. Students learn to communicate in Swedish in everyday life and in situations related to work and studying. Discussions and speech exercises in groups.

Contents of the course:

Prerequisites: Matriculation examination or corresponding command of Swedish.

BC1027 Svenska för IT-branchen (Swedish course), 2 crs/3 ECTS crs

Objectives of the course:

Contents of the course:

Prerequisites:

BC1028 Programming technics, 3 crs/4,5 ECTS crs

Objectives of the course: The course provides an overall picture of programming. After the course students are able to write simple programs in pseudo-language.

Contents of the course: Basic concepts and techniques of programming.

Prerequisites: None

BC1030 Introduction to Economics, 2 crs/3 ECTS crs

Objectives of the course: The student understands the basic instructions in economics and also learns to understand how the economical phenomenon effect in the international economy. The course also activates the student to find information about economical phenomenon on her/his own.

Contents of the course: Basic instructions in economics: Scarc, multiplier and circular flow, demand/supply/market, GDP and national income The phenomenon in international economy: inflation, unemployment, internationalisation, terms of trade Economypolicy in euro countries

Prerequisites:

BC1033 Access basics, 1 crs/1,5 ECTS crs

Objectives of the course: Microsoft Access basics. Tables, forms, reports, queries

Contents of the course: Access database structure: tables, forms, relations, queries and reports

Prerequisites: none

BC1100 Information Acquisition, study guidance, 1 crs/1,5 ECTS crs

Objectives of the course: The course acquaints students with the degree programme, tutorial and other matters pertaining to their studies: using the library and its database services and using electronic mail and the Internet.

Contents of the course:

Prerequisites:

BC1946 Introduction to Company Economics, 2 crs/3 ECTS crs

Objectives of the course: This course provides an overview of the functions of businesses and companies and a company's relation to its environment.

Contents of the course: Issues covered include the business idea, customer orientation, profitability, management and the external relations of a company

Prerequisites: None

BC1978 Applied Mathematics, 2 crs/3 ECTS crs

Objectives of the course: This course covers number system, logic, logical circuit, floating point notation and Boolean algebra.

Contents of the course:

Prerequisites:

BC1990 Programming 1, 3 crs/4,5 ECTS crs

Objectives of the course: This course provides students with basic programming skills: programming techniques, basic concepts of programming and the basics of object oriented programming. After the course the students are able to produce simple computer programs using VisualBasic.NET -languages.

Contents of the course:

Prerequisites:

BC1997 Introduction to Data Processing, 2 crs/3 ECTS crs

Objectives of the course: This course provides students an overall picture of modern data processing and information technology.

Contents of the course:

Prerequisites: none

PROFESSIONAL STUDIES

BC2024A Instructor training, theory, 1 crs/1,5 ECTS crs

Objectives of the course: Students know the principles of adult training, are able to plan and carry out a training session, know different teaching methods, are

able to use different kinds of educational equipment, are able to lead a learning situation and evaluate learning

Contents of the course:

Prerequisites: Basic compulsory studies.

**BC2024B Instructor training, practice, 1 crs/
1,5 ECTS crs**

Objectives of the course:

Contents of the course:

Prerequisites:

BC2114 C-programming, 2 crs/3 ECTS crs

Objectives of the course: Aim of the course is to make students acquainted with basics of C programming language and implementing programming techniques with programming language C.

Contents of the course: Data types, clauses, operators, control structures and subprograms. Handling of arrays, strings and pointers. Principles of input and output.

Prerequisites: BC1028 Programming techniques

BC2200 Communications and Local Area Networks, 3 crs/4,5 ECTS crs

Objectives of the course: This course provides students with an understanding of the principles of common network standards and hardware. The course also covers the different topologies of local area networks: Ethernet, Token ring, ATM, cabling, as well as the installation and administration of Windows network servers and workstations.

Contents of the course:

Prerequisites: Basic IT studies.

BC2201 Java programming, 3 crs/4,5 ECTS crs

Objectives of the course: This course introduces students to the Java programming language and environment.

Contents of the course: JDK, basic elements and datatypes, operations, and the Java Virtual Machine.

Prerequisites: C-programming

BC2203 Logistics, 3 crs/4,5 ECTS crs

Objectives of the course: Students are acquainted with the terminology of logistics, espouse the logistical way of thinking in controlling money-, material- and dataflow and understand the meaning of logistics as a competitive factor in business.

Contents of the course: The concept of logistics. Purchase, warehousing and transportation functions as means of improving competitiveness in a company. Challenges and targets in the future.

**BC2204 Information Management, 3 crs/
4,5 ECTS crs**

Objectives of the course: This course provides an overall view of the information management of a modern company utilizing IT technology, including an idea of the sales, purchases, delivery, material control, production control and other operations of such a company, as well as the data systems related to the operations mentioned above.

Contents of the course:

Prerequisites:

**BC2205 Graphical User Interface Design, 2 crs/
3 ECTS crs**

Objectives of the course: This course acquaints students with GUI design, usability and usability inspection methods. The course also provides an introduction to style guides.

Contents of the course:

Prerequisites:

**BC2206 Software Commoditization, 3 crs/
4,5 ECTS crs**

Objectives of the course: This course covers the control of a software product and its versions, the development and marketing of a software product and maintenance services, as well as software contracts.

Contents of the course:

Prerequisites: Introduction to Software Engineering.

BC2208 Building a Data System, 5 crs/7,5 ECTS crs

Objectives of the course: This course helps students understand a company's data systems and improves the students' ability to describe and model a company, its operations and operating environment as processes and systems and to evaluate the further developmental needs of a data system.

Contents of the course: Students will be required to build a larger data system during the course.

Prerequisites: Software production project work.

BC2209 C++, 4 crs/6 ECTS crs

Objectives of the course: This course covers object-oriented programming, the C++ programming language, the principles and terms of OOP, and how to use software components.

Contents of the course:

Prerequisites: C-programming

BC2210 Software Production Project Work, 2 crs/3 ECTS crs

Objectives of the course: This course provides stu-

Business Information Technology

dents with a view of building a data system as a project and develops the students skills in building them.

Contents of the course: The course covers different phases of a software project and various planning and documentation tools.

Prerequisites: None

BC2211 Quality Control Systems, 2 crs/3 ECTS crs

Objectives of the course: This course teaches students how to develop, document, implement and audit a quality control system.

Contents of the course: The course emphasises the significance of a quality control system as a part of software engineering.

Prerequisites: None

BC2212 Linux, 2 crs/3 ECTS crs

Objectives of the course: After the course students understand linux operating system and are able install and use linux.

Contents of the course: Linux install, user interfaces, log in and log out, linux documentation, directory structure, file security, peripherals, basic commands, vi-editor, command interpreter, script-programming basics, managing processes, linux applications

Prerequisites: None

BC2213 HTML and XHTML, 2 crs/3 ECTS crs

Objectives of the course: Aim of the course is to provide students with basic skills needed for designing interesting and impressive www-pages.

Contents of the course: Basics of HTML and XHTML. Use of tables, forms, multimedia elements and frames.

Prerequisites: None

BC2250 Product Marketing, 2 crs/3 ECTS crs

Objectives of the course: Student knows the modern way of thinking in marketing and different competition factors. S/he can assess the export opportunities of a company - both plan and implement export activities.

Contents of the course: Modern marketing thinking, competition factors, export opportunities, researching export markets, cross-cultural differences, competition factors in exporting, planning and control in exporting.

Prerequisites: None

BC2251 Spoken English, 2 crs/3 ECTS crs

Objectives of the course: Students improve their verbal language skills. Students are able to observe the events in English speaking communities. Essential terminology of meeting and negotiation skills. English

newspaper articles and programmes of current affairs. Discussions with a native English speaking teacher.

Contents of the course:

Prerequisites: English I

BC2252 Business Accounting, 2 crs/3 ECTS crs

Objectives of the course: The course provides the students with an understanding of the role of accounting in a company. After the course the student are able to produce calculations for the purpose of comparison and decision-making.

Contents of the course: This course covers the basic elements of management accounting, financial accounting and a brief introduction to finance.

Prerequisites: None

BC2253 Business and Contract Law, 4 crs/6 ECTS crs

Objectives of the course: This course provides a basic understanding of the Finnish legal system and business legislation.

Contents of the course: Sources of law, contract law, company law, competition law and labour law.

Prerequisites: None

BC2254 Probability Calculus and Sequence Theory, 2 crs/3 ECTS crs

Objectives of the course: Students get acquainted with statistical decision-making as an application of probability calculus. Queuing theory.

Contents of the course: Probability distributions, statistical decision-making by interval estimates and statistical tests, basic concepts of queuing theory.

Prerequisites: Statistics

BC2255 Management and Personnel Management, 2 crs/3 ECTS crs

Objectives of the course: Students have basic knowledge of managing people, personnel administration and training. Organizational behaviour, managerial skills, rewarding, teams, provisions of the law.

Contents of the course:

Prerequisites:

BC2256 Business Game, 1 crs/1,5 ECTS crs

Objectives of the course: This course provides an overall view of the management of a manufacturing company through a simulation model.

Contents of the course: The course is carried out by playing a business simulation game. Students form groups of 3-5 students, who compete with each other.

These groups make decisions concerning manufacturing, financing and marketing, taking into consideration information given by the particular line of business. The game continues through many accounting periods and the winning team is the one that has the largest profit at the end of the game. Students will analyze their decisions and make a final report.

Prerequisites: none

BC2302 Methods and Techniques of Software Engineering, 3 crs/4,5 ECTS crs

Objectives of the course: The course teaches the purpose behind the different phases in a software project.

Contents of the course: Students are taught how to design and model the process using different tools, how to evaluate and develop the process and how to understand and appreciate the significance of a quality control system in a software project. Unified Modelling Language.

Prerequisites: Introduction to Software Engineering

BC2414 Introduction to eBusiness, 1 crs/1,5 ECTS crs

Objectives of the course: This course provides students with a basic knowledge of electronic business. Students get a view of the scope of eBusiness, its state and influence on business activity. Service models, competitor analysis, value chains and logistics, marketing and advertising, payment systems.

Contents of the course:

Prerequisites: None

BC2415 XML programming, 2 crs/3 ECTS crs

Objectives of the course: Students understand the meaning of use of eXtensive Markup Language in different parts of data systems. Students understand the basic structure of XML and are able to use it in different applications. Students are able to write XML documents and know how to process them.

Contents of the course: Basics of XML, utilizing XML in different applications.

Prerequisites: HTML and XHTML

BC2416 PHP-Programming, 2 crs/3 ECTS crs

Objectives of the course: Students learn www-programming in PHP programming environment.

Contents of the course: Handling files and databases in web environment. What is www-programming? What is PHP? Structures, objects, functions, handling of forms, files and databases.

Prerequisites: HTML and XHTML

BC2900A Towards the thesis, 0,5 crs/0,75 ECTS crs

Objectives of the course: Students understand the significance of the thesis as a part in development of their expertise. Students are aware of the requirements set for the thesis and the different stages of the writing process. Students outline the topic of the thesis and make a realization plan for the thesis.

Contents of the course: Requirements for the thesis, process, tuition and evaluation of the thesis.

Prerequisites: Practical training completed

BC2900B Towards the thesis, 0,5 crs/0,75 ECTS crs

Objectives of the course: Students understand the significance of the thesis as a part in development of their expertise. Students are aware of the requirements set for the thesis and the different stages of the writing process. Students outline the topic of the thesis and make a realization plan for the thesis.

Contents of the course: Requirements for the thesis, process, tuition and evaluation of the thesis.

Prerequisites: Practical training completed

BC2962 Data Structures, 3 crs/4,5 ECTS crs

Objectives of the course: The course introduces students to different data structures: arrays, linked lists, binary trees and graphs.

Contents of the course: Students are taught the principles of data structures and how they are used in computer programming.

Prerequisites: Java-programming skills

BC2982 Application Developers and Databases I, 3 crs/4,5 ECTS crs

Objectives of the course: This course teaches students how to understand a relational database and how to produce a simple data system using an application generator. Database techniques, application generators, designing and building an application, maintaining a server-database (an SQL Server, for example) are covered in this course.

Contents of the course:

Prerequisites: Relational databases

BC2983 Database Programming II, 3 crs/4,5 ECTS crs

Objectives of the course: This course provides students with a thorough view of building more complex data systems using application generators and databases. Students will also learn how to implement a client-server data system.

Contents of the course:

Prerequisites: Basic IT studies

Business Information Technology

BC3331 Image processing and using images in www-documents, 2 crs/3 ECTS crs

Objectives of the course: The course provides students with an overall view of image processing. Students are acquainted with the equipment and software needed in processing images.

Contents of the course: Basics of designing a graphical user interface, different formats of images, scanning pictures, using digital camera. Photoshop graphics tool : image editing, resizing, cropping, formatting, tweaking tools, filters.

Prerequisites: Basics of HTML

BI1125 Basic Russian I, 3 crs/4,5 ECTS crs

Objectives of the course: The aim of this course is to equip the beginner with the basic oral and written skills needed to communicate in practical everyday situations which visitors to Russia may encounter. The student also receives some background information about Russia and its culture.

Contents of the course: Oral and aural practice of vocabulary, grammar and conversational situations (talking about yourself, family and hobbies, likes and dislikes etc.) in contact classes, and guided and independent written work outside the classes.

Prerequisites:

BI1126 Basic Russian II, 3 crs/4,5 ECTS crs

Objectives of the course: The aim of this course is to equip the beginner with the basic oral and written skills needed to communicate in practical everyday situations which visitors to Russia may encounter. The student also receives some background information about Russia and its culture.

Contents of the course: Oral and aural practice of vocabulary, grammar and conversational situations (dining, shopping, making a date, buying tickets etc.) in contact classes, and guided and independent written work outside the classes.

Prerequisites: BI1125 Basic Russian I

BI2090A International Marketing, 4 crs/6 ECTS crs

Objectives of the course: This course provides an overall picture of the basics of international marketing, beginning with the preconditions of the internationalisation of a company.

Contents of the course: Analysing markets, competi-

on and other factors in the international business environment, as well as potential ways of competing will be covered. The course will also include the planning, implementation, and control of export activities.

Prerequisites: Basic knowledge of marketing

BI2091B Selling, 1 crs/1,5 ECTS crs

Objectives of the course: This course is designed to provide the students with the basic skills required in personal sales work. It will look in detail at sales techniques.

Contents of the course: The course will cover, both in theory and in practise, the sales process, argumentation and other factors behind success and failure in selling.

Prerequisites:

BI2091E Meetings and Negotiations, 1,5 crs/ 2,25 ECTS crs

Objectives of the course: This course introduces students to the strategies of negotiations and the English language of meetings and negotiations used in the business world. The course deepens students' awareness of the special nuances of speech and silence used strategically in business meetings and negotiations.

Contents of the course: Negotiations strategies are studied with the help of the drama of a hypothetical company on video and by acting out role simulations related to the video.

Prerequisites: A good command of English.

BI2093A Foreign Trade Legislation, 1 crs/ 1,5 ECTS crs

Objectives of the course: This course offers students a basic understanding of foreign trade legislation.

Contents of the course: The main emphasis will be put on legislation which regulates the rules of import and export activities.

Prerequisites:

BI2093B EU Legislation, 1 crs/1,5 ECTS crs

Objectives of the course: This course provides students with a basic understanding of the legislation of the European Union.

Contents of the course: The main emphasis of the course is the competition regulations of the EU.

Prerequisites:

DEGREE PROGRAMME IN RURAL INDUSTRIES

General description and objectives of the degree

The Degree Programme in Rural Industries provides a Polytechnic Degree in Natural Resources. The title is agronomist. The extent of the degree is 160 credits (crs), which equals to four years of full-time studying. The Degree Programme in Rural Industries is realised by the department of rural studies at North Karelia Vocational Institute in Kitee.

General objectives of the degree

The objective of the training is to give the student the basic knowledge in natural sciences, economy and technology needed in rural industries, and versatile skills for being able to face the challenges of the quickly changing rural areas. In the studies, emphasis is put on the professional growth of the student and on supporting self-direction based on principles of learning by doing and cooperativeness. The student will go through a professional journey from realising- and planning level onto developer- and manager level. After reaching the developer- and manager level, the student is able to work as a rural- or agricultural entrepreneur, and he is capable of expert tasks of developing rural areas, of agricultural counselling, -administration or -business tasks, and of supervisor tasks.

Construction of the studies and teaching Degree Programme in Rural Industries, structure 160 crs

Final thesis 10 crs

Practical training 20 and 10 crs

Optional studies 10 crs

Professional studies 74 - 78 crs

Basic studies 32 - 36 crs

The studies have been grouped into basic and professional studies (realising-, planner-, developer/manager level) and optional studies. Basic studies include compulsory study units, some of which are differentiated during the first study year based on the study unit of student counselling. In the basic and professional studies, the student is provided with the most essential skills and

know-how for studying at the polytechnic and for working in the versatile tasks of an agronomist. In the professional studies at developer/manager level, the student can widen his/her knowledge in the chosen specialisation options.

Teaching and assessment

Progress in studies is assessed by multiple means, such as exams, individual and group exercises, participation in classes, learning diaries and portfolios. Teaching methods also include versatile methods suitable for the thematic entity, such as problem-based learning, project and case learning, and lectures. Additionally, lectures given by experts of the field are arranged. In addition to the assessment of each study unit, the student gets a grade for each study module as well. The grade for the module is calculated as a weighted average based on the grades of each study unit after the student has got each of them marked in the transcript of records (Winha). The person in charge of the module is also responsible for grading the module. In the future, qualitative assessment criteria are added in the module evaluation as a part of the quality system work and developing the curriculum.

Specialisation options / optional studies

Industrial Engineering of Agriculture, 21 crs

The objective of the specialisation option is to equip the student with skills in managing a farm enterprise and working in expert and supervision tasks within rural counselling, -business and -administration. In the studies of the specialisation option, emphasis is put on financial administration and management on a farm and developing industrial engineering.

Rural Entrepreneurship, 21 crs

The objective of the specialisation option is to equip the student with skills in working as a rural entrepreneur and as an expert of developing rural areas. In the studies of the specialisation option, emphasis is put on networking and rural entrepreneurship, and their interaction in developing rural areas.

Rural Industries

	Code	1. year	2. year	3. year	4. year
BASIC STUDIES					
READINESS FOR STUDIES AND WORKING LIFE	AM10				
Student Counselling	AM1000	1	0	0	0
Internationalisation Studies	AM1007	0	1	0	0
Orientation into Polytechnic Studies	AM1008	1	0	0	0
PHYSICS AND CHEMISTRY	AM01				
Chemistry I	AP1110	1	0	0	0
Chemistry II	AP1112	1	0	0	0
LANGUAGES	AM02				
Svenska för agronomi 1 (Swedish for Agriculture 1)	AM1202	0	2	0	0
Svenska för agronomi 2 (Swedish for Agriculture 2)	AM1203	1	0	0	0
Svenska för samhällelig aspekt (Swedish in the Society)	AM1206	0	0	1	0
English for Agriculture 2	AM1209	1	0	0	0
Agricultural English in Business	AM1208	0	1	0	0
Agricultural English	AM1252	0	0	1	0
MATHEMATICS	AM03				
Mathematics II	AM1311	1	0	0	0
Financial Mathematics	AP1027	1	0	0	0
RESEARCH WORK	AM28				
Statistical Mathematics I	AP1303	0	0	1	0
Statistical Mathematics II	AP1304	0	0	0	1
Research Work I + II	AP1305	0	0	2	0
INFORMATION TECHNOLOGY	AM04				
Basic of Information Technology	AP1400	1	0	0	0
Tool Programmes	AP1401	1	0	0	0
Basics of Data Acquisition	AP1402	0	1	0	0
Publishing Systems	AP1403	0	1	0	0
NATIVE LANGUAGE AND COMMUNICATION	AM05				
Purity of Language	AM1500	2	0	0	0
Oral Communication 1	AM1513	1	0	0	0
Rural Culture	AM1512	0	1	0	0
Oral Communication 2	AM1514	0	0	1	0
BIOLOGY	AM29				
Biology	AM2605	1	0	0	0
Microbiology	AP2601	2	0	0	0
Anatomy and Physiology	AM2606	1	0	0	0
Soil and Climate	AM2709	1	0	0	0
PROFESSIONAL STUDIES					
PRODUCTION FACTORS IN FARM MANAGEMENT	AM30				
Basics of Plant Production	AM2700	1	0	0	0
Farm Machinery and Buildings	AM2813	1	0	0	0
Animal Material	AM2814	1	0	0	0
Basics of Farm Economy	AM2100	1	0	0	0
FIELD PLANT PRODUCTION AND USE	AM32				
Feed Production	AM2810	1	0	0	0
Contract Production of Field Plants	AM2811	1	0	0	0
Cultivation Machines	AM2812	1	0	0	0
Feeds	AM2803	1	0	0	0

ANIMAL HUSBANDRY	AM08				
Animal Welfare and Health	AM2809	0	2	0	0
Pig Production	AM2807	0	1	0	0
Other Domestic Animals	AM2028	0	1.5	0	0
ESTABLISHING A COMPANY AND COMPANY ACTIVITIES	AM34				
Making a Business Plan	AM2111	0	2.5	0	0
Business Laws	AM2112	0	2	0	0
Developing Business Skills	AM2113	0	0	1	0
FORESTRY, Realising and planning level	AM35				
Basics of Forestry	AM2310	1	0	0	0
Basics of Timber Acquisition	AM2302	1	0	0	0
Basics of Forest Planning	AM2308	2	0	0	0
Forest Economy	AM2305	0	2	0	0
Forest Policy	AM2306	0	0	1	0
Field Course	AM2309	0	1	0	0
PLANNING OF FARM PRODUCTION, Planning level	AM36				
Feeding Cattle and Planning the Care	AM2706	0	2	0	0
Cultivation Planning	AM2704	0	1.5	0	0
Environmental Support System in Agriculture	AM2707	0	0.5	0	0
FIELD COURSES AND PLANT PRODUCTION	AM37				
Field Course in Agricultural Technology	AM2710	0	1	0	0
Field Course in Plant Production	AM2711	0	1	0	0
Know-how of Plant Species	AM2712	0	1.5	0	0
Plant Protection Plan	AM2713	0	0	1	0
FARM BUILDING	AM38				
Basics of Farm Building	AM2204	0	0	1	0
Planning of Farm Building	AM2205	0	0	1	0
Functional Planning of Production Premises	AM2210	0	0	1	0
PLANNING OF FARM ECONOMY	AM39				
Planning of Work and Machine Chains on a Farm	AM2207	0	0	1	0
Economic Planning on a Farm	AM2107	0	0	3	0
Agricultural Income Support	AM2108	0	0	1	0
Agricultural and Rural Policy Seminar	AM2109	0	0	0.5	0
Farm Accounting and Taxation	AM2101	0	1	0	0
OPERATIONAL ENVIRONMENT OF A RURAL ENTERPRISE	AM40				
Basics of Rural Policy	AM2905	0	1.5	0	0
Agricultural Policy	AM2903	0	2	0	0
Basics of Economics	AM2906	0	1	0	0
Municipality as an Operational and Economical Unit	AM2907	0	0	2.5	0
Project Know-how	AM2908	0	0	2	0
STUDIES OF THE SPECIALISATION ALTERNATIVE		0	0	4.5	16.5
Management level, Specialisation Studies in Industrial Engineering					
PLANNING OF PRODUCTION ECONOMICS	AM42				
Taxation Planning in Farming	AM2044	0	0	1	0
Accounting and Analysis of the Financial Statement	AM2114	0	0	1.5	0
Linear Programming in Planning	AM2115	0	0	0	2
Financing and Liquidity of an Enterprise	AM2116	0	0	0	1
FARM MANAGEMENT	AM45				
Quality- and Environmental Systems of a Farm	AM2515	0	0	0	2

Rural Industries

Management of Organisational Development	AM2516	0	0	0	2
Consumer Trends and a Changeable Consumer	AM2517	0	0	0	1
International Agricultural Policy	AM2518	0	0	0	1
RESEARCH AND DEVELOPMENT	AM46				
Automation Technology	AM2008	0	0	1	0
Crop Building of Plants	AM2708	0	0	1	0
Study Unit Abroad	AM1009	0	0	0	3.5
Environmental Problems in Agriculture	AM2602	0	0	0	1
Biotechnology and Breeding	AM2607	0	0	0	1
Agricultural Research	AM2608	0	0	0	2
Developer level, Specialisation Studies in Rural Entrepreneurship					
MARKETING	AM47				
From Idea to Product	AM2530	0	0	2	0
Marketing Planning	AM2533	0	0	0	2
Marketing Communication	AM1511	0	0	0	1
Marketing Project	AM2534	0	0	0	1
DEVELOPMENT OF COMMUNITIES AND NETWORKS	AM48				
Management of Organisational Development	AM2516	0	0	0	2
Development and Education of Community in Networks	AM2611	0	0	0	2
Communal and Organisational Activities	AM2612	0	0	0	1
RURAL DEVELOPMENT IN FINLAND AND ABROAD	AM49				
Enterprise as a Part of Rural Development Network	AM2622	0	0	0	2
Intercultural Communication	AM2623	0	0	0	3
STRATEGIC MANAGEMENT OF AN ENTERPRISE	AM60				
Strategic Opportunities of an Enterprise	AM2117	0	0	2	0
Consumer Trends and a Changeable Consumer	AM2118	0	0	0	1
Strategic Opportunities of an Enterprise	AM2119	0	0	0	2
Optional studies		4	0	0	0
Physics	AP1111	1	0	0	0
Swedish, revision course	AM1200	1	0	0	0
English, revision course	AM1201	1	0	0	0
Mathematics I	AM1310	1	0	0	0
Animal Husbandry Exercises	AM2808	1	0	0	0
Technology of Farm Machinery (optional)					
Use and Service of Machines	AM2200	1	0	0	0
Mechanical Engineering	AM2208	1	0	0	0
Welding and Repairing of Machines	AM2209	1	0	0	0
OPTIONAL STUDIES		0	5	5	0
PRACTICAL TRAINING		20	0	10	0
Farm Training	AM2441	20	0	0	0
Specialisation Practise	AM2443	0	0	10	0
FINAL THESIS		0	0	0	10

BASIC STUDIES

AM1000 Student Tuition 1, 1 crs/1,5 ECTS crs

Objectives of the course: The student is acquainted with different study methods, such as independent studying and group work, and learns how to use self-evaluation as a method of follow-up for his/her learning

Contents of the course: Study regulations and problems, different studying methods and styles, outlines of the personal study programme as well as acquaintance with the new pedagogy.

Prerequisites: Not required.

AM1007 Internationalizing Studies, 1 crs/1,5 ECTS crs

Objectives of the course: The student is acquainted with the basics of intercultural communication and develops skills to act in the multicultural world.

Contents of the course: Internationality as a concept, multiculturalism and tolerance, development co-operation, studying and working abroad.

Prerequisites: Not required.

AM1010 Orientation to Studies at Polytechnic, 1 crs/1,5 ECTS crs

Objectives of the course: The student will get acquainted with the basic principles of the polytechnic studies and North Karelia Polytechnic and special features of rural industries. The student is able to draw up a personal study plan suitable for his/her needs and is used to applying self evaluation as a follow-up tool of the studies.

Contents of the course: Context of rural industries degree programme, objectives and assessment of the studies, testing the student's skilled areas, getting to know one's own branch and grouping with the help of a small field trip, building up a personal study plan, self evaluation as a follow-up tool of the studies.

Prerequisites: Not required.

AM1202 Svenska för agronomi 1 (Swedish), 2 crs/3 ECTS crs

Objectives of the course: Wider acquaintance with the agricultural vocabulary and texts. Improving oral and literal skills. A command of the matter-of-fact style. The contents vary according to the students' interests and professional orientation.

Contents of the course: According to the interest of the group.

Prerequisites: Not required.

AM1203 Svenska för agronomi 2 (Swedish), 1 crs/1,5 ECTS crs

Objectives of the course: Deeper and wider acquaintance with the agricultural vocabulary and texts. Improving oral and literal skills. A command of the matter-of-fact style. The student is able to read literature of his/her own field and revise it according to his/her needs.

Contents of the course: Special vocabulary (animal husbandry, plant production, animal- and plant diseases, animal welfare, cultivation techniques), current texts (domestic animal production, plant production), group discussions, presentations.

Prerequisites: Not required.

AM1206 Svenska för samhällelig aspekt (Swedish), 1 crs/1,5 ECTS crs

Objectives of the course: Deeper and wider acquaintance with the re-construction of the rural areas, rural and rural policy vocabulary and texts. To be able to cope in situations concerning the residential environment.

Contents of the course: Special vocabulary on different themes (buildings, animal welfare, scenic values, operational environments in the countryside), current texts (construction planning, rural entrepreneurship), oral and written presentations.

Prerequisites: Not required.

AM1208 Agricultural English in Business, 1 crs/1,5 ECTS crs

Objectives of the course: Deeper and wider acquaintance with the vocabulary in agricultural and forestry business and in economy. Ability to study material on the EU and apply it when needed.

Contents of the course: Special vocabulary on different themes (EU agriculture, forestry, wood species), current texts, reporting.

Prerequisites: Not required.

AM1209 English for Agriculture 2, 1 crs/1,5 ECTS crs

Objectives of the course: Basic vocabulary and phrases in agriculture and in forestry. Telling about farms.

Contents of the course: Basic vocabulary (titles, feeding and taking care of domestic animals, agricultural machinery), telling about one's job, texts of the field (domestic animal production and technology), group discussions based on articles, discussion and listening exercises.

Prerequisites: Not required.

Rural Industries

AM1252 Agricultural English, 1 crs/1,5 ECTS crs

Objectives of the course: Deeper and wider acquaintance with the re-construction of the rural areas, rural and rural policy vocabulary and texts. To be able to cope in situations concerning the residential environment. Getting to know the Finnish and European rural policy.

Contents of the course: Special vocabulary on different themes (plant production, plant diseases, cultivation techniques, developing the countryside), current texts (plant production, rural policy), group discussions, written exercises.

Prerequisites: Not required.

AM1311 Mathematics II, 1 crs/1,5 ECTS crs

Objectives of the course: To know the concept of function and know how to make and handle the most common functions. To master the basics of differential calculus and to be able to apply it.

Contents of the course: The most common polynomial functions, exponent functions and trigonometric functions. Derivate, rules and formulas of derivation.

Prerequisites: Not required.

AM1500 Preservation of the Purity of the Language, 2 crs/3 ECTS crs

Objectives of the course: The student develops as a written communicator and gets acquainted with producing skilful professional and official language.

Contents of the course: Concern for the purity of language and correct spelling, basics of literal expression and document writing.

Prerequisites: Not required.

AM1512 Rural Culture, 1 crs/1,5 ECTS crs

Objectives of the course: The student gets acquainted with the cultural development in his/her own branch and knows how to plan, implement and evaluate a small-scale cultural event.

Contents of the course: Basic features of a rural culture, organising an event: planning and implementing the programme, planning the service, marketing the event and assessing the success.

Prerequisites: Not required.

AM1513 Oral Communication 1, 1 crs/1,5 ECTS crs

Objectives of the course: The student gets acquainted with the basic elements of oral communication and with the different types of speeches.

Contents of the course: The basics of oral communication: breathing, limpsness and different types of voice and speech.

Prerequisites: Not required.

AM1514 Oral Communication 2, 1 crs/1,5 ECTS crs

Objectives of the course: The student learns skills in becoming a convincing communicator in different oral situations.

Contents of the course: Ways of convincing, how to make a convincing speech, confidence in communication.

Prerequisites: Not required.

AM2605 Biology, 1 crs/1,5 ECTS crs

Objectives of the course: Initiates the student into the regularities of heredity and gives the basic knowledge in the digestion of creatures with one stomach.

Contents of the course: Basics of biology, laws of heredity, structure of the cell, physiology and anatomy of the stomach.

Prerequisites: Not required.

AM2606 Anatomy and Physiology, 1 crs/1,5 ECTS crs

Objectives of the course: The student knows the basic facts in the anatomy and physiology of domestic animals which are needed in caring and feeding them.

Contents of the course: The structure of domestic animals, digestion, reproduction, milk development, healthy and sick animal. English language studies are integrated in the study unit.

Prerequisites: Not required.

AM2709 Soil and Climate, 1 crs/1,5 ECTS crs

Objectives of the course: The student can evaluate the production capacity of fields on the basis of their chemical, physical and biological properties and knows how to improve the soil condition. The student knows the climatic conditions for plant production in Finland and can assess the success of cultivation on the basis of weather conditions during the growing period.

Contents of the course: Type of soil, nutritional state, pH, packing of soil, water management, humus content, thermal growing season, precipitation.

Prerequisites: Not required.

AP1027 Commercial Mathematics, 1 crs/1,5 ECTS crs

Objectives of the course: To know the basics of calculation methods of investments and profitability. To know the functions modelling the activity.

Contents of the course: Prolonging and discount, present value system, annual instalment, the method of intern rate of interests, marginal functions, optimal cost and profitability, flexibility of function.

Prerequisites: Not required.

AP1110 Chemistry I, 1 crs/1,5 ECTS crs

Objectives of the course: To know the structure and binding of the material, to the chemical reactions and their influential factors. To know how to use the most common equipment and measuring instruments in a laboratory safely. To know the safety regulation factors of chemicals.

Contents of the course: Atoms, chemical bindings, acid-alkaline reactions, oxidation-reduction reactions, measuring of pH, titration.

Prerequisites: Not required.

AP1112 Chemistry II, 1 crs/1,5 ECTS crs

Objectives of the course: To know the energy changes connected with reactions and their impact on the propagation of a reaction. To know the qualities of elements and element groups. To know the central organic material groups and reactions.

Contents of the course: Thermochemistry, electrochemistry, chemistry of elements and organic chemistry.

Prerequisites: Not required.

AP1303 Statistical Mathematics 1, 1 crs/1,5 ECTS crs

Objectives of the course: The student masters the basics of statistics. Mathematic handling of statistical material.

Contents of the course: Statistical variables, parameters and correlation between two variables. Acquaintance with probability calculus.

Prerequisites:

AP1304 Statistical Mathematics 2, 1 crs/1,5 ECTS crs

Objectives of the course: The student learns to make a statistical report and knows how to utilise statistical methods in the final thesis.

Contents of the course: Collecting observational material, handling material and statistical testing.

AP1305 Research Work I and II, 2 crs/3 ECTS crs

Objectives of the course: The student is able to use different sources of information and research methods independently, he/she can choose the relevant information for reports, and knows the instructions concerning the outlook, structure, language and performance of the final thesis.

Contents of the course: Writing instructions, reference techniques, style, structure and performance of the language, work plan, study extract, research methods and making a literature survey and handling the material.

Prerequisites: Not required.

AP1400 Basics in Information Technology, 1 crs/1,5 ECTS crs

Objectives of the course: The student has the basic skills in information technology and he/she is used to working with IT at school. After the study unit, the student can easily use computers as tools for studying.

Contents of the course: Basic concepts of information technology, history and purpose of it, introduction to the techniques to help the purchase of a machine, basics of the Windows tool programme, word processing, Internet and e-mail.

Prerequisites: Not required.

AP1401 Tool Programmes, 1 crs/1,5 ECTS crs

Objectives of the course: Deepens the knowledge of tool programmes in a way that the student is able to act in situations where the most common errors occur. The student can use programmes for statistics and word processing effectively.

Contents of the course: MS Windows, MS Word and MS Excel.

Prerequisites: Basics of Information Technology

AP1402 Basics in Data Acquisition, 1 crs/1,5 ECTS crs

Objectives of the course: To acquaint the student with data communications, databanks and their processing.

Contents of the course: Databases, effective use of the Internet, IT-information in libraries, planning and implementation of minor databases with the MS access-programme.

Prerequisites: Basics of Information Technology

AP1403 Making a Publication, 1 crs/1,5 ECTS crs

Objectives of the course: To initiate the student into different kinds of publishing and make-up systems. The student knows how to make an electric publication and a folder document and create graphics. He/she is able to produce and process pictures.

Contents of the course: Front Page, Publisher, the newest programmes

Prerequisites: Basics of Data Acquisition

AP2601 Microbiology, 2 crs/3 ECTS crs

Objectives of the course:

Contents of the course:

Prerequisites:

Rural Industries

PROFESSIONAL STUDIES

AM2028 Other Domestic and Special Animals, 1,5 crs/2,25 ECTS crs

Objectives of the course: The student gets acquainted with more rare production animals grown for food or for other purposes and with the business opportunities they create in rural Finland.

Contents of the course: Sheep, poultry, small animals, ostrich, wild boars. Oral communication studies are integrated in the course.

Prerequisites: Production Factors in Farm Management, Field Plant Production and Use.

AM2100 Basics in Farm Economy, 1 crs/1,5 ECTS crs

Objectives of the course: The student can calculate the costs caused by different production factors. He/she can assess the profitability of farming with the help of contribution margin and production cost calculations and is able to assess the profitability of investments.

Contents of the course: Contribution margins, production cost calculations, investment calculations.

Prerequisites: Not required.

AM2101 Agricultural Accounting and Taxation, 1 crs/1,5 ECTS crs

Objectives of the course: The student knows the tax legislation of agriculture and can fill in a tax return form for a farm and a primary producer's value added tax report.

Contents of the course: Income Tax Act of agriculture, basics of trade taxation legislation and value added tax legislation.

Prerequisites: Not required.

AM2107 Financial Planning of the Farm, 3 crs/4,5 ECTS crs

Objectives of the course: The student understands the importance of continuous planning and development of the farm. The student can analyse the present production of the farm and the opportunities for developing production. For an independently chosen farm, the student can make an economic plan, based on a method of contribution margin, with a computer by using output ? input information of different production lines, price information on real products and output as well as investment needs for a production line as a base of his/her planning. The student can assess the profitability of his/her planning farm.

Contents of the course: Evaluation of farm property. Investment calculations and their theoretical criteria. The law of reducing extra proceeds and using it in practical planning situations. Calculations of the support for a farm with the help of computer programmes.

Prerequisites: Not required.

AM2108 Agricultural Income Grants, 1 crs/1,5 ECTS crs

Objectives of the course: The student knows the history, objectives and structure of agricultural income support. The student knows the most important agricultural income support, their accrual bases, inspection and reclamation procedures. The student can fill in an application for EU support in main points.

Contents of the course: Support systems, filling in applications.

Prerequisites: Not required.

AM2109 Seminar in Agriculture and Rural Policy, 0,5 crs/0,75 ECTS crs

Objectives of the course: The student gets acquainted with agricultural organisations and their actions, channels of influence and the current topics within the control of interests.

Contents of the course: Different actual topics of agricultural and rural policy in the MTK Institute in Espoo.

Prerequisites: Not required.

AM2111 Making of Business Plan, 2,5 crs/3,75 ECTS crs

Objectives of the course: The student knows how to start a business, can plan the business by paying attention to the profitability of the business and to the needs of the customers.

Contents of the course: The student draws up a simple business plan. Communication and professional English studies are integrated in the course.

Prerequisites: Not required.

AM2112 Entrepreneurial Rights, 2 crs/3 ECTS crs

Objectives of the course: The student can compare different forms of organising on the basis of the role of function, objectives and flexibility. The student can draw up establishing papers for a new company or association.

Contents of the course: Simple contracts and knowledge of the basic features in consumer protection laws and obligations of an employer.

Prerequisites: Not required.

AM2113 Development of Business Know-How, 1 crs/1,5 ECTS crs

Objectives of the course: The student widens his/her view on the entity of business skills. The course is realised as a book essay from a chosen book in economy and the information is shared co-operationally.

Contents of the course: Business idea, marketing, production development.

Prerequisites: Not required.

AM2204 Basics in Farm Building, 1 crs/1,5 ECTS crs

Objectives of the course: The student knows the most important construction materials and the basics of building work and can interpret construction drawings.

Contents of the course: Construction materials, their qualities and use, interpreting construction drawings.

Prerequisites: Not required.

AM2205 Planning of Farm Building, 1 crs/1,5 ECTS crs

Objectives of the course: The student knows the regulations concerning farm constructions and masters constructional planning and the basics of cost calculations as well as environmental values.

Contents of the course: Calculations of cost estimates of buildings and constructional economy, regulations and instructions guiding the building process, environmental factors in building.

Prerequisites: Not required.

AM2207 Planning of Work and Machine Phases of a Farm, 1 crs/1,5 ECTS crs

Objectives of the course: The student masters the work load assessment on a farm with the help of working norms, and is able to plan the farm mechanisation to be work-technically, economically and ergonomically suitable.

Contents of the course: Basics of work load calculation, system of work norms, calculation and usage of machine and time costs in measuring the capacity. Basics of ergonomics and rationalising of work. The student can make a mechanisation plan with work load and machine cost calculations for a farm.

Prerequisites: Technology of Farm Machines, Field Plant Production and Use, Animal Husbandry, Summer courses.

AM2210 Functional Planning of Production Premises, 1 crs/1,5 ECTS crs

Objectives of the course: The student learns how to take into account the dependence between working methods, buildings and machines in planning farm pro-

duction. The student understands the importance of functional planning in designing farm premises and their equipment, and masters the most important principles of planning cow sheds, dryers and other common production buildings. Work and machine chain alternatives and their technical marginal conditions in the most common production lines.

Contents of the course: Functional planning of farm buildings, animal welfare in planning buildings and working methods. Professional Swedish studies are integrated in the study unit.

Prerequisites: Not required.

AM2302 Basics in Timber Delivery, 1 crs/1,5 ECTS crs

Objectives of the course: Basic knowledge in forest acquisition from planning a stand marked for cutting to long distance transport.

Contents of the course: Timber acquisition systems, planning a stand marked for cutting, logistical chains.

Prerequisites: Not required.

AM2305 Economy of a Forest Holding, 2 crs/3 ECTS crs

Objectives of the course: Assessment of the profitability of forestry and the factors affecting it. Economic planning of the actions in a farm forest.

Contents of the course: Timber purchase and maintenance of it on a farm. Professional English studies are integrated in the course.

Prerequisites: Basics of Forestry, Basics of Forest Planning.

AM2306 Forest Policy, 1 crs/1,5 ECTS crs

Objectives of the course: Basic information of the forest sector and its social meaning in Finland. Forest finance, forest use and developmental visions within international frames.

Contents of the course: Basic legislation guiding and promoting private forestry. Co-operation with forest owners and union activity.

Prerequisites: Not required.

AM2308 Basics in Forest Planning, 2 crs/3 ECTS crs

Objectives of the course: Measuring of a tree and of a forest. The basics of drawing up a forest plan for a farm and its use in the planning and follow-up of the functions in farm forest economy.

Contents of the course: Measuring systems, forest plans: drawing up, use and follow-up.

Prerequisites: Not required.

Rural Industries

AM2309 Field Course, 1 crs/1,5 ECTS crs

Objectives of the course: Revising and deepening the basics and methods of forest use and maintenance according to laws and regulations in practise.

Contents of the course: Timber production, economy, damages, multiple use, environment, valuable habitats in forest nature. Practical demonstrations.

Prerequisites: Basics of Forestry, Basics of Forest Planning.

AM2310 Basics in Forestry, 1 crs/1,5 ECTS crs

Objectives of the course: Basic knowledge of the different functions of the ecosystem in a forest, tree species, growing site classifications and regeneration of forest and growing methods.

Contents of the course: Forest ecosystems, tree species, requirements for growth sites, regeneration and growing methods.

Prerequisites: Not required.

AM2700 Basics in Plant Production, 1 crs/1,5 ECTS crs

Objectives of the course: The student can assess fertility and productivity of the field according to its cultivation history. She/He knows the basics in cultivation, drying and irrigation methods of land.

Contents of the course: Cultivation methods, basic features of manure and fertilizers, drainage, soil compaction and productivity.

Prerequisites: Not required.

AM2704 Planning of Cultivation, 1,5 crs/2,25 ECTS crs

Objectives of the course: The student can make a fertilisation and seeding plan for a farm according to the regulations of the environmental support conditions. He/She can make a rotation plan according to the production preconditions on the farm.

Contents of the course: Rotation, fertilisation and seeding plan, unit map interpretation, phosphorus balances.

Prerequisites: Contract Production of Field Plants.

AM2706 Cattle Feeding and Husbandry, 2 crs/3 ECTS crs

Objectives of the course: The student can plan cattle-based animal husbandry production, economic feed production, make a feeding plan for cattle, is aware of the impacts of feeding to production and to the profit, and he/she also knows production diseases and feeding strategies, and masters the feeding and care of cattle in different phases of production.

Contents of the course: Feed value systems, price calculations, feeding plan and data programmes connected to them, pasture feeding, breeding of calf and heifer, the structure of milk and factors influencing the price, beef cattle breeding.

Prerequisites: Animal Husbandry.

AM2707 Environmental Aid Scheme in Agriculture, 0,5 crs/0,75 ECTS crs

Objectives of the course: The student gets the basic knowledge of environmental support systems and their impact on agricultural production.

Contents of the course: Basic support, special supports, nitrate act.

Prerequisites: Field Plant Production and Use.

AM2710 Field Course in Agricultural Technology, 1 crs/1,5 ECTS crs

Objectives of the course: The study unit deepens and revises the earlier knowledge of using farm machinery. The study unit takes up the factors needed to be taken into consideration in cultivation planning: the impact of machines to the soil, work techniques and the quality of the product.

Contents of the course: Tilling, sowing, different rotational techniques, plant protection and harvesting.

Prerequisites: Field Plant Production and Use.

AM2711 Field Course in Plant Production, 1 crs/1,5 ECTS crs

Objectives of the course: The student identifies the most common diseases and pests of field plants and knows the basics of monitoring them. The student can evaluate the soil condition and can use the most common soil study instruments. The student can use measuring instruments for measuring field units.

Contents of the course: Field plants, diseases, pests, measure systems and instruments of soil condition.

Prerequisites: Planning of Farm Production.

AM2712 Familiarity with Plant Species, 1,5 crs/2,25 ECTS crs

Objectives of the course: The student identifies the common weeds in fields and headlands, plant species of traditional biotopes in agriculture, the most common forest types and species in their valuable habitats and lake vegetation. The student learns to identify the most important field plants also as seedlings. A flora album is collected during the study unit.

Contents of the course: Weeds, species of different biotopes, forest types, lake vegetation.

Prerequisites: Not required.

AM2713 Plant Protection Plan, 1 crs/1,5 ECTS crs

Objectives of the course: The student can predict the occurrence of pests and make a plant protection plan for the most common field plants on the basis of the information available: location, already existing plants, weather conditions in summer and previous occurrence of pests. The student knows the most important pests in field plants in the area. Professional English studies are integrated in the study unit.

Contents of the course: Planning methods, pests.

Prerequisites: Field Plant Production and Use, Planning of Farm Production.

AM2803 Feeding Stuffs, 1 crs/1,5 ECTS crs

Objectives of the course: The student knows the meaning of nutrients, can calculate the measurements of feed value, knows feed analyses and the use of their results, the qualities of feedings and their suitability for different animals, and the feed legislation. The student knows the requirements for profitable feed production.

Contents of the course: Nutritive substances, measurements of feed values, feed analyses and digestion, feed energy and protein, grass feeds, pasture feeding, grains, by-products of food industry, protein feeds, feed additives, feed legislation.

Prerequisites: Production Factors in Farm Management.

AM2807 Hog Breeding, 1 crs/1,5 ECTS crs

Objectives of the course: The student knows the special features of pig production in Finland. He/She understands the influence of feeding, care and conditions of production in profitability and welfare of pigs. He/She knows the main features of pig breeding and the data programmes used in production.

Contents of the course: Feeds, production phases, feeding, economics, breeding.

Prerequisites: Production Factors in Farm Management, Field Plant Production and Use.

AM2809 Animal Welfare and Health Care, 2 crs/3 ECTS crs

Objectives of the course: The student knows the typical behaviour of different species, the preconditions of animal welfare, requirements on production farms, the legislation of the prevention of cruelty to animals and its realisation in practise. In addition, the student gets acquainted with veterinary care and prevention and care of diseases. Professional Swedish studies are integrated in the study unit.

Contents of the course: Characteristic features of normal animal behaviour, legislation, principals of care,

prevention and care of diseases, animal welfare.

Prerequisites: Production Factors in Farm Management, Field Plant Production and Use.

AM2810 Forage Production, 1 crs/1,5 ECTS crs

Objectives of the course: The student knows the growth phases of feed grains and grass and knows the timing of their cultivation. He/She masters the choice of species and the basics of plant protection.

Contents of the course: Variety choice of grass, feed grains and peas, habitat requirements, seeding, fertilisation, plant protection and harvesting. Professional Swedish studies are integrated in the study unit.

Prerequisites: Production Factors in Farm Management.

AM2811 Contract Production of Field Plants, 1 crs/1,5 ECTS crs

Objectives of the course: The student knows the possibilities of contract cultivation on farms. He/She knows the growth phases of potato, bread grain, rape and sugar beet and masters the timing of their cultivation. He/She masters the basics variety choice and plant protection.

Contents of the course: Variety choice, habitat requirements, seeding, fertilisation, plant protection and harvesting.

Prerequisites: Production Factors in Farm Management.

AM2812 Field Tilling Machines, 1 crs/1,5 ECTS crs

Objectives of the course: The student gets acquainted with the basics of field machinery, their structure and adjusting. The student knows the different alternatives of mechanisation and is able to compare machines on the basis of technical facts.

Contents of the course: Basic tillage, seeding and fertilising machines, harvesters. The physics of drying.

Prerequisites: Production Factors in Farm Management.

AM2813 Farm Machinery and Buildings, 1 crs/1,5 ECTS crs

Objectives of the course: The student gets acquainted with the machines and buildings as one of the main production factors in farming, and also knows the most important farming machines and their purpose in use. The student is initiated into different solution models and mechanisation solutions and understands their impact on costs and technical restrictions.

Contents of the course: A general view on machines, equipment and buildings needed in cultivation and in

Rural Industries

animal husbandry. Study trips to different farms. Professional English is integrated in the study unit.

Prerequisites: Not required.

AM2814 Livestock Substance, 1 crs/1,5 ECTS crs

Objectives of the course: The student gets acquainted with different alternatives of animal husbandry and their possibilities in our country and abroad, he/she also knows their requirements concerning finance and work load.

Contents of the course: The most important domestic animals and their purpose, production opportunities of animal husbandry, production facilities and equipment, the basics of animal care.

Prerequisites: Not required.

AM2903 Rural Policy, 2 crs/3 ECTS crs

Objectives of the course: The student knows the basic features of EU operations and the most important decision making quarters and their impact on the Finnish agriculture.

Contents of the course: Main parts of rural policy and the means of rural policy, the structure of Finnish agriculture, administrative organisations in agriculture and the most important influential organisations.

Prerequisites: Not required.

AM2905 Rural Policy, 1,5 crs/2,25 ECTS crs

Objectives of the course: The student knows the rural and agricultural history and is aware of the reflections of the present day development of social and political status into the rural environment. The student recognises and can analyse the opportunities and threats in rural development from the point of view of sustainable development.

Contents of the course: The development, content and system of rural policy in Finland and in Europe, practical actions in different areas. Professional English studies are integrated in the study unit.

Prerequisites: Not required.

AM2906 Basics in Economics, 1 crs/1,5 ECTS crs

Objectives of the course: The student knows the basic terminology of national economy, terms, theories, basics of macro and microeconomics and the structure of Finnish national economy and its operational principles.

Contents of the course: Structure of national economy, theories of micro and macroeconomics.

Prerequisites: Not required.

AM2907 Municipality as Operational and Economy, 2,5 crs/3,75 ECTS crs

Objectives of the course: The student knows the basics of municipal administration and the meaning and duties of municipalities in our society. He knows the actions of a municipal organisation and the principles of decision making.

Contents of the course: The present day situation in rural municipalities and the developmental views and opportunities. Professional Swedish and Communication studies are integrated in the study unit.

Prerequisites: Not required.

AM2908 Project Expertise, 2 crs/3 ECTS crs

Objectives of the course: The student can plan, implement and evaluate a virtual project connected with the development of rural entrepreneurship.

Contents of the course: A project as a part of the development process of the company and of the operational environment in a company, project cycle, planning, preparation, realisation and administration of a project, financing sources, evaluation of the effectiveness of the project.

Prerequisites: Not required.

AM1009 Study Unit Abroad, 3,5 crs/5,25 ECTS crs

Objectives of the course: The student gets acquainted with the international development in his/her field of study and can plan, realise and assess a study trip abroad.

Contents of the course: A study trip to an agreed place abroad. Professional English and Literal Communication studies are integrated in the study unit.

Prerequisites: Not required.

AM1511 Marketing communications, 1 crs/1,5 ECTS crs

Objectives of the course: The student can act in cooperation with an advertising agency, can assess graphic material and impressive language of advertising with a great concern on the marketing objectives of the company and its products or services.

Contents of the course: The student makes a portfolio that includes all the material needed in marketing communication as well as an information plan.

Prerequisites: Not required.

AM2008 Automation Engineering, 1 crs/1,5 ECTS crs

Objectives of the course: The student understands the main principles of measuring, control and adjusting techniques as a basis of automation techniques and he/she knows the basic terminology of them. He/She knows

ws the basic functions of the different sensor and equipment used in agriculture and understands the meaning of calibration for the functioning of the automation equipment. The student gets acquainted with one automation system used in agriculture.

Contents of the course: Basics of the general control theory, basics of electricity, functioning principles of sensors and techniques of information transfer. Agricultural applications of automation techniques.

Prerequisites: Not required.

AM2044 Taxation Planning in Agriculture, 1 crs/ 1,5 ECTS crs

Objectives of the course:

Contents of the course:

Prerequisites:

AM2114 Bookkeeping and Balancing of the Accounts Analysis, 1,5 crs/2,25 ECTS crs

Objectives of the course: The student masters the basic bookings of double entry bookkeeping, making the financial statement and analysing it.

Contents of the course: The system of double entry bookkeeping, the process and analysis of financial statement.

Prerequisites: Not required.

AM2115 Linear Programming in Planning, 2 crs/ 3 ECTS crs

Objectives of the course: The student masters the basics of linear programming and is able to use spreadsheets as tools in farm planning.

Contents of the course: Economic planning of a farm. Correlation between production lines. Linear production theory and linear programming. Applications of linear programming in farm planning. Rotation models, models of animal feeding plans and programming of handling the manure. Using spreadsheets in farm planning.

Prerequisites: Not required.

AM2116 Financing and Liquidity of Enterprise, 1 crs/1,5 ECTS crs

Objectives of the course: The student understands the different phases of financial decisions.

Contents of the course: Finnish financial markets. Financial alternatives and costs of financing. Financial alternatives in a rural enterprise. Calculations of liquidity of a rural enterprise with the LIKVI-programme and analysing the results.

Prerequisites: Not required.

AM2117 Economic Planning in Enterprise, 2 crs/ 3 ECTS crs

Objectives of the course: The student knows the meaning of management accounting in decision making and the basics of double entry accounting, he/she is able to analyse the financial statement of an enterprise, can prepare a budget, and is familiar with the economic calculations of a multi-functional enterprise.

Contents of the course: Different financial opportunities in an enterprise and the costs involved in them, costs of different financial options and evaluation of the financial state of the enterprise, different report systems of an enterprise and their role as a tool of financial management.

Prerequisites: Establishing a Company and Company Activities.

AM2118 Trends in Consumption and Changing Consumer, 1 crs/1,5 ECTS crs

Objectives of the course: The student is aware of the factors affecting consumption and of the consumer requirements for products and the changes in them.

Contents of the course: The meaning of product price, consumer trends of food stuff, consumption predictions, the quality and safety of food stuff, genetic engineering in food production, competitiveness of food stuff, responsibility of producer, developmental views in central production lines, competitive advantages, ethics of the daily consumption choices.

Prerequisites: Not required.

AM2119 Strategic Options of Enterprise, 2 crs/ 3 ECTS crs

Objectives of the course: The student can describe factors influencing the strategic solutions of an enterprise.

Contents of the course: Starting points of strategic planning (operational environment), the usage of strategic planning methods, studying the different opportunities for development in an enterprise, creating leadership and control systems, setting critical factors for success, creating a follow-up system, cluster thinking.

Prerequisites: Establishing a Company and Company Activities.

AM2515 Quality and Environmental Systems for Farm, 2 crs/3 ECTS crs

Objectives of the course: The student knows the principles of the basic quality and environmental standards used in organisations and he/she is particularly acquainted with making a quality standard for a dairy farm.

Rural Industries

Contents of the course: Standards for quality systems and environment, planning procedures of a system.

Prerequisites: Not required.

AM2516 Management of Change, 2 crs/3 ECTS crs

Objectives of the course: To give the student the basic knowledge in ethic actions and the basic skills in managing and instructing interactive development processes in companies, organisations and in networks. The idea of right and wrong, values, norms, morality, ethic actions in society and in nature, professional ethics of an agronomist.

Contents of the course: Anthropocentric leadership, organisational culture, tools and methods for managing the changing process. Self-knowledge and knowledge of the human nature as a basis for interaction, different ways of interacting.

Prerequisites: Not required.

AM2517 Trends in Consumption and Changing Consumer, 1 crs/1,5 ECTS crs

Objectives of the course: The student becomes aware of the factors affecting consumption, of the requirements consumers have for products and of their changes in these requirements.

Contents of the course: : The meaning of the product price, consumer trends concerning food stuff, predictions for consumption, the quality and safety of food stuff, genetic engineering in food production, competitiveness of food stuff, responsibility of the producer, development views in the central lines of business, competitive advantages, ethics of daily consumption.

Prerequisites: Not required.

AM2518 International Rural Policy, 1 crs/1,5 ECTS crs

Objectives of the course: The student is aware of the world trade of food stuff, trade policy and the central international systems in agriculture. The student can evaluate the impact of international rural policy on the Finnish agriculture.

Contents of the course: WTO, trade groups within the EU, international structures, current topics.

Prerequisites: Not required.

AM2530 From Idea to Product, 2 crs/3 ECTS crs

Objectives of the course: The student gets a closer look at market research and R&D work of a product or service.

Contents of the course: Processing ideas to products, idea protection.

Prerequisites: Establishing a Company and Company Activities.

AM2533 Marketing Planning, 2 crs/3 ECTS crs

Objectives of the course: The student understands marketing as a part of the entire planning of business, can make a market-based business plan for a product or service.

Contents of the course: Starting points, goals, marketing actions, realisation and follow-up plan.

Prerequisites: Establishing a Company and Company Activities.

AM2534 Marketing Project, 1 crs/1,5 ECTS crs

Objectives of the course: The student learns to carry out systematic marketing work in practise.

Contents of the course: Assessment of the feasibility of a business plan, personal sales work.

Prerequisites: Establishing a Company and Company Activities.

AM2602 Environmental Problems in Agriculture, 1 crs/1,5 ECTS crs

Objectives of the course: The student gets the basic knowledge of the most important factors burdening the environment, of their impact on nature and of the ways to minimise the damage.

Contents of the course: Environmental factors and their relationships, ways of avoiding/diminishing the damages.

Prerequisites: Not required.

AM2607 Biotechniques and Livestock Breeding, 1 crs/1,5 ECTS crs

Objectives of the course: To give the student readiness to make a breeding plan for animals and to get acquainted with the opportunities of biotechnology in breeding, food processing and in environmental protection.

Contents of the course: Features to breed and their hereditary nature, methods of breeding, assessment and choosing, breeding programmes, www ANDSU-, ASMO- embryo transform breeding programmes, hereditary diseases, applications of biotechnology, genetic engineering and the ethic problems connected to it.

Prerequisites: Not required.

AM2608 Agricultural Survey, 2 crs/3 ECTS crs

Objectives of the course: The student knows the most common practical actions in agricultural research as well as their research frames, and gets acquainted with the principles of research planning. The student masters the usage of reports as information sources in practical problem solving and knows the institutions working with agricultural research in Finland. The student gets

acquainted with the present day research projects and their headlines.

Contents of the course: Planning and realisation of a field or feeding test, analysing the results. A study visits to relevant institutions, acquaintance with the present day research projects and their results.

Prerequisites: Not required.

AM2611 Community Development and Training in Networks, 2 crs/3 ECTS crs

Objectives of the course: The student gets familiar with the approaches and practices of community development and can evaluate and apply the methods of it in developing and instructing rural company networks and communities.

Contents of the course: Central concepts of community development and education, interaction between learning and development work, the relationship between individual and community/network in the development process, phases and methods of community development.

Prerequisites: Not required

AM2612 Associational and Organizational Activities, 1 crs/1,5 ECTS crs

Objectives of the course: To give the student readiness to use communal and organisational activities as a field of cooperation and beneficial supervising between rural entrepreneurs, and to widen the student's knowledge of the future challenges in rural communal and organisational activities.

Contents of the course: Roles and tasks in communities and organisations, local networking and networks in different business lines, communal legislation, roles of communities, financing of the activity, internal and external information and communication.

Prerequisites: Not required.

AM2622 Enterprise as a Part of Rural Development Network, 2 crs/3 ECTS crs

Objectives of the course: To give the student skills in identifying the field of action of rural development and to critically evaluate different co-operational quarters, networks and partnerships from business point of view.

Contents of the course: The terminology and practices of horizontal and merging rural policy, actors in rural development and in rural policy, geographical levels and tasks, ways of action and work share, local, national and international networks of rural development and their actions.

Prerequisites: Not required.

AM2623 Intercultural Communication, 3 crs/4,5 ECTS crs

Objectives of the course: The student learns to use his/her skills in intercultural communication in professional interactive situations and understands the central features of different cultures.

Contents of the course: Cultures facing one another, different cultures and habits in the world, acting in different situations. Getting ready for the study unit abroad, realisation and assessment of the study unit. Professional English studies are integrated in the study unit.

Prerequisites: Not required.

AM2708 Forming of Crops in Plants, 1 crs/1,5 ECTS crs

Objectives of the course: The student can evaluate the quantity and quality of the crop on the basis of the used cultivation technique and the environmental conditions.

Contents of the course: The meaning of crop components in crop building. Factors affecting the quantity and quality of the crop.

Prerequisites: Not required.

PRACTICAL TRAINING

AM2441 Farm Training, 20 crs/30 ECTS crs

Objectives of the course: The objective of farm training is to get practical knowledge and skills, apply the learned knowledge and skills in practise and make the student ready for the working life. The student complements his/her previous work experience and gets acquainted with farm production and the planning and profitability of production.

Contents of the course: The practise takes place on multi-production farms with cattle accepted by the supervisors of the polytechnic. Farm training can also be accomplished on a farm abroad.

AM2443 Specialisation Training, 10 crs/15 ECTS crs

Objectives of the course: The objective of the practise is to deepen the student's professional skills in practical working life and to widen the student's view on rural organisations.

Contents of the course: The place for practical training in Finland cannot be a farm. The training can be done in not more than two different places. Four (4) credits of ten can be project studies. The place for practical training is approved by the supervisor on the basis of a practical training agreement. A learning exercise is included in the training.

Prerequisites:

Rural Industries

Elective studies

AM1200 Svenska för landbruksarbete (Swedish), 1 crs/1,5 ECTS crs

Objectives of the course: Revising the basics of grammar and vocabulary. Activating the already existing skills in Swedish. Training oral and literal skills.

Contents of the course: Basics of grammar and vocabulary.

Prerequisites: Basics of Swedish.

AM1201 English for Agriculture, 1 crs/1,5 ECTS crs

Objectives of the course: Revising the basics of grammar and vocabulary. Activating the already existing skills in English. Training oral and literal skills.

Contents of the course: Basics of grammar and vocabulary.

Prerequisites: Basics of English.

AM1310 Mathematics I, 1 crs/1,5 ECTS crs

Objectives of the course: To master the solution methods of equations. To know how to convert a problem into a mathematic equation.

Contents of the course: Powers, roots, polynomials. Equations, equation groups, logarithms.

Prerequisites: Not required.

AM2200 Use and Maintenance of Machines, 1 crs/1,5 ECTS crs

Objectives of the course: The student gets acquainted with the use and service of machines with the help of practical exercises. Special attention is paid to tractor driving skills for reaching the level needed in farm training. The student knows the methods of service of the farm machinery, knows the material and work equipment used and can do the normal daily and regular services.

Contents of the course: Service and driving exercises with a tractor, basics of using the most common farm machines. Basic technical solutions of machines.

Prerequisites: Not required.

AM2208 Mechanical Engineering, 1 crs/1,5 ECTS crs

Objectives of the course: The student knows the techniques of transmission, motors and electricity used in farm machines and can evaluate the technical condi-

tion of a machine. The student knows different technical alternatives and their impact on the choice and use of the machine.

Contents of the course: The functions of petrol and diesel motors, basics of hydraulics and transmission, components. Technical quantities describing machine performances and methods for defining the condition.

Prerequisites: Not required.

AM2209 Welding and Machine Repair, 1 crs/1,5 ECTS crs

Objectives of the course: The student is able to perform the most common metal and welding tasks needed in the repairing work of machines, and has the basic knowledge in the most common methods and tools used in repairing work. Basics of and exercises in welding and metal work techniques. Planning and realising a machine repair.

Contents of the course: The student is able to perform the most common metal and welding tasks needed in the repairing work of machines, and has the basic knowledge in the most common methods and tools used in repairing work. Basics of and exercises in welding and metal work techniques. Planning and realising a machine repair.

Prerequisites: Not required.

AM2808 Exercises in Livestock Production, 1 crs/1,5 ECTS crs

Objectives of the course: With the help of instructions, the student can do different tasks connected with animal care paying attention to animal welfare and safety regulations while working

Contents of the course: Training animal husbandry tasks in practice.

Prerequisites: Not required

AP1111 Physics, 1 crs/1,5 ECTS crs

Objectives of the course: The student gets used to studying the phenomena occurring in nature and in technology with the means of physical laws. The student understands the concept of energy and physical basics and restrictions of different technical solutions.

Contents of the course: The basics of mechanics: motion, force, work, power. Thermophysics and -dynamics in an agricultural context. The basics of electricity.

Prerequisites:

DEGREE PROGRAMME IN FORESTRY

General description and aims of the degree

The length of the Degree Programme is 160 credits, which equals about 4 years' full-time studying. The students will graduate as Bachelors of Science in Forestry. The programme provides a wide knowledge of forestry and closely related fields. The programme provides the students with skills for planning, carrying out forestry activities and taking into consideration biological, economic, technological and social aspects. The graduates are employed in e.g. wood production, timber procurement, forest management planning, multiple use forestry and in education either in Finland or abroad. The tasks may include planning, administration, education, extension work, marketing and development work. Today's forestry engineers meet new challenges due to changes in society and especially in forestry. A survey on training needs indicates that employers expect, in addition to professional know-how, learning potential, business-like attitude, communicative skills, marketing oriented mind, responsibility and independent decision making skills.

Pedagogical basis for Curriculum

The main method of instruction is problem-based learning, which integrates different subjects and is based on solving practical problems of working life.

2. Networking and open discussion are essential in all activities among students, personnel, different study fields and working life.
3. Students' direct connections to working life and outside commissions at different stages of studies will increase and advance.
4. Student assessment concentrates on working processes as unities.
5. Students are encouraged to use their own potentials in different ways. The teacher is more a tutor or a facilitator than a traditional instructor.

Structure and syllabus of the studies

The programme consists of the following main parts:
Credits

1. Compulsory basic studies 23
2. Compulsory professional studies 82
3. Optional professional studies 15
4. Supervised practical training 20

5. Thesis 10

6. Electives 10 Total 160

Basic studies

The aim of general studies is to provide students with a solid basis for their professional studies and with language skills needed in their future profession. The students become familiar with theoretical basics of forestry. Mother tongue and communicational studies are integrated into other study units, but languages and mathematical studies are not integrated but taught simultaneously with related professional subjects.

Professional studies

Professional studies aim at familiarizing students with the theoretical basics of the key forestry areas and at assisting the independent application of knowledge to practical problems of working life. In the first year professional studies concentrate on basics of forest environment and in the second year on forestry and forest technology. The third year studies focus on the management of extensive study modules and on the application of previous studies. The study unit International Forestry is instructed in English.

Optional studies

Optional studies (15 credits) can be completed in various ways: taking optional courses provided by the student's own or other degree programmes, studying abroad, participating in project work or through entrepreneurship. The modules with adequate student enrolment will be implemented.

Electives

The electives (10 credits) can be chosen by each student according to his/her own inclinations and aims. The electives, taken at a higher educational level, must be completed during the studies and they must complement the student's future degree.

Practical training

Practical training (20 credits = 20 working weeks) familiarizes the students with their future working environment. During the training period they get personal experience of working life and can apply, under supervision,

Forestry

their skills and knowledge to practice. Furthermore, practical training helps the students to form an overall picture of activities in a forestry organization. The training is recommended to be completed during the summer season. In forestry and the wood industry have separate instructions concerning practical training and supervision.

Thesis

The aim of the thesis (10 credits) is to develop the students' ability to apply their skills and knowledge to practical expert tasks related to professional studies. In addition, the completion of the thesis develops information gathering

	Code	1. year	2. year	3. year	4. year
BASIC STUDIES					
Compulsory Basic Studies					
Thesis Training	MP1013		0	0	0
Thesis training: part 1	MP1013A1	0	0	0.5	0
Thesis training: part 2	MP1013A2	0	0	0	0.5
Learning and Communication skills	MP1017		0	0	0
Learning and Communication skills: Oral					
Communication	MP1017D	1	0	0	0
Learning and Communication skills	MP1017E	1	0	0	0
Learning and Communication Skills, Basic Computing	MP1017B	1	0	0	0
Swedish Language					
Swedish, Social Contacts and Orientation to Forestry	MP1031	0	0	1	0
Swedish, Forestry Terminology	MM1032	0	0	2	0
English Language					
English, Social Contacts	MP1041	1	0	0	0
English, Orientation to Forestry	MP1042	1	0	0	0
English, Forestry Terminology	MM1043	1	0	0	0
English, Forestry Terminology	MM1044	0	0	1	0
Mathematics and Science					
Linear Programming	MM1072	0	0	2	0
Statistics 1	MM1073	2	0	0	0
Statistics 2	MM1074	2	0	0	0
INFORMATION TECHNOLOGY					
Information Technology, Office Software	MP1081		0	0	0
Information Technology, Office Software 1	MP1081A	1	0	0	0
Information Technology, Office Software 2	MP1081B	1	0	0	0
Information Technology, Tele Communication	MP1082	0	0	1	0
PROFESSIONAL STUDIES					
INTRODUCTION TO FORESTRY AND WOOD TECHNOLOGY					
Preparative Course for Forestry	MM1012		0	0	0
Preparative Course for Forestry, Basics of Silviculture and Forest Mensuration	MM1012A	2	0	0	0
Preparative Course for Forestry, Orienteering	MM1012B	1	0	0	0
Forest Cluster	MP1116		0	0	0
Forest Cluster, Portfolio	MP1116A	2.5	0	0	0
Forest Cluster, Data Collection	MP1116B	0.5	0	0	0
Forest Cluster, Excursions	MP1116C	1	0	0	0
FOREST ECOLOGY					
Forest Vegetation	MM2268		0	0	0
Forest Vegetation, Tree Species	MM2268A	2	0	0	0
Forest Vegetation: botany	MM2268B	2	0	0	0
Forest Ecosystem	MM2269		0	0	0

Forest Ecosystem, Forest Types	MM2269A	0	1	0	0
Forest Ecosystem, Swamp Types	MM2269B	0	1	0	0
Forest Ecosystem, Forest Ecology	MM2269C	0	1	0	0
Forest Ecosystem, Plant Species	MM2269D	0	1	0	0
Important Habitats of Forest Nature	MM2363	0	1	0	0
WOOD TECHNOLOGY	M09				
Wood as Raw Material	MM11093		0	0	0
Wood as Raw Material, Structure of Wood	MM11093A	1.5	0	0	0
Wood as Raw Material, Properties of Wood	MM11093B	1.5	0	0	0
Wood as Raw Material, Basics of Sawmilling	MM11093C	1	0	0	0
SILVICULTURE	M29				
Forest Regeneration	MM22296		0	0	0
Forest Regeneration, Theory	MM22296A	2	0	0	0
Forest Regeneration, Soil Science	MM22296B	1	0	0	0
Forest Regeneration, Forest Mensuration	MM22296C	1	0	0	0
Forest Regeneration, Field Course	MM22296D	2	0	0	0
Growing of Forest	MM22297		0	0	0
Growing of Forest: Growing of Forest Stands	MM22297A		0	0	0
Growing of Forest: Growing of Forest Stands, part 1	MM22297A1	0.5	0	0	0
Growing of Forest: Growing of Forest Stands, part 2	MM22297A2	0	4	0	0
Growing of Forest: Forest Damages	MM22297B		0	0	0
Growing of Forest: Forest Damages, part 1	MM22297B1	0	0.5	0	0
Growing of Forest: Forest Damages, part 2	MM22297B2	0	0	1	0
WOOD PROCUREMENT	M30				
Planning of Timber Harvesting	MM2494		0	0	0
Planning of Timber Harvesting, Basics of Timber Harvesting	MM2494A	1	0	0	0
Planning of Timber Harvesting, Planning of Stands Marked for Cutting	MM2494B	0	3	0	0
Planning of Timber Harvesting, Timber Harvesting in Special Sites	MM2494C	0	1	0	0
Planning of Timber Harvesting, Timber Volume Mensuration	MM2494D	0	1	0	0
Forest Machines and Pricing of Mechanical Work	MM2495		0	0	0
Forest Machines and Pricing of Mechanical Work, Forest Machines	MM2495A	0	1	0	0
Forest Machines and Pricing of Mechanical Work, Cost Calculation in Timber Harvesting	MM2495B	0	1	0	0
Manual Timber Harvesting	MM2300	1	0	0	0
From Forest to Market	MM22298		0	0	0
From Forest to Market: Timber Trade	MM22298A	0	0	1	0
From Forest to Market: Procurement Optimising	MM22298B	0	0	2	0
From Forest to Market: logistics	MM22298C	0	0	1	0
From Forest to Market: Communications	MM22298D	0	0	1	0
MULTIPLE USE FORESTRY	M37				
Basics of Multiple Use Forestry	MM22280	0	0	4	0
FORESTRY AND WOOD TECHNOLOGY	M27				
Job Description of Forest Engineer	MM22271	0	1	0	0
Organising of Forestry Events	MM11254	0	2.5	0	0
Forestry Counselling	MM22277		0	0	0
Forestry Counselling, Forest Policy	MM22277A	0	3	0	0

Forestry

Forestry Counselling, Forest Property Possession and Trade	MM2277C	0	1	0	0
Forestry Counselling, Communication as Means of Leadership	MM2277D	0	1	0	0
International Forestry	MM2279	0	0	3	0
ENTREPRENEURSHIP	M12				
Basics of Entrepreneurship	MP2125		0	0	0
Basics of Entrepreneurship	MP2125A	0	0	3	0
Basics of Entrepreneurship, Bookkeeping	MP2125B	1	0	0	0
Marketing	MM2130	0	2	0	0
Human Resources Management and Organisational Operations	MP2143		0	0	0
Human Resources and Enterprise as an Organisation, Labour Legislation and Personnel Management	MP2143A	0	2	0	0
Human Resources Management and Organisational Operations, Organisational Operations	MP2143B	0	1	0	0
Leadership and Supervisory Duties	MK2165		0	0	0
Leadership and Supervisory Duties, Human Resources Management	MK2165A	0	0	0	2
Leadership and Supervisory Duties, Meeting and Negotiation Skills	MK2165B	0	0	0	1
FOREST MANAGEMENT PLANNING	M31				
Forestry Working Environment	MM2278	0	0	4.5	0
Forest Management Planning	MM2320		0	0	0
Preparation of Forest Management Plan	MM2320A	0	0	4	0
Forest valuation	MM2320B	0	0	0	1
Elective studies		0	3	3	12
Basics of Russian	MP1050	0	3	0	0
Russian, Continuation Course	MP1051	0	2	0	0
Basics of German Language	MP1060	0		0	0
German Language, Continuation Course	MP1061	0	2	0	0
Swedish, Bridging Course	MP1030	0	1	0	0
English, Bridging Course	MP1040	1	0	0	0
SILVICULTURE AND WOOD PROCUREMENT	MM2339	4			
Silviculture and Wood Procurement, Peatland Silviculture	MM2339A	0	0	0	
Silviculture and Wood Procurement, Peatland Silviculture, part 1	MM2339A1	0	0	1	0
Silviculture and Wood Procurement, Peatland Silviculture, part 2	MM2339A2	0	0	0	1
Silviculture and Wood Procurement, Forest Road Construction	MM2339B	0	0	1	0
Silviculture and Wood Procurement, Wood Procurement Information Systems	MM2339C	0	0	1	0
BIOENERGY	MM2338	5			
Bioenergy, Working Environment and Raw Material Procurement/Production	MM2338A	0	0	0	1.5
Bioenergy, Heat and Electricity Production	MM2338B	0	0	0	1.5
Bioenergy, Energy Investments and Business Economics	MM2338C	0	0	0	1
Bioenergy, Environmental Protection and Environmental Technology	MM2338D	0	0	0	1

BASICS OF DATA SYSTEMS	MM2413	5			
Basics of Data Systems, Relational Data Base Systems	MM2413A	0	0	2	0
Basics of Data Systems, Basics of Programming	MM2413B	0	0	0	2
Basics of Data Systems, Data Networks	MM2413C	0	0	0	1
MANAGEMENT OF FOREST ECOSYSTEM	MM2364	0	0	0	5
MULTIPLE USE FORESTRY	MM2299	5			
Multiple Use Forestry, Planning and Management of Recreational Forest Areas	MM2299A	3			
Multiple Use Forestry, Ecology of Forest Fauna	MM2299B	2			
FORESTRY IN RUSSIA	VEME	0	0	5	0
Forestry in Russia: Ecology and Silviculture in Russia	MP2820B	0	0	2	0
Forestry in Russia: Country and Culture	MP2820A	0	0	1	0
Forestry in Russia: Procurement and Timber Trade in Russia	MP2820C	0	0	2	0
OPTIONAL STUDIES		0	3	3	4
PRACTICAL TRAINING		0	10	10	0
THESIS		0	0	2	8

Forestry

BASIC STUDIES

MM1032 Swedish, Forestry Terminology, 2 crs/ 3 ECTS crs

Objectives of the course: To learn the basic professional vocabulary of forestry.

Contents of the course: Forest cycle, tree species, overview of Finnish forestry, environment and nature conservation.

Prerequisites: Social contacts 1.5 ECTS crs

MM1043 English, Forestry Terminology, 1 crs/ 1,5 ECTS crs

Objectives of the course: To expand on professional forestry terminology.

Contents of the course: Forestry related texts: Forest silviculture, Forestry of Finland.

Prerequisites:

MM1044 English, Forestry Terminology, 1 crs/ 1,5 ECTS crs

Objectives of the course: To learn basic terminology of forest industry.

Contents of the course: Forest industry related material.

Prerequisites: MP1043

MM1072 Linear Programming, 2 crs/3 ECTS crs

Objectives of the course: The course gives basics of linear programming. Most important is the geometrical point of view and the knowledge how to formulate problems of real life into optimization form.

Contents of the course: Matrices. Geometrical presentation. Simplex-method. Duality. Transportation problems.

Prerequisites: Basics of Mathematics.

MM1073 Statistics 1, 2 crs/3 ECTS crs

Objectives of the course: The course concentrates on descriptive methods of elementary statistics.

Contents of the course: Variables and matrices. Tabulation of data. Diagrams. Measures of central tendency. Dispersion statistics. Correlation. Regression analysis. Least squares method. Multiple regression.

Prerequisites:

MM1074 Statistics 2, 2 crs/3 ECTS crs

Objectives of the course: The course concentrates on probability theorems and theoretical distributions.

Contents of the course: Permutation and combination. Classical probability. Addition and multiplication ru-

les. Independent and dependent events. Binomial probability. Poisson Probability. Normal distribution. Beta and Weibull distributions. Estimation theory. Testing hypotheses. Classical one-way analysis of variance.

Prerequisites:

MP1013A1 Thesis training: part 1, 0,5 crs/ 0,75 ECTS crs

Objectives of the course: The student learns to understand the aim of thesis as a part of expert tasks in working life.

Contents of the course: aim of thesis research methods reporting

Prerequisites:

MP1013A2 Thesis training: part 2, 0,5 crs/ 0,75 ECTS crs

Objectives of the course: The student learns to understand the aim of the thesis as a part of expert tasks in working life.

Contents of the course: aims of thesis research methods reporting

Prerequisites:

MP1017B Learning and Communication Skills, Basic Computing, 1 crs/1,5 ECTS crs

Objectives of the course: To learn to use computer software independently Contents of the course: Prerequisites: None Assessment scale: 1 -5 Basis for assessment: Exam Examinations:

Contents of the course: Polytechnic's information system, basic hardware, Windows basics.

Prerequisites: None

MP1017D Learning and Communication skills: Oral Communication, 1 crs/1,5 ECTS crs

Objectives of the course: The student is able to take part in different communicational situations and to develop her/his own skills in group work.

Contents of the course: PBL(Problem based learning: basic communication skills, practices, presentation

Prerequisites: none

MP1017E Learning and Communication skills, 1 crs/1,5 ECTS crs

Objectives of the course: The student is able to write different documents with good technique and in appropriate language

Contents of the course: different documents essays reporting

Prerequisites: none

MP1031 Swedish, Social Contacts and Orientation to Forestry, 1 crs/1,5 ECTS crs

Objectives of the course: To learn to use Swedish in social situations.

Contents of the course: Communicational exercises. Themes: studies, hobbies, small talk, telephone Swedish, welcome and thank-you speeches, oral presentations, essay.

Prerequisites:

MP1041 English, Social Contacts, 1 crs/1,5 ECTS crs

Objectives of the course: To learn to use English in social situations.

Contents of the course: Communicational exercises. Themes: introduction, small talk, travelling, restaurant English, hobbies, studies.

Prerequisites:

MP1042 English, Orientation to Forestry, 1 crs/1,5 ECTS crs

Objectives of the course: To learn the basic professional vocabulary of forestry.

Contents of the course: Texts related to forestry: forest cycle, tree species, overview of Finnish forestry.

Prerequisites: MP1041

MP1081A Information Technology, Office Software 1, 1 crs/1,5 ECTS crs

Objectives of the course: To learn to use office applications independently

Contents of the course: Word, Excel, Powerpoint basics

Prerequisites: None

MP1081B Information Technology, Office Software 2, 1 crs/1,5 ECTS crs

Objectives of the course: To learn basics of graphics software and voice editing. Principles of relational databases and information management

Contents of the course: Multimedia project, MsAccess basics

Prerequisites: Office software 1

MP1082 Information Technology, Tele Communication, 1 crs/1,5 ECTS crs

Objectives of the course: The student is familiar and knows how to use the most common services of the Internet. Also he will get a basic idea of the new fast data communication techniques. He can write and publish simple home pages, too The structure of our educational information network will also be informed. The stu-

dent knows how to connect to our network remotely.

Contents of the course: Most common services of the Internet. Fast (broadband) techniques. Writing and publishing home pages. North Karelia Polytechnic educational data network.

Prerequisites:

PROFESSIONAL STUDIES**MK2165A Leadership and Supervisory Duties, Human Resources Management, 2 crs/3 ECTS crs**

Objectives of the course: The student can make an overall picture of leadership skills. The student knows what is the purpose of developing self-knowledge and how to develop self-knowledge. The student knows the qualifications of leadership behavior. The student knows the goals and practise of development discussions and knows how to give feedback. The student knows the goals of teamwork and how to lead teams. The student can analyze and solve different problems in working place.

Contents of the course: Self-knowledge and leadership skills, self-management, leadership behavior, work motivation, development discussions and feedback, team management, leadership skills in problem situations.

Prerequisites: Human Resources Management and Organizations

MK2165B Leadership and Supervisory Duties, Meeting and Negotiation Skills, 1 crs/1,5 ECTS crs

Objectives of the course: A student is able to participate in meetings and knows how to act as a chairman. He/she knows the principles of different meetings and negotiations.

Contents of the course: tasks of chairman and phrases used the technique of meetings: voting and elections documents meeting and negotiation cases

Prerequisites:

MM1012A Preparative Course for Forestry, Basics of Silviculture and Forest Mensuration, 2 crs/3 ECTS crs

Objectives of the course: The student can explain the basis of silviculture. He/she knows different stand development classes, the silvicultural work to be done in different stand development classes and can use thinning models. The student can use forest mensuration instruments. He/she can define and measure different tree dimensions and can calculate the volume of a single tree with different methods. Can measure tree dimensions from relascope sample plot. Can measure number

Forestry

of trees per hectare.

Contents of the course: Natural forest cycle, silvicultural terms, stand development classes. Mensuration instruments, measuring of a single tree, different tree models, increment and other single tree characteristics. Forest stand characteristics (D,H,G,V) from relascope sample plot.

Prerequisites:

MM1012B Preparative Course for Forestry, Orienting, 1 crs/1,5 ECTS crs

Objectives of the course: To be able to move in forest by means of compass and maps. To master the most essential wilderness skills

Contents of the course: Coordinates, maps, map symbols, orienteering, hiking equipment, wilderness skills

Prerequisites:

MM1093A Wood as Raw Material, Structure of Wood, 1,5 crs/2,25 ECTS crs

Objectives of the course: After the course the student should know the anatomic structure of wood and defects of the most important tree species with microscope.

Contents of the course:

Prerequisites:

MM1093B Wood as Raw Material, Properties of Wood, 1,5 crs/2,25 ECTS crs

Objectives of the course: After the course the student should know the timber properties and defects of the most important tree species. Knows the effects of silviculture in timber properties.

Contents of the course:

Prerequisites:

MM1093C Wood as Raw Material, Basics of Sawmilling, 1 crs/1,5 ECTS crs

Objectives of the course: After the course the student knows the connection between the qualities of the logs and those of the timber. In practicals the student learns to calculate the volume of the log and knows the method how to calculate the volume of the timber before sawing.

Contents of the course: Sawing methods, properties of Finnish coniferous forests affecting quality of timber, such as knots and wane. Required calculating methods are taught and practised. Individual sawing practicals.

Prerequisites:

MM1254 Organising of Forestry Events, 2,5 crs/3,75 ECTS crs

Objectives of the course: To organize different kind of forest events considering target group, schedule, transportation, information, costs etc.

Contents of the course: 1. Forest skills competition: Planning and measuring of tasks, organizing of competition 2. Another forest event, for example forest excursion

Prerequisites:

MM2130 Marketing, 2 crs/3 ECTS crs

Objectives of the course: Student is able to describe the basic concepts and models of modern marketing.

Contents of the course: The importance of marketing as a driving force of society and organisations, basic concepts and models of marketing.

Prerequisites: None

MM2268A Forest Vegetation, Tree Species, 2 crs/3 ECTS crs

Objectives of the course: The course provides basic knowledge of tree species' ecology and biology. Identification of forest tree species, all domestic and the most important foreign ones.

Contents of the course: Forest vegetation zones. The most common features for identifying tree species. Ecology and biology of tree species and genera.

Prerequisites:

MM2268B Forest Vegetation: botany, 2 crs/3 ECTS crs

Objectives of the course:

Contents of the course: Plant organology, physiology and plant systematics.

Prerequisites: None

MM2269A Forest Ecosystem, Forest Types, 1 crs/1,5 ECTS crs

Objectives of the course: After the course the student should identify the different site types on mineral soil

Contents of the course: Forest site types

Prerequisites:

MM2269B Forest Ecosystem, Swamp Types, 1 crs/1,5 ECTS crs

Objectives of the course: After the course the student should identify the different site types on peatland by the manual.

Contents of the course:

Prerequisites:

MM2269C Forest Ecosystem, Forest Ecology, 1 crs/1,5 ECTS crs

Objectives of the course: To make the student familiar with biodiversity in commercial forestry, key biotopes, landscape management, combination of game management and forestry and ecology. To make student familiar with microclimate in forest and the protecting effect of forests.

Contents of the course: Forest habitats in the boreal zone. Microclimate in forest stands. Decaying trees. Water in forest.

Prerequisites:

MM2269D Forest Ecosystem, Plant Species, 1 crs/1,5 ECTS crs

Objectives of the course: After the course the student knows the most common species of forest and peatland.

Contents of the course: The most common species of forest and peatland.

Prerequisites: None

MM2271 Job Description of Forest Engineer, 1 crs/1,5 ECTS crs

Objectives of the course: The course provides basic knowledge of forestry organisations and tasks in the organisations.

Contents of the course: To become familiar with the tasks of forestry engineers in forestry organisations. Presentations by means of video conferencing.

Prerequisites:

MM2277A Forestry Counselling, Forest Policy, 3 crs/4,5 ECTS crs

Objectives of the course: To make the student familiar with the aims and methods of forest policy.

Contents of the course: 1. Basics of domestic and international forest policy 2. Structural change of private forest ownership 3. Forest taxation 4. Forest legislation 5. Forest certification

Prerequisites: MP1116

MM2277C Forestry Counselling, Forest Property Possession and Trade, 1 crs/1,5 ECTS crs

Objectives of the course: The student learns basics of forest property management and trade. He/she also knows how to get information required for them.

Contents of the course: - basics of forest property management - real estate information systems - real estate trading - planning of transactions and changes of ownership - availability of information

Prerequisites:

MM2277D Forestry Counselling, Communication as Means of Leadership, 1 crs/1,5 ECTS crs

Objectives of the course: The student understands the significance and possibilities of information and communication as a part of effective functioning of modern collective body. He/she is capable of dealing with its most essential problems and can develop the information of the organization and understands how communication can influence different target groups.

Contents of the course: You can compile explicit and effective information sheets and communication materials for forestry and wood industry. You are acquainted with norms influencing communication.

Prerequisites:

MM2278 Forestry Working Environment, 4,5 crs/6,75 ECTS crs

Objectives of the course: Use of digital aerial photo. The student can segment manually an aerial photo and prepare a forestry map. The use of GPS device. Interpretation of satellite images.

Contents of the course: Aerial photography, stereo pairs, visual interpretation, use of aerial photos, preparation of forestry map, GPS, Geographic Information Systems

Prerequisites: MM1012, MM2296

MM2279 International Forestry, 3 crs/4,5 ECTS crs

Objectives of the course: Forest resources in the world and how they are divided and used. The global development of forest industry and international co-operation in forestry sector.

Contents of the course: The specialities in forestry in industrialised and in developing countries. Forestry organisations and international co-operation. Globalisation.

Prerequisites:

MM2280 Basics of Multiple Use Forestry, 4 crs/6 ECTS crs

Objectives of the course: To provide the student with basic knowledge of different forest uses

Contents of the course: Recreation, reindeer husbandry, gathering products, hunting, fishing, peat production, nature conservation and economy

MM2296A Forest Regeneration, Theory, 2 crs/3 ECTS crs

Objectives of the course: To be able to understand biological, environmental, economic and landscape aspects needed to make a regeneration plan

Contents of the course: Natural development of forests, natural regeneration, soil preparation methods,

Forestry

seed and plant production, artificial regeneration methods

Prerequisites:

MM2296B Forest Regeneration, Soil Science, 1 crs/1,5 ECTS crs

Objectives of the course: After the course the student should be able to apply knowledge of soil properties to silvicultural practises.

Contents of the course:

Prerequisites:

MM2296C Forest Regeneration, Forest Mensuration, 1 crs/1,5 ECTS crs

Objectives of the course: The student can mensurate stands and make forest inventories including calculation and evaluation of results. The student is trained to develop measurement and calculation methods independently.

Contents of the course: Forest stand characteristics. Mensuration of forest stands and using of different forest models.

Prerequisites:

MM2296D Forest Regeneration, Field Course, 2 crs/3 ECTS crs

Objectives of the course: To be able to make a regeneration plan independently

Contents of the course: Field trips Making a regeneration plan

Prerequisites: regeneration, theory

MM2297A Growing of Forest: Growing of Forest Stands, 4,5 crs/6,75 ECTS crs

Objectives of the course: Thinnings, treating of young stands, fertilisation and peatland forestry. Theory and applications. Lecture (1week), field practice (2 weeks). Written exam

Contents of the course: Thinnings, treating of young stands, fertilisation and peatland forestry.

Prerequisites:

MM2297B1 Growing of Forest: Forest Damages, part 1, 0,5 crs/0,75 ECTS crs

Objectives of the course: After the course the student should be able to identify the major abiotic and biotic agents of damage and minimise damage during management and use of forests and forest management planning.

Contents of the course: Population dynamics, biology and ecology of organisms.

Prerequisites:

MM2297B2 Growing of Forest: Forest Damages, part 2, 1 crs/1,5 ECTS crs

Objectives of the course: After the course the student should be able to identify the major abiotic and biotic agents of damage and minimise damage during management and use of forests and forest management planning.

Contents of the course: Population dynamics, biology and ecology of organisms.

Prerequisites:

MM2298A From Forest to Market: Timber Trade, 1 crs/1,5 ECTS crs

Objectives of the course: The aim of this course is to familiarize the student with the concepts of raw wood trade. The student is able to act as a representative of the seller / buyer in raw wood trade.

Contents of the course: Trading practise, terms of trade, pricing of raw wood purchase and sale of timber, marketing, import of raw wood.

Prerequisites:

MM2298B From Forest to Market: Procurement Optimising, 2 crs/3 ECTS crs

Objectives of the course: To know the requirements of customers of an establishment using raw wood and the economic importance of raw material maintenance. The student also knows practical action which promote reasonable and cost efficient raw material maintenance.

Contents of the course: Processes of a refining plant, raw material, cross-cutting optimisation and cross-cutting optimisation programmes.

Prerequisites:

MM2298C From Forest to Market: logistics, 1 crs/1,5 ECTS crs

Objectives of the course: To make the student familiar with basics of logistics and functioning of forest company, especially its wood procurement.

Contents of the course: Value chain, importance of logistics in national economy. Long-distance transportation of round wood.

Prerequisites:

MM2298D From Forest to Market: Communications, 1 crs/1,5 ECTS crs

Objectives of the course: In communication the student understands the importance and possibilities of information and communication as a part of functions in society. Furthermore, he/she recognizes the most essential problems in internal and external communication and is capable of solving them. He/she gets acquainted

nted with external information of forest organizations.

Contents of the course: Internal and external communication, internal marketing, basics of public relations.

Prerequisites:

**MM2300 Manual Timber Harvesting, 1 crs/
1,5 ECTS crs**

Objectives of the course: The student gets an overview of manual timber harvesting, harvesting methods, use and maintenance of chain saw, safe working methods and additional work done in connection with harvesting.

Contents of the course: Use and maintenance of chain saw, terminology, logging techniques.

Prerequisites:

MM2320A Preparation of Forest Management Plan, 4 crs/6 ECTS crs

Objectives of the course: The student knows the principles and main tools of practical forestry planning. The student can collect information and prepare a forest management plan.

Contents of the course: Principles of forest management planning. Introduction to calculation and optimization processes. Rotation times. Implementation of forest management plan.

Prerequisites: MM2278,MM2296

MM2320B Forest valuation, 1 crs/1,5 ECTS crs

Objectives of the course: To learn fundamentals of forest property valuation, methods and applications. Students will be able to make a value estimation and report of a forest estate

Contents of the course:

Prerequisites:

MM2363 Important Habitats of Forest Nature, 1 crs/1,5 ECTS crs

Objectives of the course: To get familiar with key biotopes.

Contents of the course:

Prerequisites:

MM2494A Planning of Timber Harvesting, Basics of Timber Harvesting, 1 crs/1,5 ECTS crs

Objectives of the course: The student - knows terminology concerning timber harvesting and different harvesting methods and equipment for commercial timber and energy timber. - is able to choose right methods and machines for different timber harvesting sites, taking into consideration economic and technical requirements.

Contents of the course: Harvesting methods of commercial and energy timber. Timber harvesting machines and their equipment.

Prerequisites:

**MM2494B Planning of Timber Harvesting, Planning of Stands Marked for Cutting, 3 crs/
4,5 ECTS crs**

Objectives of the course: The student is able to make a harvesting plan for different stands marked for cutting taking into consideration also economical, technical, labour and environmental protection points of view. The student also knows the meaning of post-harvest quality and how to inventory it.

Contents of the course: Terminology, basics of planning a harvesting site, planning of stands marked for cutting, meaning and inventory methods of post-harvest quality. Labour protection and safety of timber harvesting.

Prerequisites:

MM2494C Planning of Timber Harvesting, Timber Harvesting in Special Sites, 1 crs/1,5 ECTS crs

Objectives of the course: The course provides basic knowledge of legislation of timber harvesting. Students learn to evaluate the environmental effects of forestry and the criteria of sustainable use of forests.

Contents of the course: Legislation on forestry, water and nature conservation

Prerequisites:

MM2494D Planning of Timber Harvesting, Timber Volume Mensuration, 1 crs/1,5 ECTS crs

Objectives of the course: The student knows the legislation of timber volume mensuration, most common wood mensuration methods and their theoretical background. The student is able explain the targets of different mensuration methods and possibilities in different phases of timber procurement. He/she is able to measure timber by using common mensuration methods.

Contents of the course: Legislation and terminology of timber volume mensuration, measuring methods and their uses.

Prerequisites:

**MM2495A Forest Machines and Pricing of Mechanical Work, Forest Machines, 1 crs/
1,5 ECTS crs**

Objectives of the course: Training programme for forest machine operator, structure and features of forwarder and harvester, measuring devices of harvester, calibration and checking of measuring devices.

Forestry

Contents of the course: The student knows structure and features of forest machines and skills needed by operators in order to apply this knowledge to different phases of wood procurement

Prerequisites:

MM2495B Forest Machines and Pricing of Mechanical Work, Cost Calculation in Timber Harvesting, 1 crs/1,5 ECTS crs

Objectives of the course: The student knows the structure of cost calculation of forest machines and is able to calculate hourly and unit costs for forest machines and their accessories. In addition, the student knows the structure and terms of a contract agreement, as well as the importance of legislation on restrictive business practices when making a contract agreement.

Contents of the course: Terminology, calculation of hourly costs, calculation of unit costs, cost-effectiveness of acquisition of forest machine accessories, determining a changing time for machines, cost-effectiveness of machine investment, contract agreements

Prerequisites:

MP1116A Forest Cluster, Portfolio, 2,5 crs/3,75 ECTS crs

Objectives of the course: The student is able to collect the essential contents into the portfolio of Forest Cluster.

Contents of the course: Portfolio

Prerequisites: None

MP1116B Forest Cluster, Data Collection, 0,5 crs/0,75 ECTS crs

Objectives of the course: To make the student familiar with methods of information collection in problem solutions.

Contents of the course: Libraries, archives, data bases, search engines.

Prerequisites:

MP1116C Forest Cluster, Excursions, 1 crs/1,5 ECTS crs

Objectives of the course: Student visits different industries and organisations belonging to forest cluster

Contents of the course: Visits to mechanical and chemical forest industries, forest extension, research and other organisations. Lectures from different forest organisations.

MP2125A Basics of Entrepreneurship, 3 crs/4,5 ECTS crs

Objectives of the course: The aim of the course is to

give the student an overview of companies and their operations, regulations and operational environment. In addition, the objective is to provide the student with information about the different stages of establishing a company.

Contents of the course: 1. General information about companies 2. Establishing a company 3. Financing 4. Planning of economy - profitability – investments

Prerequisites:

MP2125B Basics of Entrepreneurship, Bookkeeping, 1 crs/1,5 ECTS crs

Objectives of the course: The student knows the aim of bookkeeping as a registration system of business transactions of a company, also knows the basics of result of company's fiscal period.

Contents of the course: Aim of bookkeeping, profit and loss account balance sheet, value added taxation, account scheme, recognition of principle key ratios, taxation.

Prerequisites:

MP2143A Human Resources and Enterprise as an Organisation, Labour Legislation and Personnel Management, 2 crs/3 ECTS crs

Objectives of the course: The student knows the primary contents of labour legislation. The student knows the aim of personnel strategy as part of business strategy and organizational management. The student knows the contents of personnel strategy and can analyse and solve the problem situations related to personnel management.

Contents of the course: Labour Legislation. Personnel strategy: personnel planning, personnel recruitment, personnel induction training, personnel development

Prerequisites: None

MP2143B Human Resources Management and Organisational Operations, Organisational Operations, 1 crs/1,5 ECTS crs

Objectives of the course: The student can define the organization and knows the functions of organization from managerial and administrative aspect. The student knows the main theories of organizations and their different structures. The student knows the goals, properties and modes of a learning organization. The student can make an overall picture of the features influencing the organization's structure and internal operations.

Contents of the course: Definition of an organization and its working environment, development of organization theories and structures, learning organization, inter-

nal function of organization: structure, organizational culture and behavior.

Prerequisites: None

Elective studies

MM2299 MULTIPLE USE FORESTRY, 5 crs/7,5 ECTS crs

Objectives of the course:

Contents of the course:

Prerequisites:

MM2299A Multiple Use Forestry, Planning and Management of Recreational Forest Areas, 3 crs/4,5 ECTS crs

Objectives of the course:

Contents of the course:

Prerequisites:

MM2299B Multiple Use Forestry, Ecology of Forest Fauna, 2 crs/3 ECTS crs

Objectives of the course:

Contents of the course:

Prerequisites:

MM2338A Bioenergy, Working Environment and Raw Material Procurement/Production, 1,5 crs/2,25 ECTS crs

Objectives of the course: The student gets an idea of energy sources used in Finnish energy production and he/she knows where wood-based fuel can be used. He/she also learns procurement chains of forest chips. The student knows how to make good firewood and store it. Some techniques to fell trees are also introduced.

Contents of the course: Working environment of energy field; production and use of energy and development of bioenergy. Sources of energy: renewable, non-renewable and developing energy sources. Production of energy wood; small-sized trees, logging slash and firewood. Chip-making methods and chipper techniques.

Prerequisites:

MM2338B Bioenergy, Heat and Electricity Production, 1,5 crs/2,25 ECTS crs

Objectives of the course: Objectives of the course: The student knows 1. principles of energy techniques and determination of energy demand. 2. basic heating solutions in one-family houses; furnaces and central heating systems, chips, pellets and heat pumps. 3. principles of heat production in heating plants and joint production of heat and electricity. 4. on-site demands of raw material quality and delivery.

Contents of the course: Estate-based heating solutions, small heating network, local heating solutions, CHP-companies

Prerequisites:

MM2338C Bioenergy, Energy Investments and Business Economics, 1 crs/1,5 ECTS crs

Objectives of the course: The student knows different ways of heating entrepreneurship and its economy. Special emphasis is laid on municipal energy solutions, heat production agreements and development projects.

Contents of the course: Municipal energy solutions, heating entrepreneurship, profitability, heat production agreements, development work, energy investment models

Prerequisites:

MM2338D Bioenergy, Environmental Protection and Environmental Technology, 1 crs/1,5 ECTS crs

Objectives of the course: The student 1) learns to take into account nutrient questions in procurement chains of forest fuels. 2) knows principles of climate protection and emission load. 3) knows international energy and climate agreements on production and use of wood fuel.

Contents of the course: climate protection and emission trade, life-cycle analysis in energy production, legislation and agreements

Prerequisites:

MM2339A1 Silviculture and Wood Procurement, Peatland Silviculture, part 1, 1 crs/1,5 ECTS crs

Objectives of the course: To learn silvicultural features and methods of peatlands. They will know how to manage water and nutrient balance of drained areas. **Prerequisites:** Weekly implementation: Teaching methods/working methods: Teaching aids:

Contents of the course: 1.Silvicultural methods of virgin mires and drained peatlands, microclimate, hydrology, nutrient balance, soil conditions and tree stand development after drainage. 2. Maintenance of drainage areas. Water balance management and techniques. Estimating measurement needs and their timing, planning and execution.

Prerequisites:

MM2339A2 Silviculture and Wood Procurement, Peatland Silviculture, part 2, 1 crs/1,5 ECTS crs

Objectives of the course:

Contents of the course:

Prerequisites:

Forestry

MM2339B Silviculture and Wood Procurement, Forest Road Construction, 1 crs/1,5 ECTS crs

Objectives of the course: The student knows forest road types and their construction. He/she can plan a forest road which meets the needs of modern long-distance transportation of timber related to its costs and construction. He/she knows the private road law concerning forest roads.

Contents of the course: Forest road types and their construction, Private Road Act, planning of forest roads, carrying capacity, cost accounting of building forest roads and division of costs

Prerequisites:

MM2339C Silviculture and Wood Procurement, Wood Procurement Information Systems, 1 crs/1,5 ECTS crs

Objectives of the course: To familiarise the student with information systems of timber procurement and their benefits to organisation.

Contents of the course: Features of information systems in practice, structure and principles of information systems.

Prerequisites:

MM2364 MANAGEMENT OF FOREST ECOSYSTEM, 5 crs/7,5 ECTS crs

Objectives of the course:

Contents of the course:

Prerequisites:

MM2413A Basics of Data Systems, Relational Database Systems, 2 crs/3 ECTS crs

Objectives of the course: To learn basics of relational databases and SQL. Students will be able to create a small database with MsAccess.

Contents of the course: Information management, basic concepts, working with MsAccess, creating a database application, SQL basics, database servers.

Prerequisites:

MM2413B Basics of Data Systems, Basics of Programming, 2 crs/3 ECTS crs

Objectives of the course:

Contents of the course:

Prerequisites:

MM2413C Basics of Data Systems, Data Networks, 1 crs/1,5 ECTS crs

Objectives of the course:

Contents of the course:

Prerequisites:

MP1030 Swedish, Bridging Course, 1 crs/1,5 ECTS crs

Objectives of the course: To learn basic Swedish grammar structures and vocabulary

Contents of the course: Written and oral exercises, listening comprehension tasks, an essay

Prerequisites: attending a placement test

MP1040 English, Bridging Course, 1 crs/1,5 ECTS crs

Objectives of the course: To learn the basic English grammar structures and to apply these skills to practise.

Contents of the course: Studying of basic grammar. Written and oral exercises. Basic communicational tasks.

Prerequisites: attending a placement test

MP1050 Basics of Russian, 3 crs/4,5 ECTS crs

Objectives of the course: To learn to read and write Russian. To manage in basic oral and written communicational situations. To get acquainted with Russian culture.

Contents of the course: Practising to read, pronounce and write Cyrillic alphabets. Listening and reading comprehension tasks. Basic communicational situations. Basic grammar.

Prerequisites: No former studies required.

MP1051 Russian, Continuation Course, 2 crs/3 ECTS crs

Objectives of the course: To learn the basic grammar structures of Russian and new vocabulary. To apply these skills to communicational situations. To get deeper acquaintance of Russian culture.

Contents of the course: Reading and writing of Russian. Listening and reading comprehension tasks, translation exercises, grammar studies. Role plays in various every-day communicational situations.

Prerequisites: Basics of Russian

MP1060 Basics of German Language, 00 crs/00 ECTS crs

Objectives of the course: To learn to read, write and speak German. To manage in basic oral and written communicational situations.

Contents of the course: Practising to read, pronounce and write German. Listening comprehension tasks. Basic grammar, basic communicational situations.

Prerequisites: No former studies required

MP1061 German Language, Continuation Course, 2 crs/3 ECTS crs

Objectives of the course: To learn the basic grammar

structures. To apply these skills in various written and oral communicational situations.

Contents of the course: Elaboration of texts, grammar exercises, listening comprehension tasks, role plays in various communicational situations

Prerequisites: Basics of German

MP2820A Forestry in Russia: Country and Culture, 1 crs/1,5 ECTS crs

Objectives of the course:

Contents of the course:

Prerequisites:

MP2820B Forestry in Russia: Ecology and Silviculture in Russia, 2 crs/3 ECTS crs

Objectives of the course:

Contents of the course:

Prerequisites:

MP2820C Forestry in Russia: Procurement and Timber Trade in Russia, 2 crs/3 ECTS crs

Objectives of the course: The aim of the course is to provide the student with basic knowledge of forestry in Russia, concentrating on areas close to Finnish border (Russian Karelia). Especially procurement and importation of round wood are emphasised.

Contents of the course: Visits to timber harvesting sites, landings and processing sites. Planning and implementation of harvesting. Matters concerning imports of round wood; chain of custody, permissions required, customs clearance etc.

Prerequisites:

DEGREE PROGRAMME IN FOREST PRODUCTS MARKETING

General description and aims of the degree

Degree Programme for Forest Products Marketing consists of studies of forestry, forest industry and forest products marketing. Modern marketing challenges are met by developing students' product knowledge and ability to advise customers in the use of products. Forest industry processes in sawmilling, wood-based panel, joinery and paper industry will be studied giving the students wide product expertise. Languages (English, German, and Swedish as compulsory, Russian, Spanish and French as optional), communications, economy, and management are essential parts of the curriculum. Marketing studies are divided into marketer's work profile, market information management, marketing communication and marketing planning. The focus of the degree programme is in marketing and product information. The examples of problem-based learning are taken from forest industry and forestry services. Information technology is used in every stage of the studies so that tool programmes are a medium of studies and modern professional programmes are used to ensure fluent use of modern technology. The degree programme co-operates with the degree programmes for forestry and wood technology. This enables the students to make a wide professional network already during their studies. The studies contain practical training, mainly in forest industry and marketing organizations. After their graduation the students will work mainly in marketing forest

products. There is also a growing field in forestry services. Due to the approach covering the whole wood chain from forest to markets the degree programme serves very well also small and medium-sized industry. Typical jobs are marketing manager, sales manager, production planner, product manager, logistics manager, export agent and communications person. The degree programme gives also skills to work as an entrepreneur.

Structure and syllabus of the studies

Basic studies: General studies of forestry and wood technology, communications, languages, information technology, mathematics. Professional studies: The purpose of professional studies is to give skills and knowledge to apply the learned information in practice. Practical training: Practical training (30 ECTS) familiarizes the student with his/her working environment. Training is recommended to be done during summers. Thesis: Thesis (15 ECTS) develops and shows student's ability to apply his/her skills in a practical expert task.

Orientation options / Elective studies

There are several ways to study the elective studies (14,5 ECTS): by studying courses from the supply of the student's own degree programme, from other degree programmes, by studying abroad, by working in projects or by student's own entrepreneurship.

BASIC STUDIES	Code	1. year	2. year	3. year	4. year
Forest Cluster	MP1116				
Forest Cluster, Portfolio	MP1116A	2.5	0	0	0
Forest Cluster, Data Collection	MP1116B	0.5	0	0	0
Forest Cluster, Excursions	MP1116C	1	0	0	0
Thesis Training	MP1013	0	0	1	0
Learning and Communication skills	MP1017				
Learning and Communication skills: Oral Communication	MP1017D	1	0	0	0
Learning and Communication skills	MP1017E	1	0	0	0
Learning and Communication Skills, Basic Computing	MP1017B	1	0	0	0
Introduction to Polytechnic Studies	MP1010	1	0	0	0
Swedish Language					
Swedish, Social Contacts and Orientation to Forestry	MP1031	0	0	1	0
Swedish, Professional Language in Wood Technology Terminology	MK2030	0	0	2	0
Swedish, Business Communication and Forest Products Marketing	MK2031	0	0	1	0
English Language					
English, Social Contacts	MP1041	1	0	0	0
English, Orientation to Forestry	MP1042	1	0	0	0
English, Wood Processing Terminology	MK2041	0	0	0	0
English, wood processing terminology, part 1	MK2041A1	1	0	0	0
English, wood processing terminology, part 2	MK2041A2	0	1	0	0
English, wood processing terminology, part 3	MK2041A3	0	1	0	0
English, Forestry Terminology	MK2040	0	1	0	0
English, International Forestry and Wood Industry	MP1043	0	0	1	0
English, Business Communication and Wood Products Marketing	MK2042	0	0	0	0
English, Business Communication and Wood Products Marketing, part 1	MK2042A1	0	0	1	0
English, Business Communication and Wood Products Marketing, part 2	MK2048A2	0	0	0	1
English, Language of Meetings and Negotiations	MK2043	0	0	0	1
Mathematics and Science					
Statistics	MK1074	0	0	0	0
Statistics 1	MK1074A	1	0	0	0
Statistics 2	MK1074B	0	0	1	0
Information Technology					
M08					
Information Technology, Office Software	MP1081				
Information Technology, Office Software 1	MP1081A	1	0	0	0
Information Technology, Office Software 2	MP1081B	1	0	0	0
Information Technology, Tele Communication	MP1082	1	0	0	0
PROFESSIONAL STUDIES					
Marketing					
M13					
Job Description of Marketer	MK2143	3	0	0	0
Marketing Communication	MK2155	0	0	0	0
Marketing Communication, Basics and Selling	MK2144A	0	2	0	0
Marketing Communication, Sales Promotion	MK2144B	0	0	4	0
Marketing Communication, Advertising	MK2144C	0	0	0	2
Management of Market Information	MK2145	0	0	0	0
Management of Market Information, Basics and Wood Products	MK2145A	4	0	0	0

Forest Products Marketing

Management of Market Information, Chemical Forest Industry Products	MK2145B	0	0	2	0
Management of Market Information, Marketing Research	MK2145C	0	0	2	0
Marketing Management and Planning	MK2146	0	0	0	3
Product Know-How	M17				
Wood as Raw Material	MP1097	0	0	0	0
Wood as Raw Material, Structure of Wood	MP1097A	2	0	0	0
Wood as Raw Material, Properties of Wood	MP1097B	1.5	0	0	0
Wood as Raw Material, Strength of Wood	MP1097C	0.5	0	0	0
Manufacture of Sawn Timber	MT2535	4	0	0	0
Wood-Based Panels and Composites	MP2813	0	0	0	0
Wood-Based Panels and Composites, Plywood Technology	MP2813A	0	1	0	0
Wood-Based Panels and Composites, Particleboard Technology	MP2813B	0	1	0	0
Wood-Based Panels and Composites, Other Wood-Based Panels	MP2813C	0	1	0	0
Wood-Based Panels and Composites, Wood-Based Panels Techniques, Practicals	MP2813D	0	1	0	0
Chemical Forest Industry	MK2822	0	0	4	0
Wood construction	MK2570	0	4	0	0
Joinery Techniques	MP2803	0	0	0	0
Joinery Techniques, products	MP2803A	0	0	1	0
Joinery Techniques, products visualization	MP2803B	0	0	1	0
Joinery Techniques, Manufacture of Joinery Products	MP2803C	0	0	2	0
Entrepreneurship	M12				
Basics of Entrepreneurial Activity	MK2160	0	0	0	0
Basics of Entrepreneurial Activity	MK2160A	2	0	0	0
Bookkeeping	MK2160B	2	0	0	0
Human Resources and Enterprise as an Organisation	MK2161	0			
Human Resources and Enterprise as an Organisation, Labour Legislation and Personnel Management	MK2161A	0	2	0	0
Human Resources and Enterprise as an Organisation, Operations of and Communication of Organisations	MK2161B	0	2	0	0
Jurisprudence	MK2162	0	0	0	0
Jurisprudence, Commercial Law	MK2162A	0	0	2	0
Jurisprudence, Law of Obligations and Contracts	MK2162B	0	0	2	0
Accountancy	MK2163	0	0	2	0
Logistics	MK2164	0	0	0	0
Basics of Logistics	MK2164A	0	1	0	0
Logistics	MK2164B	0	0	0	3
Leadership and Supervisory Duties	MK2165				
Leadership and Supervisory Duties, Human Resources Management	MK2165A	0	0	0	2
Leadership and Supervisory Duties, Meeting and Negotiation Skills	MK2165B	0	0	0	1
Forestry	M18				
Wood Procurement	MK2755	3	0	0	0
Wood production	MK2756	0	0	0	0
Wood Production, Ecology	MK2756A	0	1	0	0
Wood Production	MK2756B	0	3	0	0
Forest Management Planning	MK2752	0	3	0	0

Forest Products Marketing

Forest Policy	MK2770	0	1	0	0
Elective studies		0	6	2	6
Basics of German Language	MP1060	0	3	0	0
German Language, Continuation Course	MP1061	0	2	0	0
Basics of Russian	MP1050	0	3	0	0
Russian, Continuation Course	MP1051	0	2	0	0
Swedish, Bridging Course	MP1030	0	1	0	0
Statistical Analysis	PP3076	0	0	0	1
Qualitative Methods	MK2911	0	0	0	1
Project planning	MK2991	0	0	2	0
Publishing in internet	MK2992	0	0	2	0
Product development and quality	MK2993	0	0	0	4
Excursion	MK2842	0	1	0	0
Electronic business	MK2994	0	0	0	2
Production Planning	MK2583	0	0	0	0
Principles of production planning	MK2583A	0	0	0	1
Production planning in joinery industry	MK2583B	0	0	0	1
Production planning in panel industry	MK2583C	0	0	0	1
Production planning in sawmilling industry	MK2583D	0	0	0	1
OPTIONAL STUDIES		0	4	3	3
PRACTICAL TRAINING		4	6	10	0
THESIS		0	0	0	1

Forest Products Marketing

MK1074A Statistics 1, 1 crs/1,5 ECTS crs

Objectives of the course: The course concentrates on descriptive methods of elementary statistics.

Contents of the course: Variables and matrices. Tabulation of data. Diagrams. Measures of central tendency. Dispersion statistics. Correlation. Regression analysis. Least squares method. Multiple regression.

Prerequisites:

MK1074B Statistics 2, 1 crs/1,5 ECTS crs

Objectives of the course: The course concentrates on probability theorems and theoretical distributions.

Contents of the course: Permutation and combination. Classical probability. Addition and multiplication rules. Independent and dependent events. Binomial probability. Poisson probability. Normal distribution. Beta and Weibull distributions. Estimation theory. Testing hypotheses. Classical one-way analysis of variance.

Prerequisites:

MK2030 Swedish, Professional Language in Wood Technology Terminology, 2 crs/3 ECTS crs

Objectives of the course: To learn the basic professional forest industry terminology.

Contents of the course: The main tree species of Finland, mechanical wood processing industry (sawmill, plywood, board industry, companies of wood processing industry).

Prerequisites: Social contacts 1,5 ECTS crs

MK2031 Swedish, Business Communication and Forest Products Marketing, 1 crs/1,5 ECTS crs

Objectives of the course: To learn the basics of Swedish business communication from the viewpoint of forest products.

Contents of the course: Written and oral business communication. Themes: inquiry, offer, order, complaint.

Prerequisites: Forest Industry 3 ECTS crs

MK2040 English, Forestry Terminology, 1 crs/1,5 ECTS crs

Objectives of the course: Expanding the student's knowledge of professional forestry related terminology

Contents of the course: Material related to Finnish forestry

Prerequisites:

MK2041 English, Wood Processing Terminology, 00 crs/00 ECTS crs

Objectives of the course:

Contents of the course:

Prerequisites:

MK2041A1 English, wood processing terminology, part 1, 1 crs/1,5 ECTS crs

Objectives of the course: The student knows the most important terminology related to Forest Cluster.

Contents of the course: Forest Cluster

Prerequisites:

MK2041A2 English, wood processing terminology, part 2, 1 crs/1,5 ECTS crs

Objectives of the course: The student knows the essential terminology related to plywood manufacture

Contents of the course: Texts related to plywood manufacture. The course is integrated to the Plywood Manufacture course.

Prerequisites:

MK2041A3 English, wood processing terminology, part 3, 1 crs/1,5 ECTS crs

Objectives of the course: The student knows the basic terminology related to sawmilling and further processing

Contents of the course: Texts related to sawing and further processing

Prerequisites:

MK2042 English, Business Communication and Wood Products Marketing, 00 crs/00 ECTS crs

Objectives of the course:

Contents of the course:

Prerequisites:

MK2042A1 English, Business Communication and Wood Products Marketing, part 1, 1 crs/1,5 ECTS crs

Objectives of the course: The student knows the basic principles of English business communication

Contents of the course: Texts related to business communication

Prerequisites:

MK2043 English, Language of Meetings and Negotiations, 1 crs/1,5 ECTS crs

Objectives of the course: The student knows the basic principles of English meeting and negotiation terminology

Contents of the course: Meetings and negotiations

Prerequisites: MK2042

MK2048A2 English, Business Communication and Wood Products Marketing, part 2, 1 crs/1,5 ECTS crs

Objectives of the course: The student is familiar with basic concepts related to wood products marketing.

Contents of the course: Texts related to wood products marketing.

Prerequisites:

MP1010 Introduction to Polytechnic Studies, 1 crs/1,5 ECTS crs

Objectives of the course: The student becomes acquainted with the multidisciplinary North Karelia Polytechnic and his/her own degree programme: orientation to studies, study techniques, regulations and other degree programmes within the Polytechnic

Contents of the course:

Prerequisites:

MP1013 Thesis Training, 1 crs/1,5 ECTS crs

Objectives of the course: The student understands the significance of thesis from the point of view of his/her professional development. The student knows the aims and prerequisites of a polytechnic thesis. He/she knows the basic principles of research and project work and is capable to apply them.

Contents of the course: The aims of thesis, research methods, project work, reporting techniques

Prerequisites:

MP1017 Learning and Communication skills, 00 crs/00 ECTS crs

Objectives of the course:

Contents of the course:

Prerequisites:

MP1017B Learning and Communication Skills, Basic Computing, 1 crs/1,5 ECTS crs

Objectives of the course: To learn to use computers fluently.

Contents of the course: Polytechnics information system, basic hardware, Windows basics.

Prerequisites:

MP1017D Learning and Communication skills: Oral Communication, 1 crs/1,5 ECTS crs

Objectives of the course: The student is able to take part in different communicational situations and to develop her/his own skills in group work.

Contents of the course: PBL(Problem based learning): basic communication skills, practices, presentation

Prerequisites: none

MP1017E Learning and Communication skills, 1 crs/1,5 ECTS crs

Objectives of the course: The student masters the language. He/she can write documents, essays and reports

according to standards.

Contents of the course: language document standard job applications e-mail communication proposal memo business correspondence two essays independent studies

Prerequisites:

MP1031 Swedish, Social Contacts and Orientation to Forestry, 1 crs/1,5 ECTS crs

Objectives of the course: To learn to use Swedish in social situations.

Contents of the course: Communicational exercises. Themes: studies, hobbies, small talk, telephone Swedish, oral presentations, welcome and thank-you speech, essay and listening comprehension tasks.

Prerequisites:

MP1041 English, Social Contacts, 1 crs/1,5 ECTS crs

Objectives of the course: The student learns the most important communication situations related to social interaction. The student can make a written report and give a presentation of a marketer's job description. The course is integrated to a marketing course.

Contents of the course: Practising communication situations. Themes: introductions, small talk, travelling, eating, hobbies and studies. Writing a report based on a visit to a marketer and giving presentation of it.

Prerequisites: None

MP1042 English, Orientation to Forestry, 1 crs/1,5 ECTS crs

Objectives of the course: The student knows the basic terminology of professional forestry English.

Contents of the course: Texts related to forestry: forest cycle, tree species, overview of Finnish forestry

Prerequisites:

MP1043 English, International Forestry and Wood Industry, 1 crs/1,5 ECTS crs

Objectives of the course: The student is familiar with international forestry and wood industry and knows the basic terminology related to it.

Contents of the course: Writing a report or a portfolio about some English speaking country, in pairs or individually. A presentation based on the report.

Prerequisites:

MP1081A Information Technology, Office Software 1, 1 crs/1,5 ECTS crs

Objectives of the course: To learn to use office applications independently

Forest Products Marketing

Contents of the course: Word, Excel, Powerpoint basics

Prerequisites:

MP1081B Information Technology, Office Software 2, 1 crs/1,5 ECTS crs

Objectives of the course: To learn basics of graphics software and voice editing. Principals of relational databases and information management.

Contents of the course: Multimedia project, MsAccess basics.

Prerequisites:

MP1082 Information Technology, Tele Communication, 1 crs/1,5 ECTS crs

Objectives of the course: The student is familiar with basic services of the Internet and knows how to use them. Also, he gets a basic idea of the new fast data communication techniques. He can write and publish simple home pages, too. The structure of Polytechnic's educational information network is also studied. The student knows how to connect to LAN remotely.

Contents of the course: Basic services of the Internet Fast (broadband) techniques Writing and publishing home pages North Karelia Polytechic educational data network

Prerequisites: None

MP1116A Forest Cluster, Portfolio, 2,5 crs/3,75 ECTS crs

Objectives of the course: The student is able to collect information and to write a portfolio of Forest Cluster

Contents of the course: portfolio

Prerequisites: None

MP1116B Forest Cluster, Data Collection, 0,5 crs/0,75 ECTS crs

Objectives of the course: To make the student familiar with methods of data collection in problem solutions.

Contents of the course: Libraries, archives, data bases, search engines.

Prerequisites:

MP1116C Forest Cluster, Excursions, 1 crs/1,5 ECTS crs

Objectives of the course: The student gets familiar with industrial and other institutions in forest cluster

Contents of the course: Industrial plants in mechanical and chemical industry. Extension, research, etc. organizations. Expert lectures.

Prerequisites:

PROFESSIONAL STUDIES

MK2143 Job Description of Marketer, 3 crs/4,5 ECTS crs

Objectives of the course: The student is able to describe the essential concepts and models of modern marketing. He or she can describe the contents of a marketer's job.

Contents of the course: The importance of marketing as a driving factor of society and organisations, the basic concepts and models of marketing, marketer's job description.

Prerequisites: None

MK2144A Marketing Communication, Basics and Selling, 2 crs/3 ECTS crs

Objectives of the course: The student knows the forms of marketing communication and can apply them in an ethical and relevant way. The student can analyse buyer behaviour and choose the selling techniques accordingly. The student understands the influence of different cultures on selling.

Contents of the course: Basics of marketing communication, personal selling

Prerequisites: MK2143

MK2144B Marketing Communication, Sales Promotion, 4 crs/6 ECTS crs

Objectives of the course: The student can explain the importance and means of communication in modern marketing. He or she can utilize different means of communication, especially in marketing of products and services of forest cluster.

Contents of the course: The concept of marketing communication (personal selling, advertising, sales promotion and PR), and their planning as part of marketing communication planning.

Prerequisites: MK2143

MK2144C Marketing Communication, Advertising, 2 crs/3 ECTS crs

Objectives of the course: The student knows aims, means and forms of advertising and their characteristics. He/she understands factors affecting the choice of advertising form. The student recognises advertisements for different functions and is able to participate in producing advertisements.

Contents of the course: Advertising in different media, sponsoring, contracts, advertising campaigns, information and public relations, cooperation with advertising agencies.

Prerequisites:

MK2145A Management of Market Information, Basics and Wood Products, 4 crs/6 ECTS crs

Objectives of the course: The student understands the importance of market information as a part of decision-making. He or she can utilize different tools and sources of market information and is able to make reports that support decision-making

Contents of the course: the basic concepts of market information, information sources of the forest cluster, the ways to obtain information.

Prerequisites: MP1017, MP1116, MK2143

MK2145B Management of Market Information, Chemical Forest Industry Products, 2 crs/3 ECTS crs

Objectives of the course: The student understands the importance of market information as part of decision-making process. He or she can use different tools and sources when collecting market information and can make reports supporting decision-making.

Contents of the course: Basic concepts of market information, the means of information management and especially the chemical forest industry market information

Prerequisites: MP1017, MP1116, MK2143

MK2145C Management of Market Information, Marketing Research, 2 crs/3 ECTS crs

Objectives of the course: The student can explain the importance of marketing research as an information gathering method supporting corporate decision-making on production and marketing. He/she knows the central marketing research methods and can plan and implement a marketing research.

Contents of the course: Tasks, targets and methods of marketing research, research planning and implementation, data analysis and reporting research results.

Prerequisites:

MK2146 Marketing Management and Planning, 3 crs/4,5 ECTS crs

Objectives of the course: The student can observe and analyse the influence of continuous change of the development of forest products marketing and plan marketing taking the changes into account.

Contents of the course: Marketing planning and strategic and operative management especially in forest industry, future trends in forest industry.

Prerequisites: MK2143, MK2144, MK2145, MK2165

MK2160A Basics of Entrepreneurial Activity, 2 crs/3 ECTS crs

Objectives of the course: The aim of the course is to give the student an overview of companies and their operations, regulations and operational environment. In addition, the objective is to provide the student with information on the different stages of establishing a company.

Contents of the course: 1. General information about companies 2. Establishing a company 3. Financing 4. Planning of economy - profitability – investments

Prerequisites:

MK2160B Bookkeeping, 2 crs/3 ECTS crs

Objectives of the course: The student knows the role of bookkeeping as a device for registering business transactions, and she knows the basics of clarifying and interpreting a firm's annual profit and loss statement and balance sheet. She has also acquainted herself to using a bookkeeping software.

Contents of the course: Double entry bookkeeping, closing of financial accounts, basics of value added taxation.

Prerequisites: Not required.

MK2161A Human Resources and Enterprise as an Organisation, Labour Legislation and Personnel Management, 2 crs/3 ECTS crs

Objectives of the course: The student knows the essential contents of labour legislation. The student knows the aim of personnel strategy and organizational management. The student knows the contents of personnel strategy and can analyse and solve problems of personnel management.

Contents of the course: Personnel strategy: personnel planning, personnel recruitment, personnel induction training, personnel development Labour legislation.

Prerequisites: None

MK2161B Human Resources and Enterprise as an Organisation, Operations of and Communication of Organisations, 2 crs/3 ECTS crs

Objectives of the course: The student can define the organization and knows the functions of organization from a managerial and administrative aspect. The student knows the main theories of organization and their different structures. The student knows the goals, properties and modes of learning organization. The student can make an overall picture of the features influencing the organization structure and internal operations of organization.

Forest Products Marketing

Contents of the course: Defining an organization and working environment, development of organization theories and structures, learning organization, internal operations of organization: structure, organizational culture and behavior. Internal and external communication, internal marketing

Prerequisites: None

MK2162A Jurisprudence, Commercial Law, 2 crs/3 ECTS crs

Objectives of the course: To learn the essential legislation on business activities.

Contents of the course: The structures of justice, business activity, business contracts, real estate trade.

Prerequisites: No

MK2162B Jurisprudence, Law of Obligations and Contracts, 2 crs/3 ECTS crs

Objectives of the course: The student learns the most important regulations on law of obligations.

Contents of the course:

Prerequisites:

MK2163 Accountancy, 2 crs/3 ECTS crs

Objectives of the course: To familiarise the students with production and utilisation of cost and profitability information needed in conducting a successful enterprise

Contents of the course: 1. Introduction 2. Profitability - idea of profitability and costs - contribution margin - accounting by type of cost 3. Cost calculations - unit costing - activity-based costing - price determination - investment calculation 4. Budget and analysing of economy

Prerequisites:

MK2164A Basics of Logistics, 1 crs/1,5 ECTS crs

Objectives of the course: To make the student familiar with basics of logistics and function of forest company especially its wood procurement.

Contents of the course: Value chain and logistics system, importance of logistics in national economy.

Prerequisites:

MK2164B Logistics, 3 crs/4,5 ECTS crs

Objectives of the course: To make the student familiar with the features which affect logistics processes.

Contents of the course: Purchasing, transportation, warehousing, information systems, environmental logistics

Prerequisites:

MK2165A Leadership and Supervisory Duties, Human Resources Management, 2 crs/3 ECTS crs

Objectives of the course: The student can make an overall picture of leadership skills. The student knows what is the purpose of developing self-knowledge and how to develop it. The student knows the qualifications of leadership behavior. The student knows the goals and practise of development discussions and knows how to give feedback. The student knows the goals of teamwork and how to lead teams. The student can analyze and solve different problems in working place.

Contents of the course: Self-knowledge and leadership skills, self-management, leadership behavior, work motivation, development discussions and feedback, team management, leadership skills in problem situations.

Prerequisites: Human Resources Management and Organizations

MK2165B Leadership and Supervisory Duties, Meeting and Negotiation Skills, 1 crs/1,5 ECTS crs

Objectives of the course: A student is able to participate in meetings and knows how to act as a chairman. He/she knows the principles of different meetings and negotiations.

Contents of the course: tasks of chairman and phrases used the technique of meetings: voting and elections documents meeting and negotiation cases

Prerequisites:

MK2570 Wood construction, 4 crs/6 ECTS crs

Objectives of the course: Basics and structures of modern wood construction. Finnish application of Precut and Platform techniques.

Contents of the course: Modern methods on wooden structures. Use of wood in different construction parts. Manufacture and use of wooden components. CAD-techniques in planning and manufacture. Model structure practical in a workshop.

Prerequisites:

MK2752 Forest Management Planning, 3 crs/4,5 ECTS crs

Objectives of the course: The student can use forest management plan and he/she knows principles of forest management planning. Basics of forest mensuration and valuation.

Contents of the course: Principles of forest mensuration as a basis for forest management. Collection of data from forest, use of forest management plan in forestry. Different methods of forest valuation.

Prerequisites:

MK2755 Wood Procurement, 3 crs/4,5 ECTS crs

Objectives of the course: The student understands economic, customer oriented and environmentally friendly wood procurement as a part of wood processing. The student is aware of the importance of these factors in marketing of both forest and processed wood products.

Contents of the course: Wood trade, timber harvesting, long distance transportation and timber measurement. Establishing of the factory price for round wood. Environmental perspectives in wood procurement. Managing wood procurement. Foreign trade of round wood.

Prerequisites:

MK2756A Wood Production, Ecology, 1 crs/1,5 ECTS crs

Objectives of the course: To make the student familiar with biodiversity in commercial forestry, key biotopes, landscape management.

Contents of the course: Forest and soil types, diversity of forest ecosystems, water in forest

Prerequisites:

MK2756B Wood Production, 3 crs/4,5 ECTS crs

Objectives of the course: The student knows the basics of silviculture in different stages of rotation. He/she knows the economic and ecological aims of wood production and can evaluate chosen methods.

Contents of the course: Forest regeneration. Young stand management. Management of young and growing stands.

Prerequisites: MK2756A

MK2770 Forest Policy, 1 crs/1,5 ECTS crs

Objectives of the course: To make the student familiar with the aims and methods of forest policy.

Contents of the course: 1. Basics of domestic and international forest policy 2. Forest taxation 3. Forest legislation and organisations 4. Forest certification

Prerequisites:

MK2822 Chemical Forest Industry, 4 crs/6 ECTS crs

Objectives of the course: The students masters the basics of mechanical and chemical pulping processes, recycled pulp process, and the basics of manufacturing of paper and cardboard. He or she knows how the cost structure is formed in the field of the industry and means to control it. The student knows different types of paper, their main structure, usage and objectives of product development.

Contents of the course: Manufacturing of pulps, paper and cardboard. Types of costs and their structure. Control of costs. Types of paper products, usage, product development. Laboratory exercises.

Prerequisites: MP1116, MP1097

MP1097A Wood as Raw Material, Structure of Wood, 2 crs/3 ECTS crs

Objectives of the course: After the course the student should know the anatomic structure of wood and defects of the most important tree species with microscope.

Contents of the course: General structure of wood, structure of coniferous and non-coniferous wood, structure of a cell, chemical structure of wood, reactions of wood, identification of wood species.

Prerequisites:

MP1097B Wood as Raw Material, Properties of Wood, 1,5 crs/2,25 ECTS crs

Objectives of the course: After the course the student is able to see the connection between the structure and properties of wood and to find out possibilities to use wood in different conditions.

Contents of the course: moisture, measuring, destruction, drying, density, and thermal properties of wood.

Prerequisites:

MP1097C Wood as Raw Material, Strength of Wood, 0,5 crs/0,75 ECTS crs

Objectives of the course: To make the student familiar with wood properties in practice: Wood compression as function of moisture, bending as function of density of wood

Contents of the course: Laboratory practicals and lectures

Prerequisites: MP1097A and 1097B

MP2803A Joinery Techniques, products, 1 crs/1,5 ECTS crs

Objectives of the course: To understand * what is joinery industry? * typical products of joinery industry * glues useing in joinery industry

Contents of the course: Typical products of joinery industry.

Prerequisites:

MP2803B Joinery Techniques, products visualizati-on, 1 crs/1,5 ECTS crs

Objectives of the course: The student is able to produce a technical drawing with AutoCad of a wooden product

Forest Products Marketing

Contents of the course: The course is divided in 2 parts: 1: the basics of technical drawing principles lines, linetypes projections hatch dimensioning 2: The use of AutoCad Draw- window Modify- window Dimensioning- window Ets.. Preparing necessary drawings to produce a wooden product

Prerequisites:

MP2803C Joinery Techniques, Manufacture of Joinery Products, 2 crs/3 ECTS crs

Objectives of the course: To understand * typical machines of joinery industry * how to count the cost of product?

Contents of the course: Machines of joinery industry, making one typical joinery industry product, planning of new joinery industry process

Prerequisites:

MP2813A Wood-Based Panels and Composites, Plywood Technology, 1 crs/1,5 ECTS crs

Objectives of the course: To understand -what is plywood -plywood manufacturing process

Contents of the course: Plywood manufacturing process, plywood glues, excursion to Schauman's Plywood Mill in Joensuu.

Prerequisites:

MP2813B Wood-Based Panels and Composites, Particleboard Technology, 1 crs/1,5 ECTS crs

Objectives of the course: To understand * particleboard manufacturing * what factors have an effect on properties of particleboard * typical overlays of wood-based panels

Contents of the course: Particleboard manufacturing process, particleboard glues, overlays of wood-based panels, excursion to Puhos Board Mill in Kitee.

Prerequisites: MP2813B

MP2813C Wood-Based Panels and Composites, Other Wood-Based Panels, 1 crs/1,5 ECTS crs

Objectives of the course: To understand * what other panels there are in Finland and in other countries * principles of manufacturing process of other wood-based panels * uses of other panels

Contents of the course: Structure, manufacturing and use of fiberboard, MDF, OSB, LVL, PSL, LSL, gluelam, edge glued board, cement-bonded particleboard, wood-wool cement board, wood-fibre reinforced cement composite, gypsum bonded wood particle board, gypsum board, blockboard, laminboard.

Prerequisites: MP2813 A and B

MP2813D Wood-Based Panels and Composites, Wood-Based Panels Techniques, Practicals, 1 crs/1,5 ECTS crs

Objectives of the course: To understand * how to measure properties of wood-based panels * how to use EN-standards

Contents of the course: Standardisation in general, standardisation in wood-based panels industry, testing one piece of wood-based panel, comparing test results.

Prerequisites: MP2813 A, B and C

MT2535 Manufacture of Sawn Timber, 4 crs/6 ECTS crs

Objectives of the course: After this course the student knows the departments of a sawmill, i.e. debarking, sawing, drying and trimming. The student also knows drying conditions of wood and attends sawing practicals.

Contents of the course: Debarking and sawing are studied by stages. Drying is seen as a physical phenomenon. The knots determining the quality of timber are studied thoroughly. The planning is instructed as a logical chain. The student learns it by sawing a log at the end of the course

Prerequisites:

MK2583 Production Planning, 00 crs/00 ECTS crs

Objectives of the course: To understand * general principles of production planning * production planning of joinery industry * production planning of wood-based panels * production planning of sawmill industry

Contents of the course: General principles of production planning, making production planning of joinery industry with Excel spreadsheet, production planning of wood-based panels, making production planning of plywood industry with Excel spreadsheet, special features of production planning of sawmill industry.

Prerequisites:

MK2583A Principles of production planning, 1 crs/1,5 ECTS crs

Objectives of the course: To understand * general principles of production planning

Contents of the course: General principles of production planning

Prerequisites:

MK2583B Production planning in joinery industry, 1 crs/1,5 ECTS crs

Objectives of the course: To understand * production planning of joinery industry

Contents of the course: Making production planning of joinery industry with Excel spreadsheet.

Prerequisites:

MK2583C Production planning in panel industry, 1 crs/1,5 ECTS crs

Objectives of the course: To understand * production planning of wood-based panels

Contents of the course: Production planning of wood-based panels, making production planning of plywood industry with Excel spreadsheet.

Prerequisites:

MK2583D Production planning in sawmilling industry, 1 crs/1,5 ECTS crs

Objectives of the course: To understand production planning of sawnwood

Contents of the course: Production planning of wood-based panels

Prerequisites:

MK2842 Excursion, 1 crs/1,5 ECTS crs

Objectives of the course: Getting familiar with forest and wood industry companies and other organizations. Organizing a professional excursion.

Contents of the course:

Prerequisites:

MK2911 Qualitative Methods, 1 crs/1,5 ECTS crs

Objectives of the course: The student understands the principles and characteristics of qualitative research. He/she knows the general qualitative research methods and can apply them.

Contents of the course: The objects of qualitative research, qualitative research data and analysis.

Prerequisites: No

MK2991 Project planning, 2 crs/3 ECTS crs

Objectives of the course: The student masters the concepts and working methods of projects, he/she can make a small-scale project plan and work in different project tasks.

Contents of the course: Project plan, schedule planning, operational networks, resource planning, budgeting, project control

Prerequisites: No

MK2992 Publishing in internet, 2 crs/3 ECTS crs

Objectives of the course: The student learns to plan and maintain simple WWW-pages. He/she also learns

special characteristics of WWW-planning.

Contents of the course: The basic features of WWW, multimediaformats, web-manuscripting, graphic planning, WWW-page planning, control and maintenance, copyrights in WWW.

Prerequisites:

MK2993 Product development and quality, 4 crs/6 ECTS crs

Objectives of the course: The course consists of two separate parts: 1: Product development The objective is to learn to understand product planning as a part of customer-oriented and profitable business. 2: Quality To learn to understand quality and its significance in industry

Contents of the course: 1: Product development Processes and methods of product development 2: Quality Concept of quality - what is quality? The isms of quality (and management) Quality systems Quality organizations Quality rewards TQM (Six Sigma)

Prerequisites: None

MK2994 Electronic business, 2 crs/3 ECTS crs

Objectives of the course: The course provides the student with basic information on electronic business. The student learns the changes that are needed when information networks are taken to be a central part of a company's business. He/she also learns how to plan a web-business strategy for a SME-company.

Contents of the course:

Prerequisites: MK2160

MP1030 Swedish, Bridging Course, 1 crs/1,5 ECTS crs

Objectives of the course: To learn basic Swedish grammar structures and vocabulary

Contents of the course: Written and oral exercises, listening comprehension tasks, essay

Prerequisites: attending a placement test

MP1050 Basics of Russian, 3 crs/4,5 ECTS crs

Objectives of the course: To learn to read and write Russian. To manage in basic oral and written communicational situations. To get acquainted with Russian culture.

Contents of the course: Practising to read, pronounce and write Cyrillic alphabets. Listening and reading comprehension tasks. Basic communicational situations. Basic grammar.

Prerequisites: No former studies required.

Forest Products Marketing

MP1051 Russian, Continuation Course, 2 crs/3 ECTS crs

Objectives of the course: To learn the basic grammar structures of Russian and new vocabulary. To apply these skills to communicational situations. To get deeper acquaintance of Russian culture.

Contents of the course: Reading and writing of Russian. Listening and reading comprehension tasks, translation exercises, grammar studies. Role plays in various every-day communicational situations.

Prerequisites: Basics of Russian

MP1060 Basics of German Language, 3 crs/4,5 ECTS crs

Objectives of the course: To learn to read, write and speak German. To manage in basic oral and written communicational situations.

Contents of the course: Practising to read, pronounce and write German. Listening comprehension tasks. Basic grammar, basic communicational situations.

Prerequisites: No former studies required

MP1061 German Language, Continuation Course, 2 crs/3 ECTS crs

Objectives of the course: To learn the basic grammar structures. To apply these skills in various written and oral communicational situations.

Contents of the course: Elaboration of texts, grammar exercises, listening comprehension tasks, role plays in various communicational situations

Prerequisites: Basics of German

PP3076 Statistical Analysis, 1 crs/1,5 ECTS crs

Objectives of the course: To learn how to use statistical analysis in thesis.

Contents of the course: Computer-aided statistical analyses with Statgraphics.

Prerequisites: MK1074A

DEGREE PROGRAMME IN TOURISM

General description and aims of the degree

Degree Programme in Tourism provides education in Joensuu and in Nurmes. The programme leads to a Bachelor of Tourism and Catering degree. The education takes 3,5 years (140 cr). The objective of the Degree Programme in Tourism is to provide students with the opportunity to educate themselves to become professional experts in their own field or entrepreneurs who

have a comprehensive overview of tourism, catering and domestic services and its development possibilities and an ability to produce, implement, sell, market and manage services. Strong commercial know-how based on theoretical studies and versatile practical training is also an objective of the studies in the Degree Programme in Tourism.

BASIC STUDIES	Code	1. year	2. year	3. year	4. year
ORIENTATION TO STUDIES	KK39				
Orientation to studies	KM1037	1	0	0	0
Entrepreneurship	K41				
Industrial and commercial activities in tourism, catering and domestic services	KM1029	2	0	0	0
Basics of Entrepreneurship	KM3154	3	0	0	0
Company law	KM1030 A	2	0	0	0
Company law	KM1030 B	0	0	1	0
Basics of marketing	KM1033 A	2	0	0	0
Basics of marketing	KM1033 B	0	1	0	0
Introduction to Accounting and Finance	KM1057	0	3	0	0
Project work	KM3129	0	2	0	0
Macroeconomics	KM1046	0	0	1	0
LANGUAGES AND COMMUNICATION	KK111				
Swedish	KM1041 A	0	2	0	0
Swedish	KM1041 B	0	0	1	0
English	KM1042 A	1	0	0	0
English	KM1042Bm	1	0	0	0
English	KM1042BR	0	1	0	0
English	KM1042CM	0	0	1	0
English	KM1042CR	0	0	1	0
Communication	KM1051A	1	0	0	0
Communication	KM1051 B	0	1	0	0
Communication	KM1051C	0	0	1	0
Verbal expression and public presentation	KM2174	2	0	0	0
METHODOLOGICAL STUDIES	KK05				
Professional mathematics	KM1053	1	0	0	0
Information acquisition	KM1048	1	0	0	0
Information technology	KM1052	4	0	0	0
Research methods	KM1058 A	0	1	0	0
Research methods	KM1058 B	0	0	2	0
Statistical Methods	KM1059	0	2	0	0

Tourism

PROFESSIONAL STUDIES

COMPULSORY STUDIES FOR ALL SPECIALISATIONS KM21

Hygiene in accommodation and catering premises	KM2149	3	0	0	0
Occupational Safety and Ergonomics	KM2153	0	0	1	0
Introduction to Quality Thinking in Service Production	KM2250	0	1	0	0
Personnel administration and operations management	KM2021	0	0	3	0
Financial Planning and Monitoring	KM2249	0	2	0	0

STUDIES OF THE ORIENTATION

OPTION		19	15	15	0
--------	--	----	----	----	---

Orientation option of Tourism Services

TOURISM SERVICES

KK116

History and Basic Concepts of Tourism	KM2248	2	0	0	0
Tourism as a Regional Phenomenon	KM2052	2	0	0	0
Tourism and Culture	KM3124	2	0	0	0
Tourist behaviour	KM2247	0	2	0	0
Accommodation services	KM2056	2	0	0	0
Meeting, congress and programme services	KM2255	0	2	0	0
Touristic Services in Finland	KM2256	0	3	0	0
Marketing tourism	KM2257 A	0	2	0	0
Marketing tourism	KM2257 B	0	0	2	0
Product development of Tourism Enterprise	KM2258	0	0	2	0
Perspectives of Tourism Research	KM2259	0	0	1	0
Foodservice 1	KM2262	6	0	0	0
Food culture	KM2185	0	0	2	0
Restaurant services	KM2263	0	2	0	0
Management and Tourism Entrepreneurship	KM2260	0	0	4	0
Purchasing of Services	KM2264	0	0	1	0
Commercialisation and pricing of catering services	KM2265 A	0	1	0	0
Commercialisation and pricing of catering services	KM2265 B	0	0	1	0
Alcoholic Drinks and Legislation	KM2266	2	0	0	0
Nutrition and Dietetics 1	KM2170	1	0	0	0

Professional Languages

KK112

Svenska för resebranschen	KM2267	0	0	2	0
English for the hotel and tourism industry	KM2268	0	2	0	0

Optional Languages

KK113

Basics of German Language	KM2270	4	0	0	0
Basics of French language	KM2273	0	4	0	0
Basics of Russian language	KM2274	4	0	0	0
German professional language	KM2275	0	4	0	0
French professional language	KM2276	0	4	0	0
Russian professional language	KM2277	0	4	0	0

Orientation option of Catering and Facilities Services

CATERING AND FACILITIES SERVICES

KK114

Chemistry and physics	KM2269	2	0	0	0
Nutrition and Dietetics 1	KM2170	1	0	0	0
Foodservice 1	KM2262	6	0	0	0
Food science	KM2340	2	0	0	0
Alcoholic Drinks and Legislation	KM2266	2	0	0	0
Food culture	KM2185	0	0	2	0

Restaurant services	KM2341	0	4	0	0
Services quality and marketing	KM2342	0	2	0	0
Developing of work processes	KM2343	0	0	2	0
Purchasing of Services	KM2264	0	0	1	0
Cleaning services	KM2344A	0	3	0	0
Cleaning services	KM2344 B	0	0	2	0
Planning and management of cleaning services	KM2345 A	0	1	0	0
Planning and management of cleaning services	KM2345 B	0	0	3	0
Professional kitchen activities	KM2346 A	1	0	0	0
Professional kitchen activities	KM2346 B	0	3	0	0
Professional kitchen activities	KM2346 C	0	0	1	0
Planning and Management of Catering services	KM2347	0	0	3	0
Commercialisation and pricing of catering services	KM2348 A	0	1	0	0
Commercialisation and pricing of catering services	KM2348 B	0	0	4	0
Optional Studies	KK115				
Experimental food preparation and production development	KM2350	0	0	2	0
Product development of Facilities Services	KM2279	0	0	2	0
Nutrition and dietetics 2	KM2280	0	2	0	0
Security services of premises	KM2192	1	0	0	0
Environmental Services	KM2278	1	0	0	0
OPTIONAL STUDIES		0	2	2	6
PRACTICAL TRAINING		6	0	12	2
Professional Training	KM4028	6	0	0	0
In-depth training	KM4003	0	0	12	0
Projects	KM4029	0	2	0	0
THESIS		0	0	2	8
Thesis	KM5001	0	0	0	10

Tourism

Orientation option of Tourism Services

BASIC STUDIES	Code	1. year	2. year	3. year	4. year
ORIENTATION STUDIES					
Orientation studies	KM1200	1	0	0	0
Entrepreneurship					
Tourism, catering and business trade	KM1207	2	0	0	0
Introduction to entrepreneurship	KM1201B	3	0	0	0
Introduction to marketing	KM1202B	3	0	0	0
Business Legislation	KM1203B	3	0	0	0
Introduction to accounting and finance	KM1204B	0	3	0	0
Economics	KM1206	0	0	1	0
Project work	KM1208	0	0	2	0
LANGUAGES AND COMMUNICATION					
Swedish language	KM1252	1	0	0	0
Swedish language	KM1252 B	2	0	0	0
English language	KM1272	1	0	0	0
English language	KM1272 B	2	0	0	0
Finnish communication	KM1333	0	1	0	0
Finnish communication	KM1333 B	0	2	0	0
Verbal expression and public presentation	KM1334	2	0	0	0
METHODOLOGICAL STUDIES					
Professional mathematics	KM1227	1	0	0	0
Information acquisition	KM1224	1	0	0	0
Information technology	KM1209	4	0	0	0
Research methods	KM1225	0	3	0	0
Statistical methods	KM1226	0	2	0	0
PROFESSIONAL STUDIES					
COMPULSORY STUDIES FOR ALL SPECIALISATIONS					
Hygiene in accommodation and catering premises	KM2111	3	0	0	0
Occupational Safety and Ergonomics	KM2112	0	1	0	0
Introduction to Quality Thinking in Service					
Production	KM3113	0	0	1	0
Personnel management and administration	KM2324	0	0	3	0
Counselling 2	KM2101	0	0	2	0
STUDIES OF THE ORIENTATION OPTION		9	14	27	0
Orientation option of Tourism Services					
Professional studies in Tourism					
Basics of travel and tourism industry	KM2201	2	0	0	0
Tourism as a Regional Phenomenon	KM2206	2	0	0	0
Tourism and Culture	KM2207	1	0	0	0
Perspectives of Tourism Research	KM2208	0	0	2	0
Business software I	KM2223	0	2	0	0
Marketing communication	KM2209	0	3	0	0
Advanced language studies (obligatory)					
Foreign business contacts	KM2359	0	0	1	0
Language of meetings and negotiations	KM2360	0	0	1	0
Som vård och gäst	KM2361	0	0	1	0
Mötes- och förhandlingsteknik	KM2362	0	0	1	0
Deutsch für Anfänger (elementary course)	KM1291	4	0	0	0
Deutsch Aufbaukurs	KM1202	0	2	0	0

Herzlich willkommen	KM2271	0	2	0	0
Russian language (elementary course)	KM1311	4	0	0	0
Tourism product design	KM2308	0	0	2	0
Marketing planning of tourism services	KM2309	0	0	2	0
Meeting and congress services	KM2306	0	0	1	0
Programme services	KM2304	0	0	2	0
Accommodation services	KM2243	0	2	0	0
Food production	KM2242	0	3	0	0
Introduction to catering services	KM2310	2	0	0	0
Guide and tour conductor activity	KM2303	0	1	0	0
Tourism information services	KM2302	0	2	0	0
Visual marketing	KM2311	0	0	3	0
Tourism in the nature	KM2352	0	0	5	0
Travel agency and transport services	KM2351	0	0	5	0
Tourism centres and networking	KM2355	0	0	5	0
Training for experiential education instructors	KM2354	0	0	5	0
Guide and tour conductor activity - english	KM2356AE	0	1	0	0
Guide and tour conductor activity - swedish	KM2356AR	0	1	0	0
Further language studies	KM2356B	3	0	0	0
Further language studies	KM2356C	0	3	0	0
Elective studies		0	0	0	0
OPTIONAL STUDIES		2	4	4	0
PRACTICAL TRAINING		4	12	4	0
THESIS		0	0	5	5

Tourism

BASIC STUDIES

KM1029 Industrial and commercial activities in tourism, catering and domestic services, 2 crs/ 3 ECTS crs

Objectives of the course: The student is able to perceive the construction, development history and the most central actors of the branch as well as the mutual relations between the branches within tourism, catering and domestic services. The student recognises the most essential requirements for professionalism in the field, knows the factors affecting demand, supply and employment in the field, and is able to perceive the significance of the branches in Finnish economy.

Contents of the course: History of tourism, catering and domestic services in Finland, sub-branches and the most central company and community actors, organisations and supervision of interest in them, employment, special features in service branch, occupations in the field.

Prerequisites:

KM1030 A Company law, 2 crs/3 ECTS crs

Objectives of the course: The student knows the legislation regulating the activity of a service company in particular and the basics of juridical systematics.

Contents of the course: Judicial system and legal norms, law of contract, carrying on business, commercial and service agreements, consumer protection policy, liability and collaterals, debt collection, competition and cooperation legislation.

Prerequisites:

KM1030 B Company law, 1 crs/1,5 ECTS crs

Objectives of the course: The student knows the legislation regulating the activity of a service company in particular and the basics of juridical systematics.

Contents of the course: Judicial system and legal norms, law of contract, carrying on business, commercial and service agreements, consumer protection policy, liability and collaterals, debt collection, competition and cooperation legislation.

Prerequisites:

KM1033 A Basics of marketing, 2 crs/3 ECTS crs

Objectives of the course: The student understands the comprehensive meaning of marketing thinking in entrepreneurship, as well as the prerequisites for customer orientated marketing and the meaning of it as a competitive weapon in a service company.

Contents of the course: Basic concepts of marketing, special features in marketing a service company, consu-

mer behaviour, competitive weapons in marketing, customer orientated marketing

Prerequisites:

KM1033 B Basics of marketing, 1 crs/1,5 ECTS crs

Objectives of the course: The student understands the comprehensive meaning of marketing thinking in entrepreneurship, as well as the prerequisites for customer orientated marketing and the meaning of it as a competitive weapon in a service company.

Contents of the course: Basic concepts of marketing, special features in marketing a service company, consumer behaviour, competitive weapons in marketing, customer orientated marketing.

Prerequisites:

KM1037 Orientation to studies, 1 crs/1,5 ECTS crs

Objectives of the course: The student knows the objectives and study opportunities of North Karelia Polytechnic, knows the degree requirements and understands the main features of polytechnic legislation. He knows the study opportunities provided by his own education programme, understands the significance of the education sector in society and is able to draw up his study plan

Contents of the course: Study guide, Academic year info, objectives and content of the degree programme, personal study plan.

Prerequisites:

KM1041 A Swedish, 2 crs/3 ECTS crs

Objectives of the course: The student has a command of the central vocabulary in his field, understands different types of texts in the field, can cope in common and demanding professional communication situations both verbally and in writing, and has the basic knowledge of the language area and its culture

Contents of the course: Professional vocabulary, getting acquainted with publications and literature of the field, customer service situations, small talk, presentations, written assignments, know-how of the language area.

Prerequisites:

KM1041 B Swedish, 1 crs/1,5 ECTS crs

Objectives of the course: The student has a command of the central vocabulary in his field, understands different types of texts in the field, can cope in common and demanding professional communication situations both verbally and in writing, and has the basic knowledge of the language area and its culture

Contents of the course: Professional vocabulary, get-

ting acquainted with publications and literature of the field, customer service situations, small talk, presentations, written assignments, know-how of the language area.

Prerequisites:

KM1042 A English, 1 crs/1,5 ECTS crs

Objectives of the course: The student masters the central vocabulary of the sector, understands general publications of the sector and can cope in the verbal and written situations required in his professional sector.

Contents of the course: Tourism, catering and cleaning sector vocabulary, telephone English, customer service, oral presentations, writing a formal letter.

Prerequisites: A good command of the knowledge gained in secondary school courses or comprehensive school and vocational school courses in English language

KM1042Bm English, 1 crs/1,5 ECTS crs

Objectives of the course: The student improves his knowledge of English language, mastery of the terminology in the field of tourism and copes easily and naturally in different situations related to the accommodation services. The student can present local tourist attractions and guide tourists in different situations. In addition, the student copes in written situations related to hotel correspondence.

Contents of the course: Customer service in tourism, written communication, knowledge of North Karelia, job-seeking process

Prerequisites: KM1042A

KM1042BR English, 1 crs/1,5 ECTS crs

Objectives of the course: The student becomes familiar with the terminology in the catering sector and improves his knowledge of English language so that he copes easily and naturally in verbal and written situations required in the sector.

Contents of the course: Gastronomic terminology, different kitchens and professional equipment for kitchens, job-seeking process, devising a menu, meal planning according to nutritional requirements, cleaning services, marketing in the service sector.

Prerequisites: Customer Service in Catering and Tourism

KM1042CM English, 1 crs/1,5 ECTS crs

Objectives of the course: The student can give an account of the operation of a tourism enterprise from the management's point of view. He is able to negotiate in

an appropriate manner on topics related to business life. The student learns to understand demanding, authentic texts related to the sector and report on them both orally and in writing.

Contents of the course: Presenting an enterprise and its services, acting as a host, tourist attraction marketing, tour organizing, tour packaging, language of meetings and negotiations, familiarisation with academic literature and publications of the sector, writing an abstract.

Prerequisites: Customer Service in Catering and Tourism, English for the Hotel and Tourism Industry, English for International Tourism

KM1042CR English, 1 crs/1,5 ECTS crs

Objectives of the course: The student continues to improve his knowledge of English language and can give an account of the operation of an enterprise from the management's point of view. The student learns to understand demanding, authentic texts related to the sector and report on them both orally and in writing.

Contents of the course: Customer service, presenting an enterprise, language of meetings and negotiations, acting as a host, planning of premises, academic literature and publications, writing an abstract.

Prerequisites: Customer Service in Catering and Tourism, English for the Foodservice Industry

KM1046 Macroeconomics, 1 crs/1,5 ECTS crs

Objectives of the course: The student is able to see Finland's national economy position as a part of Europe and of world economy. Additionally, he has a command of the basic conformances with the law of national economy and their effects on the Finnish economic life.

Contents of the course: Finland's position in international economy, basic concepts of national economy: GNP, inflation, unemployment rate, balance of trade, current account, business cycles, economic policy.

Prerequisites:

KM1048 Information acquisition, 1 crs/1,5 ECTS crs

Objectives of the course: The student learns the information acquisition skills required in studying and in working life, knows how to retrieve correct and current information from appropriate sources, is able to assess the received results critically and utilise the opportunities provided by different sources of information

Contents of the course: General and field-specific sources of information and information networks, services available at libraries, source criticism.

Prerequisites:

Tourism

KM1051 B Communication, 1 crs/1,5 ECTS crs

Objectives of the course: The student is capable of clear, natural and appropriate written and verbal communication, masters the principles of language correction, grammatical correctness and business style as well as reporting and summarising. He is able to draw up documents and factual texts relating to studying, work and community life, and he masters drawing up job applications and knows how to behave in a job interview situation. The student is able to assess and develop his interaction and communication skills needed both in common and in working life, and masters meeting and negotiating techniques.

Contents of the course: Central communication skills needed in working life, written and verbal business style, types of reports and documents, workplace documents, curriculum vitae (CV), assessment of the communication offered, meeting and negotiation techniques.

Prerequisites:

KM1051A Communication, 1 crs/1,5 ECTS crs

Objectives of the course: The student is capable of clear, natural and appropriate written communication and the basics of verbal communication, masters the principles of language correction, correctness and business style and also document standards and reporting, is able to draw up documents and factual texts relating to study and to work and community life, is able to draw up documents relating to job application and to operate in a job interview situation, is able to assess and develop his interaction and communication skills needed both in general and in working life, and masters meeting and negotiating technique.

Contents of the course: Central communication skills needed in working life, written and verbal business style, types of report and document, workplace documents, curriculum vitae (cv), assessment of communications offered, meeting and negotiation technique, directions for dissertation

Prerequisites: -

KM1051C Communication, 1 crs/1,5 ECTS crs

Objectives of the course: The student is capable of clear, natural and appropriate written and verbal communication, masters the principles of language correction, grammatical correctness and business style as well as reporting and summarising. He is able to draw up documents and factual texts relating to studying, work and community life, and he masters drawing up job applications and knows how to behave in a job interview situation. The student is able to assess and develop his interaction and communication skills needed both in com-

mon and in working life, and masters meeting and negotiating techniques.

Contents of the course: Central communication skills needed in working life, written and verbal business style, types of reports and documents, workplace documents, curriculum vitae (CV), assessment of the communication offered, meeting and negotiation techniques.

Prerequisites:

KM1052 Information technology, 4 crs/6 ECTS crs

Objectives of the course: The student knows the basic concepts of information technology and is able to use micro-computers fluently, masters independent use of word processing, spreadsheet and presentation graphics and is able to utilise the Internet selectively as a means of obtaining information.

Contents of the course: Windows Word, Excel and PowerPoint programs, Internet, e-mail.

Prerequisites:

KM1053 Professional mathematics, 1 crs/1,5 ECTS crs

Objectives of the course: The student masters the calculation procedures needed in professional studies and in handling research material.

Contents of the course: Percentage and interest calculation, use of summation mark, statistical indicators.

KM1057 Introduction to Accounting and Finance, 3 crs/4,5 ECTS crs

Objectives of the course: The student understands the significance of accounting as a registration system of business transaction between companies and their interest groups. The student has a command of profit calculation and financial statement and of the principles of corporate and value added taxation. The student knows how to use different parameters in analysing the activity of a company.

Contents of the course: Basics of double entry accounting, income statement and balance sheet, VAT, basics of direct taxation of a company.

Prerequisites:

KM1058 A Research methods, 1 crs/1,5 ECTS crs

Objectives of the course: The student is able to draw up a research plan and a research report, is acquainted with different research methods and methods of retrieving and handling material

Contents of the course: Basic concepts of research, methods and types of research, research process, handling material and reporting the results.

Prerequisites: Statistical methods, 1st thesis seminar

KM1058 B Research methods, 2 crs/3 ECTS crs

Objectives of the course: The student is able to draw up a research plan and a research report, is acquainted with different research methods and methods of retrieving and handling material

Contents of the course: Basic concepts of research, methods and types of research, research process, handling material and reporting the results.

Prerequisites: Statistical methods, 1st thesis seminar

KM1059 Statistical Methods, 2 crs/3 ECTS crs

Objectives of the course: The student knows the most common ways of depicting statistical material and is able to interpret statistical research results.

Contents of the course: Basic concepts of statistics, one- and two-dimensional frequency distribution, presenting distributions with graphs and parameters, regression analysis and basics of time series, basics of statistical testing.

Prerequisites: Professional mathematics

KM2174 Verbal expression and public presentation, 2 crs/3 ECTS crs

Objectives of the course: The course is based on contents of group dynamics. The aim of the teaching is to make the student understand the significance of group phenomenon in interaction-, negotiation- and performance situations in working and everyday lives. The objective of teaching verbal expression and public performing is that the student learns to perform and express himself freely, understandably and expressively

Contents of the course: Interaction theories, critically and objectively assessed exercises in groups, negotiation techniques. Basics of effective performing, practising and assessing giving speeches and presentations.

Prerequisites: -

KM3129 Project work, 2 crs/3 ECTS crs

Objectives of the course: The student knows the principles of project administration in project work and is able to draw up a project plan and -report. The student knows how to retrieve information on EU-project work, possibilities of financing and on sources of information.

Contents of the course: Phases of project planning, final report of a project, tasks of the project leader, project finance within EU, financial applications.

Prerequisites:

KM3154 Basics of Entrepreneurship, 3 crs/4,5 ECTS crs

Objectives of the course: The student understands the

significance of entrepreneurship in society and knows the different sectors in it. The student is provided with basic information of the factors affecting economy, efficiency and outcome of entrepreneurship, particularly in companies within service branch. The student has the required technical skills for founding a company.

Contents of the course: Operational environment of a company, entrepreneurship and prerequisites for it, founding a company and different forms of companies, operational processes in a company, economy, profitability, efficiency, risk management.

Prerequisites: None required

PROFESSIONAL STUDIES**KM2021 Personnel administration and operations management, 3 crs/4,5 ECTS crs**

Objectives of the course: The student gets acquainted with the field of tasks in personnel administration from the manager's point of view and understands the significance of personnel administration as a strategic resource in a company/institute.

Contents of the course: Company culture and ethics, managerial styles and operational environment, management and leadership (managing things and different kinds of people, manager's self-knowledge), personnel planning in a changing operational environment and in international labour market, need-based development of the personnel know-how, personnel administration as a strategic resource.

Prerequisites:

KM2149 Hygiene in accommodation and catering premises, 3 crs/4,5 ECTS crs

Objectives of the course: The student gets acquainted with surface materials in accommodation and catering premises as well as with cleaning them and their features of handling. The student is able to clean and take care of the premises with different types of cleaning equipment, liquid agents, machines and methods. The student is equipped with knowledge of sanitation in food facilities and of obligations set by health care protection- and waste laws.

Contents of the course: Surface materials, cleaning agents, equipment, machines and methods, microbiology, hygiene and legislation of sanitation.

Prerequisites:

KM2153 Occupational Safety and Ergonomics, 1 crs/1,5 ECTS crs

Objectives of the course: The student is able to obtain and use information about occupational safety and

Tourism

health and masters the central issues of it. The student knows the basics of occupational safety and health and ergonomics relating to working in accommodation and catering premises.

Contents of the course: Work loading factors, measuring methods of ergonomics, work-related illnesses, occupational diseases and their prevention, plan of action in occupational safety and health.

Prerequisites:

KM2249 Financial Planning and Monitoring, 2 crs/3 ECTS crs

Objectives of the course: The student is able to organise financial administration in a company/institute at the stage of planning, implementation and follow-up according to the activity of the company/institute. The student perceives the connection between accounting, taxation, statements of costs, pricing, budgeting, financing and auditing in taking care of financial administration as a whole.

Contents of the course: Contribution margin, statements of costs, pricing, budgeting, investment calculations.

Prerequisites: Accounting and financial statement

KM2250 Introduction to Quality Thinking in Service Production, 1 crs/1,5 ECTS crs

Objectives of the course: The student gets an overview of factors leading to quality thinking and of the problems of quality control in production of services, gets acquainted with the basic principles of constructing a quality system in entrepreneurship, and perceives the philosophy of environmental management as a part of quality management.

Contents of the course: Development of quality thinking, the most common quality and environmental standards, quality rewards, environmental brands, life span analysis, environmental communication.

Prerequisites:

KM2052 Tourism as a Regional Phenomenon, 2 crs/3 ECTS crs

Objectives of the course: The student understands the social, economical and environmental effects of the streams of tourists in tourism-intensive regions and is able to perceive the factors affecting the emergence of new tourism regions.

Contents of the course: Prerequisites for and restrictions of tourism, streams of tourists, target areas at an international level, endurance, capacity.

Prerequisites:

KM2056 Accommodation services, 2 crs/3 ECTS crs

Objectives of the course: The student masters the accommodation service standard classification in use in Finland, the reservation and distribution systems relating to accommodation services, and the reception tasks in an accommodation company.

Contents of the course: Hotels, hotel classifications, hotel chains and reservation systems, hostels, camping sites, cottage accommodation and classifications, reception operations, statistical obligations of an accommodation company.

Prerequisites: History and basic concepts of tourism

KM2170 Nutrition and Dietetics 1, 1 crs/1,5 ECTS crs

Objectives of the course: The student knows the energy and the “key nutrients “ and understands their significance for human wellbeing, knows the most important sources of these nutrients and Finnish consumption in comparison with recommendations. The student understands the principles of a diet which maintains and promotes health, the background to the more common special diets and the principles of implementing them.

Contents of the course: Carbohydrates, fats, proteins, alcohol, water, vitamin A, vitamin C, thiamine, riboflavin, calcium, iron and salt. General nutrition recommendation. High blood pressure, hyperlipidaemias, diabetes, lactose intolerance, coeliac disease, food allergies.

Prerequisites:

KM2185 Food culture, 2 crs/3 ECTS crs

Objectives of the course: The student knows the areas and special features of the Finnish food culture, is able to present them to foreign visitors and knows how to prepare traditional Finnish foods, knows international food cultures and the factors affecting them, and is able to prepare the most typical dishes of different food culture areas

Contents of the course: Finnish food culture, knowledge of dishes in general terms, planning menus for different occasions, preparation of the most typical dishes, knowledge of international food culture in general terms.

Prerequisites: Catering services I

KM2192 Security services of premises, 1 crs/1,5 ECTS crs

Objectives of the course: The student knows the safety risks of property management and production of services and is able to plan the procedures involved in company, personnel and customer security

Contents of the course: Changing operational environment, safety of own work, safety training, security systems in properties.

Prerequisites:

KM2247 Tourist behaviour, 2 crs/3 ECTS crs

Objectives of the course: The student understands the factors affecting the tourist's choice of target and behaviour as a consumer, and knows how to apply his knowledge in segmentation and in marketing in general. On the other hand, the student understands the social, cultural and psychological effects of tourism on the tourist.

Contents of the course: Motives of the tourist, types and segments of tourists, special characteristics of different nationalities as tourists, special groups in tourism, effects of tourism on the tourist.

KM2248 History and Basic Concepts of Tourism, 2 crs/3 ECTS crs

Objectives of the course: The objective is to create an orientation basis for tourism branch.

Contents of the course: Basic concepts, development of tourism as a phenomenon, history of tourism in Finland, Finnish tourism.

KM2255 Meeting, congress and programme services, 2 crs/3 ECTS crs

Objectives of the course: The student gets acquainted with the activity of meeting, congress and programme services and knows the principles of organising occasions. The student knows how to plan and arrange occasions and programme services for different target groups.

Contents of the course: Meeting product, planning, reservations and practical arrangements, Finnish congress offices, programme services as a part of tourism product.

Prerequisites: Accommodation services, History and basic concepts of tourism

KM2256 Touristic Services in Finland, 3 crs/4,5 ECTS crs

Objectives of the course: The student gets thoroughly acquainted with tourism supply in Finland and with the prerequisites for tourism as a means of business.

Contents of the course: Finnish tourism regions, routes and attractions, development of tourist attractions, Finland's attractiveness for tourists, special features of tourism from the point of view of entrepreneurship research, tourism organisations, nature and agricultural tourism.

Prerequisites: History and basic concepts of tourism

KM2257 A Marketing tourism, 2 crs/3 ECTS crs

Objectives of the course: The student can independently plan the overall marketing of a tourism company and is able to implement marketing campaigns by utilising expert assistance.

Contents of the course: Segmentation and differentiation, using competitive weapons of marketing particularly from the point of view of marketing communication, researching marketing, planning and implementing a marketing campaign.

Prerequisites: Marketing, History and basic concepts of tourism

KM2257B Marketing tourism, 2 crs/3 ECTS crs

Objectives of the course: The student can independently plan the overall marketing of a tourism company and is able to implement marketing campaigns by utilising expert assistance

Contents of the course: Segmentation and differentiation, using competitive weapons of marketing particularly from the point of view of marketing communication, researching marketing, planning and implementing a marketing campaign.

Prerequisites: Marketing, History and basic concepts of tourism

KM2258 Product development of Tourism Enterprise, 2 crs/3 ECTS crs

Objectives of the course: The student can independently plan, price and market local, regional and national differentiated product entities for segmented markets, and understands the field of problems in product development based on the needs of different types of tourists.

Contents of the course: Product development, special features of tourism service products, project work for a specified segment of marketing a planned product packet.

Prerequisites: Marketing, History and basic concepts of tourism

KM2259 Perspectives of Tourism Research, 1 crs/1,5 ECTS crs

Objectives of the course: The student understands tourism as a multidisciplinary phenomenon and familiarises himself with the research subjects and perspectives of tourism research within different disciplines.

Contents of the course: Summary seminar, where each student gets acquainted with several articles, summaries and reports.

Prerequisites: Research methods

Tourism

KM2260 Management and Tourism Entrepreneurship, 4 crs/6 ECTS crs

Objectives of the course: The student masters the special legislation regulating business operations in a tourism company, the factors affecting formation of the result in a tourism company and the basics of strategic and operational management of a tourism company.

Contents of the course: Operational environment in tourism companies, package tour laws, economic planning in a company, strategic and operational planning and management of a company.

Prerequisites: Basics of entrepreneurship, Company law, Accounting and financial statement, History and basic concepts of tourism

KM2262 Foodservice 1, 6 crs/9 ECTS crs

Objectives of the course: The student gets acquainted with the basics food science and preparation and with small kitchen machines and equipment, and gets practice of service situations in customer service.

Contents of the course: Raw material science, food preparations methods, small machines and equipment, meal planning, customer service, setting a table and serving

Prerequisites:

KM2263 Restaurant services, 2 crs/3 ECTS crs

Objectives of the course: The student gets acquainted with the economic planning and implementation of food service activities in a restaurant, masters quality conscious customer service, knows how to apply knowledge of dishes and the effect of expenses to meal planning in changing food service situations.

Contents of the course: Ways of action in a restaurant kitchen, portion and meal planning, factors of production and quality assurance, cash and sales activities.

Prerequisites: Catering services I

KM2264 Purchasing of Services, 1 crs/1,5 ECTS crs

Objectives of the course: The student familiarises himself with acquisition and organising it in SMEs and in public sector. Acquisition of products and services in purchasing, outsourcing services, ethics and legislation of acquisition.

Contents of the course: Organising acquisition, EU and racing public acquisitions, methods of requests for quotation, legislation, outsourcing catering and premises services.

Prerequisites:

KM2265A Commercialisation and pricing of catering services, 1 crs/1,5 ECTS crs

Objectives of the course: The student is able to plan and implement different order service activities based on cost awareness, understands the meaning of expenses in catering services as a part of tourism product, and masters the customs and the etiquette as well as customer service relating to order service.

Contents of the course: Types of order, meal planning of order services, organising occasions, quality and expenses follow-up.

Prerequisites: Catering services I, Restaurant services

KM2265B Commercialisation and pricing of catering services, 1 crs/1,5 ECTS crs

Objectives of the course: The student is able to plan and implement different order service activities based on cost awareness, understands the meaning of expenses in catering services as a part of tourism product, and masters the customs and the etiquette as well as customer service relating to order service

Contents of the course: Types of order, meal planning of order services, organising occasions, quality and expenses follow-up.

Prerequisites: Catering services I, Restaurant services

KM2266 Alcoholic Drinks and Legislation, 2 crs/3 ECTS crs

Objectives of the course: : The student gets acquainted with product awareness, acquisition, advertising, serving and pricing of alcoholic beverages and with the laws and regulations relating to them. The student knows how to select certain wines for certain meals and familiarises himself with sensory assessment of wines, knows the most typical international drinks and is able to serve drinks in different situations

Contents of the course: Drink groups, alcohol law, regulations and orders, planning drinks for different menus, serving exercises.

KM2267 Svenska för resebranschen, 2 crs/3 ECTS crs

Objectives of the course: The student strengthens his language skills and knowledge of tourism terminology in order to cope in demanding professional communication situations both verbally and in writing. The student is able to introduce the country and the resorts in it

Contents of the course: Contacts in working life, interpreting and drawing up documents, customer service situations in tourism companies, introducing companies and services, knowledge of Finland.

Prerequisites: Swedish

KM2268 English for the hotel and tourism industry, 2 crs/3 ECTS crs

Objectives of the course: The student strengthens his language skills and knowledge of tourism terminology in order to cope in demanding professional communication situations both verbally and in writing. The student is able to introduce the country and the resorts in it.

Contents of the course: Contacts in working life, interpreting and drawing up documents, customer service situations in tourism companies, introducing companies and services, knowledge of Finland.

Prerequisites: English (2 crs)

KM2269 Chemistry and physics, 2 crs/3 ECTS crs

Objectives of the course: The student masters the basic elements and laws of chemistry and physics and is able to apply the acquired information to his own professional field

Contents of the course: Basics of general, inorganic and organic chemistry, basics of working in chemistry, chemistry exercises relating to the student's own professional sector, basics of electricity and thermal studies.

Prerequisites:

KM2270 Basics of German Language, 4 crs/6 ECTS crs

Objectives of the course: The student learns the basics of the language in order to cope in everyday communication situations both verbally and in writing, and gets acquainted with the language area and its culture

Contents of the course: Pronunciation and intonation, basic structures and vocabulary and practising them both verbally and in writing, knowledge of the language area and the culture.

Prerequisites:

KM2273 Basics of French language, 4 crs/6 ECTS crs

Objectives of the course: The student learns the basics of the language in order to cope in everyday communication situations both verbally and in writing, and gets acquainted with the language area and its culture.

Contents of the course: Pronunciation and intonation, basic structures and vocabulary and practising them both verbally and in writing, knowledge of the language area and the culture.

Prerequisites:

KM2274 Basics of Russian language, 4 crs/6 ECTS crs

Objectives of the course: The student learns the ba-

sics of the language in order to cope in everyday communication situations both verbally and in writing, and gets acquainted with the language area and its culture

Contents of the course: Pronunciation and intonation, basic structures and vocabulary and practising them both verbally and in writing, knowledge of the language area and the culture.

Prerequisites:

KM2275 German professional language, 4 crs/6 ECTS crs

Objectives of the course: The student strengthens his language skills and knowledge of tourism terminology in order to cope in demanding professional communication situations both verbally and in writing. The student is able to introduce the country and the resorts in it.

Contents of the course: Contacts in working life, interpreting and drawing up documents, customer service situations in tourism companies, introducing companies and services, knowledge of Finland.

Prerequisites: at least 4 credits of basic studies at comprehensive school/upper secondary school

KM2276 French professional language, 4 crs/6 ECTS crs

Objectives of the course: The student strengthens his language skills and knowledge of tourism terminology in order to cope in demanding professional communication situations both verbally and in writing. The student is able to introduce the country and the resorts in it.

Contents of the course: Contacts in working life, interpreting and drawing up documents, customer service situations in tourism companies, introducing companies and services, knowledge of Finland.

Prerequisites: at least 4 credits of basic studies at comprehensive school/upper secondary school

KM2277 Russian professional language, 4 crs/6 ECTS crs

Objectives of the course: The student strengthens his language skills and knowledge of tourism terminology in order to cope in demanding professional communication situations both verbally and in writing. The student is able to introduce the country and the resorts in it

Contents of the course: Contacts in working life, interpreting and drawing up documents, customer service situations in tourism companies, introducing companies and services, knowledge of Finland.

Prerequisites: at least 4 credits of basic studies at comprehensive school/upper secondary school

Tourism

KM2278 Environmental Services, 1 crs/ 1,5 ECTS crs

Objectives of the course: The student gets acquainted with environmental services and organising waste disposal, as well as with the alternatives of producing them in their own professional field and in different types of properties. When making choices, the student can take the principles of sustainable development and economy as well as less burdening alternatives for the environment and appropriate waste treatment into account.

Contents of the course: Waste disposal both indoor and outdoor (waste containers, sorting waste, recycling, transport), expenses.

Prerequisites:

KM2279 Product development of Facilities Services, 2 crs/3 ECTS crs

Objectives of the course: The student gets acquainted with the different phases of product development process and knows how to apply the process in a customer-oriented manner to production of services and quality development

Contents of the course: Special features of premises services and measuring quality. Product and service matrix, marketing, service matrix. Research and development activities in the field. Planning in- and outdoor greenery services, flower arrangements.

Prerequisites:

KM2280 Nutrition and dietetics 2, 2 crs/3 ECTS crs

Objectives of the course: The student knows the physiology and anatomy of alimentary tract and the main events of metabolism. He knows the nutritional factors and problems affecting national nutrition in Finland and in developing countries, and is able to participate in nutritional education.

Contents of the course: Construction and activity of cells, tissues and transport systems. Digesting, absorbing, becoming stored and metabolism of fats, carbohydrates and proteins and regulating the utilisation of nutrition. Researches on national nutrition.

Prerequisites: Chemistry, Nutrition science I

KM2340 Food science, 2 crs/3 ECTS crs

Objectives of the course: The student gets acquainted with food selections, the production methods and food legislation of them and knows the regular package markings of food

Contents of the course: Food groups and product awareness, consumption statistics, food industry, field-specific issues, central food legislation, package markings.

Prerequisites:

KM2341 Restaurant services, 4 crs/6 ECTS crs

Objectives of the course: The student gets acquainted with the economic planning and implementation of food service activities in a restaurant, masters quality conscious customer service, knows how to apply knowledge of dishes and the effect of expenses to meal planning in changing food service situations

Contents of the course: Ways of action in a restaurant kitchen, portion and meal planning, factors of production and quality assurance, cash and sales activities.

Prerequisites: Catering services I

KM2342 Services quality and marketing, 2 crs/3 ECTS crs

Objectives of the course: The student understands the factors affecting the quality of services and the service experience of the client and knows how to apply them to developing the service environment. The student gets acquainted with the international research of the quality of services and marketing services

Contents of the course: Dimensions of the quality of services, value of service, research of the quality of services, comprehensive quality management of services, applying marketing communication.

Prerequisites: Basics of quality thinking in production of services

KM2343 Developing of work processes, 2 crs/3 ECTS crs

Objectives of the course: The student knows how to use the tools for analysing and developing work in order to continuously and in a diversified manner follow and develop the productivity of the work place. The student knows the effect of planning premises on developing working activities

Contents of the course: Work system, the most central research methods of work, principles of planning premises needed in accommodation-, catering- and premises services.

Prerequisites: Occupational safety and health and ergonomics

KM2344 B Cleaning services, 2 crs/3 ECTS crs

Objectives of the course: The student gets acquainted with surface materials and textiles in different premises as well as with their use, cleaning them and their features of handling. The student is able to clean and take care of the premises with different types of cleaning equipment, liquid agents, machines and methods, and familiarises himself with the obligations set by the law.

Contents of the course: Surface materials, cleaning agents, equipment, machines and methods, washing and

after-treatment methods of textiles, detergents and handling agents, legislation relating to the field, current topics in the professional sector.

Prerequisites: Hygiene in accommodation and catering premises

KM2344A Cleaning services, 3 crs/4,5 ECTS crs

Objectives of the course: The student gets acquainted with surface materials and textiles in different premises as well as with their use, cleaning them and their features of handling. The student is able to clean and take care of the premises with different types of cleaning equipment, liquid agents, machines and methods, and familiarises himself with the obligations set by the law.

Contents of the course: Surface materials, cleaning agents, equipment, machines and methods, washing and after-treatment methods of textiles, detergents and handling agents, legislation relating to the field, current topics in the professional sector.

Prerequisites: Hygiene in accommodation and catering premises

KM2345 A Planning and management of cleaning services, 1 crs/1,5 ECTS crs

Objectives of the course: The student masters the basics of the dimensioning standards of cleaning work, knows how to specify the appropriate cleaning standard for customer locations and how to use a computer program in planning work. The student gets acquainted with organising cleaning services in different customer locations and with the special features of both public and private sector as producers of cleaning services.

Contents of the course: The standard system, drawing up a cleaning plan, organising cleaning services, parameters, personnel and economic planning, benchmarking.

Prerequisites:

KM2345 B Planning and management of cleaning services, 3 crs/4,5 ECTS crs

Objectives of the course: The student masters the basics of the dimensioning standards of cleaning work, knows how to specify the appropriate cleaning standard for customer locations and how to use a computer program in planning work. The student gets acquainted with organising cleaning services in different customer locations and with the special features of both public and private sector as producers of cleaning services.

Contents of the course: The standard system, drawing up a cleaning plan, organising cleaning services, parameters, personnel and economic planning, benchmarking.

Prerequisites:

KM2346 A Professional kitchen activities, 1 crs/1,5 ECTS crs

Objectives of the course: The student knows how to work in a professional kitchen and make meals and menus based on nutrition recommendations. The student gets practise in using computer programmes of food production and becomes acquainted with the equipment in a professional kitchen, and knows how to apply cost accounting to kitchen activities. - Equipment technology, IT-applications of food production, exercises on kitchen activities, meals and menus based on nutrition recommendations, food acquisition, cost accounting in kitchen activities.

Contents of the course:

Prerequisites: Catering services I

KM2346 B Professional kitchen activities, 3 crs/4,5 ECTS crs

Objectives of the course: The student knows how to work in a professional kitchen and make meals and menus based on nutrition recommendations. The student gets practise in using computer programmes of food production and becomes acquainted with the equipment in a professional kitchen, and knows how to apply cost accounting to kitchen activities

Contents of the course: Equipment technology, IT-applications of food production, exercises on kitchen activities, meals and menus based on nutrition recommendations, food acquisition, cost accounting in kitchen activities.

Prerequisites: Catering services I

KM2346 C Professional kitchen activities, 1 crs/1,5 ECTS crs

Objectives of the course: The student knows how to work in a professional kitchen and make meals and menus based on nutrition recommendations. The student gets practise in using computer programmes of food production and becomes acquainted with the equipment in a professional kitchen, and knows how to apply cost accounting to kitchen activities.

Contents of the course: Equipment technology, IT-applications of food production, exercises on kitchen activities, meals and menus based on nutrition recommendations, food acquisition, cost accounting in kitchen activities.

Prerequisites: Catering services I

KM2347 Planning and Management of Catering services, 3 crs/4,5 ECTS crs

Objectives of the course: The student knows how to plan and manage catering services as well as the activi-

Tourism

ties in a kitchen work group, and masters the quality control of catering services and the economic development of acquisition and warehousing activities.

Contents of the course: Meal and menu planning, instructing food production processes, supervision of work and management of a work group, economy and activity follow-up.

Prerequisites:

KM2348 A Commercialisation and pricing of catering services, 1 crs/1,5 ECTS crs

Objectives of the course: The student is able to plan and commercialise different order service activities based on cost awareness, gets practise in the critical assessment of the products in catering companies and in developing the quality of activities

Contents of the course: Meal planning of order services, customs, organising and marketing occasions, quality and product development, expenses follow-up.

Prerequisites: Catering services I, Restaurant services

KM2348 B Commercialisation and pricing of catering services, 4 crs/6 ECTS crs

Objectives of the course: The student is able to plan and commercialise different order service activities based on cost awareness, gets practise in the critical assessment of the products in catering companies and in developing the quality of activities.

Contents of the course: Meal planning of order services, customs, organising and marketing occasions, quality and product development, expenses follow-up.

Prerequisites: Catering services I, Restaurant services

KM2350 Experimental food preparation and production development, 2 crs/3 ECTS crs

Objectives of the course: The student knows the chemical reactions occurring in food preparation and the methods of sensory quality assessment, and knows how to apply them to practise. The student is able to perform product development tasks in the field, assess the marketability of a product and understand the significance of product development in developing catering services

Contents of the course: Chemical, physical and microbiological phenomena of food preparation and researching them, sensory quality assessment and the factors affecting the quality of the product, product development process and putting the product development task in the practise.

Prerequisites: Chemistry and physics

KM3124 Tourism and Culture, 2 crs/3 ECTS crs

Objectives of the course: The student gets acquainted with culture as a factor of attraction as well as with the effects of tourism on the culture of the target country or region.

Contents of the course: Cultural areas of the world, religions, cultural attraction at international, national and local level.

Prerequisites: History and basic concepts of tourism

PRACTICAL TRAINING

KM4003 In-depth training, 12 crs/18 ECTS crs

Objectives of the course: The student deepens the professional capabilities he has acquired in specialisation studies. The training is supervised. The student draws up a programme of training objectives together with the workplace.

Contents of the course:

Prerequisites: All first year studies in the curriculum and the central professional specialisation studies

KM4028 Professional Training, 6 crs/9 ECTS crs

Objectives of the course: The student develops skills in working extensively in production tasks in the field. The training places are obtained independently. The training is usually supervised.

Contents of the course:

Prerequisites:

KM4029 Projects, 2 crs/3 ECTS crs

Objectives of the course: The student plans, implements and assesses services to be implemented for the needs of working life.

Contents of the course:

Prerequisites: Project work

THESIS

KM5001 Thesis, 10 crs/15 ECTS crs

Objectives of the course: The student gets acquainted with the analysis of a problem originating in the working life, with selecting research methods and their use in problem solving and also with drawing up a written presentation of it.

Contents of the course: Seminars, exercise essay, maturity test, thesis

Prerequisites: Research methods, Statistical methods

Orientation option of Tourism Services

BASIC STUDIES

KM1200 Orientation studies, 1 crs/1,5 ECTS crs

Objectives of the course: Students know the objectives and study opportunities of North Karelia Polytechnic, know the degree requirements and understand the main features of polytechnic legislation. They know the study opportunities provided by their own education programme, understand the significance of the education sector in society and are able to draw up their own study plans.

Contents of the course: Students know the objectives and study opportunities of North Karelia Polytechnic, know the degree requirements and understand the main features of polytechnic legislation. They know the study opportunities provided by their own education programme, understand the significance of the education sector in society and are able to draw up their own study plans. Students participate in the Outward Bound course.

Prerequisites: -

KM1201B Introduction to entrepreneurship, 3 crs/4,5 ECTS crs

Objectives of the course: The student understands the significance of entrepreneurship in the society and knows different aspects of entrepreneurship. The student has the basic knowledge of different factors affecting the economy, efficiency and yield of an enterprise, especially within the service branch. The student is technically competent to start a new company.

Contents of the course: The operating environment of a company; entrepreneurship and its requirements; starting a company and company forms; the operating process of a company; economy, profitability, efficiency and risk management.

Prerequisites: None required

KM1202B Introduction to marketing, 3 crs/4,5 ECTS crs

Objectives of the course: The student understands the significance of holistic marketing approach in a service company's operation and the preconditions for customer-oriented marketing.

Contents of the course: Basic concepts in marketing, the special marketing features of a service enterprise, consumer behaviour, marketing competition methods, customer-oriented marketing.

Prerequisites: None required

KM1203B Business Legislation, 3 crs/4,5 ECTS crs

Objectives of the course: The student knows the legislation regulating business activities, especially those of a service business, and the basics of juridical systematics.

Contents of the course: Juridical system and juridical norms; law of contract; running a business; sales and service contracts; consumer protection; debt, securities and collection; laws on competition and cooperation.

Prerequisites: None required

KM1204B Introduction to accounting and finance, 3 crs/4,5 ECTS crs

Objectives of the course: The student understands the significance of bookkeeping as a registration system of business transactions between an enterprise and its interest groups. The student has a command of Income statement and Financial statement and the principles of corporate tax and value added tax. The student can use different parameters when analyzing a company's operation. The student has a command of Nova bookkeeping software.

Contents of the course: Basics of the double bookkeeping; Income statement and Balance sheet; value added tax; how direct taxes of a company are determined. Command of bookkeeping software.

Prerequisites: Professional mathematics

KM1206 Economics, 1 crs/1,5 ECTS crs

Objectives of the course: Students are able to understand the Finnish National Economy as a part of economy in Europe and in the world. They will learn to understand the basic concepts and regularities of economy and their impact on the Finnish economy.

Contents of the course: Finland's position in international economy, basic concepts of economy: GNP, inflation, unemployment rate, trade balance, balance of current accounts, economic conditions, economic policy

Prerequisites: None required

KM1207 Tourism, catering and business trade, 2 crs/3 ECTS crs

Objectives of the course: Students understand how the lines of business are structured within tourism, catering and business and know about history and major operators of the field. Students are aware of the essential qualifications in the industry, know the factors affecting the demand, supply and employment in the field and discern the significance of these lines of business in the national economy of Finland.

Contents of the course: History of tourism, catering and business in Finland; subclassifications within the

Tourism

field; major corporations and communities operating therein; organizations and labour market policy; employment; special features of the service branch; professions within the field

Prerequisites: -

KM1208 Project work, 2 crs/3 ECTS crs

Objectives of the course: The student masters the principles of project work and is able to create a project plan and a report. The student is able to acquire information on EU projects, finance possibilities and data sources.

Contents of the course: Phases of project work, reporting, tasks of the project leader, project financing in the EU, finance applications. Team work.

Prerequisites: None

KM1209 Information technology, 4 crs/6 ECTS crs

Objectives of the course: The student knows the basic concepts of information technology and is able to use PC hardware confidently, masters the independent use of word processing, spreadsheet calculation and presentation graphics and is able to utilise the Internet selectively as a means of obtaining information.

Contents of the course: Windows Word, Excel, PowerPoint programs, Access databases, Internet, e-mail

Prerequisites: -

KM1224 Information acquisition, 1 crs/ 1,5 ECTS crs

Objectives of the course: Students acquire the information acquisition skills needed in studying and working life. They are able to search appropriate and updated information from relevant sources and evaluate the results critically.

Contents of the course: General and sectoral information networks and sources of information, searching information in the Internet, library services, criticism of source material

Prerequisites: None

KM1225 Research methods, 3 crs/4,5 ECTS crs

Objectives of the course: The student is able to draw up a research plan and research report, is educated in different research methods and ways of collecting and handling data.

Contents of the course: Basic concepts of research; research methods, types of research, the research process and reporting.

Prerequisites: Statistical methods

KM1226 Statistical methods, 2 crs/3 ECTS crs

Objectives of the course: The student knows the most common ways of depicting statistical material and is able to interpret statistical research results.

Contents of the course: Introduction to statistics; frequency distribution and the presentation of frequencies in one and two dimensional graphics; regression analysis, introduction to time series analysis, statistical testing and correlation. SPSS software in analyzing data

Prerequisites: Professional mathematics

KM1227 Professional mathematics, 1 crs/ 1,5 ECTS crs

Objectives of the course: The student masters the calculation procedures needed in professional studies and in handling research material.

Contents of the course: Percentage and interest calculation, statistical indicators

Prerequisites: Initial standard test

KM1252 Swedish language, 1 crs/1,5 ECTS crs

Objectives of the course: The course provides the students with the essential professional vocabulary needed to understand various kinds of texts, techniques of successful communication in both universal everyday and in professional situations, basic knowledge of the Nordic world and cultures.

Contents of the course: Professional terminology, studying literature and publications, customer service situations, social language skills, introductions for discussions, report writing, familiarity with the Nordic world and culture. Grammar and linguistic correctness.

Prerequisites: None required

KM1252 B Swedish language, 2 crs/3 ECTS crs

Objectives of the course: Students deepen their knowledge of professional terminology and are able to manage successfully even in demanding work-related communication situations. Student acquire good customer service skills and know the technical equipment required. They are able to present their own country as a tourism destination and expand and update their knowledge and skills with the help of professional literature and publications.

Contents of the course: Business correspondence, brochures, oral customer service situations, Finland in Swedish

Prerequisites: KM1252A

KM1272 English language, 1 crs/1,5 ECTS crs

Objectives of the course: The course provides students with the essential professional vocabulary needed

for understanding tourism-related texts and for coping successfully in everyday and professional communication situations. Students become familiar with English-speaking countries and their cultures.

Contents of the course: Professional terminology and publications, customer service situations, social language skills, report writing, English-speaking countries and their culture. Grammar and linguistic correctness.

Prerequisites:

KM1272 B English language, 2 crs/3 ECTS crs

Objectives of the course: Students deepen their knowledge of professional terminology and are able to manage successfully even in demanding work-related communication situations. Students acquire good customer service skills and know the technical equipment required. They are able to present their own country as a tourism destination and expand and update their knowledge and skills with the help of professional literature and publications.

Contents of the course: Business correspondence, brochures, oral customer service situations, job application and cv, Finland in English.

Prerequisites: KM1272A

KM1333 Finnish communication, 1 crs/1,5 ECTS crs

Objectives of the course: Students master the principles of language correction, correctness and formal writing and are able to write study- and work-related texts in good matter-of-fact style.

Contents of the course: Language correction, correctness, formal writing

Prerequisites: -

KM1333 B Finnish communication, 2 crs/3 ECTS crs

Objectives of the course: Students improve their written communication skills and are able to draw up appropriate and grammatically correct documents.

Contents of the course: Business correspondence, marketing letters, reports, documents relating to job applications

Prerequisites: KM1333 A

KM1334 Verbal expression and public presentation, 2 crs/3 ECTS crs

Objectives of the course: This course is based on the theoretical contents of group dynamics. Students will understand the significance of the group phenomenon in the social relations and in the working life. Students improve their oral expression skills; how to perform

freely, openly and expressively and how to make oneself understood.

Contents of the course: Interaction theories, critically and objectively evaluated group exercises, negotiation techniques. Introduction to effective expression skills; practice in giving and evaluating a speech/presentation

Prerequisites: -

PROFESSIONAL STUDIES

KM2101 Counselling 2, 2 crs/3 ECTS crs

Objectives of the course: The student is able to organize the financial administration of a company or an institute in the stages of planning, implementation and follow-up in a manner consistent with the operation of the company/institute. The student discerns how book-keeping, taxation, cost accounting, pricing, budgeting, funding and auditing relate to the whole of financial management.

Contents of the course: Philosophy of contribution margin, cost estimates, pricing, budgeting, investment calculations

Prerequisites: Bookkeeping and Financial statement

KM2111 Hygiene in accommodation and catering premises, 3 crs/4,5 ECTS crs

Objectives of the course: The student becomes familiar with different surface materials used both in accommodation and catering buildings and is able to clean and care for them using different equipment, agents, machines and methods. The student learns to clean food premises and knows the obligations set by chemical, health and waste legislation.

Contents of the course: Surface materials, cleaning materials, equipment, machines and methods, cleaning chemistry and hygiene, legislation, practical training period

Prerequisites: -

KM2112 Occupational Safety and Ergonomics, 1 crs/1,5 ECTS crs

Objectives of the course: The student knows how to acquire and utilise knowledge of work safety. The student masters the basics of ergonomics and work safety related to working in accommodation and catering services

Contents of the course: Work loading factors, ergonomic measuring methods, illnesses arising from work and professional diseases and their prevention, work safety plan.

Prerequisites:

Tourism

KM2324 Personnel management and administration, 3 crs/4,5 ECTS crs

Objectives of the course: Students learn about the management philosophy in the service sector, the operational regularities of different organisation types as well as about the factors affecting operation and development of an organisation. Students improve in recognizing and developing processes and become aware of the superior's duties in managing and developing personnel resources.

Contents of the course: Service management, organisational culture and ethics, management with results, organisation models, personnel management, developing work community and personnel; work task management exercises in real working environment

Prerequisites:

KM3113 Introduction to Quality Thinking in Service Production, 1 crs/1,5 ECTS crs

Objectives of the course: Students get an overview of factors affecting quality principles and quality control in production of services. They learn the principles of constructing an enterprise's quality system and understand the philosophy of environmental management as a part of quality management.

Contents of the course: The development of quality concepts, most common quality and environmental standards, quality awards, environmental signs, lifespan assessment, environmental communication.

Prerequisites:

KM1202 Deutsch Aufbaukurs, 2 crs/3 ECTS crs

Objectives of the course: The course provides students with oral and written skills needed in the most common situations of tourism industry, business life and customer service. Students become familiar with the geography, society and customs of the German-speaking world.

Contents of the course: Grammar, tourism vocabulary, the most common situations in tourism industry and business life, customs and culture of the German-speaking world, the basics of communication

Prerequisites: 2 - 3 years of German studies

KM1291 Deutsch für Anfänger (elementary course), 4 crs/6 ECTS crs

Objectives of the course: The course provides basic vocabulary and grammar of German and introduces geography and customs of the German-speaking world. Students acquire skills for developing more demanding language skills needed in tourism industry, business life and customer service.

Contents of the course: Writing, pronunciation and intonation, basic grammar, me and my background, customer service, small talk, German-speaking countries and culture

Prerequisites: -

KM1311 Russian language (elementary course), 4 crs/6 ECTS crs

Objectives of the course: The course provides basic vocabulary and grammar of Russian and introduces geography and customs of the linguistic area. Students acquire skills for developing more demanding language skills needed in tourism industry, business life and customer service.

Contents of the course: Writing, pronunciation and intonation, basic grammar, me and my background, customer service, small talk, culture and customs

Prerequisites: -

KM2201 Basics of travel and tourism industry, 2 crs/3 ECTS crs

Objectives of the course: The objective is to create orientation basis for tourism industry.

Contents of the course: Basic concepts, preconditions for tourism, impacts of tourism, travel organisations, history and development of tourism

Prerequisites: -

KM2206 Tourism as a Regional Phenomenon, 2 crs/3 ECTS crs

Objectives of the course: The student understands the social, economical and environmental effects of the streams of tourists in tourism-intensive regions and is able to perceive the factors affecting the emergence of new tourism regions.

Contents of the course: Prerequisites for and restrictions of tourism, streams of tourists, target areas at an international level, endurance, capacity.

Prerequisites:

KM2207 Tourism and Culture, 1 crs/1,5 ECTS crs

Objectives of the course: The student gets acquainted with culture as a pull factor and the impacts of tourism on national or local culture of the destination country as well as with cross-cultural differences in tourism

Contents of the course: Cultural pull factors on international, national and local level. Cross-cultural differences in tourism

Prerequisites: Basics of travel and tourism industry

**KM2208 Perspectives of Tourism Research, 2 crs/
3 ECTS crs**

Objectives of the course: Part 1 Students get acquainted with the field of tourism research and understand tourism as a multidiscipline phenomenon offering a wide choice of subjects and viewpoints for research work. Students become familiar with national and international tourism researches and the approaches, methods and material employed in them (Petri Raivo). Part 2 Students become familiar with qualitative research methods and learn to analyse and interpret thesis researches (Hanna Lukander)

Contents of the course: Part 1 Students become familiar with national and international tourism researches and the approaches, methods and material employed in them. Part 2 Qualitative research methods, thesis researches

Prerequisites: -

**KM2209 Marketing communication, 3 crs/
4,5 ECTS crs**

Objectives of the course: Students are able to create and produce impressive and appropriate applications of marketing communication with the help of modern computer software.

Contents of the course: Applications of marketing communication, digital photo editing, vector graphics

Prerequisites: KM1333, KM1334

KM2223 Business software I, 2 crs/3 ECTS crs

Objectives of the course: Students understand how a spreadsheet calculation program works and are able to apply it widely in different operations of a company. Introduction to a company's internal and external data communication and global data communication

Contents of the course: Basics of Excel software and graphic presentation. Shared use of Excel/Windows applications, Pivot tables of Excel, functions and macro technique. LAN technique and functional solutions. Windows workgroup environment, Internet services

Prerequisites: IT passport

KM2242 Food production, 3 crs/4,5 ECTS crs

Objectives of the course: Students get acquainted with food services, business ideas and ways of operating in different types of establishments as well as with other tasks in accommodation and catering business.

Contents of the course: Acquisition and storage of foodstuff, self-monitoring, machinery and equipment, menus, nutritional recommendations, food production

Prerequisites:

**KM2243 Accommodation services, 2 crs/
3 ECTS crs**

Objectives of the course: Students get acquainted with accommodation industry, different types of accommodation and the business ideas behind them. They become familiar with various organisation types and departmental tasks and know the essential legislation and contracts of the business and understand their significance. Students are able to identify and prevent safety risks typical of the business.

Contents of the course: Types of accommodation, regulation, organisations and departmental tasks, marketing, safety and environmental issues in the accommodation industry

Prerequisites: Basics of travel and tourism industry

KM2271 Herzlich willkommen, 2 crs/3 ECTS crs

Objectives of the course: Students further develop their knowledge of tourism vocabulary and skills of oral and written communication in work-related situations. Students know the tourism destinations and important sights of the German-speaking countries and are able to present Finland as a destination.

Contents of the course: Vocabulary and customer service situations of tourism industry, travelling in Finland and in the German-speaking world, business correspondence, basics of guiding

Prerequisites: Deutsch Aufbaukurs, 2 ov

**KM2302 Tourism information services, 2 crs/
3 ECTS crs**

Objectives of the course: The student understands the importance of giving information to clients, inside the enterprise and between tourism organisations. The student can give information both orally and in writing. She/he knows domestic tourism services and directories about tourism services, can find needed information and present it clearly.

Contents of the course: Organising tourism information, domestic services, directories, files, oral and written information.

Prerequisites: Basics of travel and tourism industry

**KM2303 Guide and tour conductor activity, 1 crs/
1,5 ECTS crs**

Objectives of the course: Students get acquainted with the job description and responsibilities of a guide and a tour conductor. They know how to plan and carry out on-site guiding and tours as well as design travel routes and additional programme services. Students master guiding and microphone techniques.

Tourism

Contents of the course: Travel programs, on-site guiding and tours, customer service, guiding and microphone techniques

Prerequisites: Basic studies

KM2304 Programme services, 2 crs/3 ECTS crs

Objectives of the course: The student understands the importance of activity services from the point of view of the tourist and the tourism industry. She/he can plan, price, market and carry out activities based on culture, nature and sports to different target groups.

Contents of the course: Activity services as a part of tourism product, considering the needs of the target groups, planning activity services, timing, sizing, pricing, marketing and carrying out the services.

Prerequisites: Basic studies

KM2306 Meeting and congress services, 1 crs/1,5 ECTS crs

Objectives of the course: Students understand the nature of meeting and congress tourism and are able to meet guests' expectations. Students know the standards set for facilities and equipment. They can plan, market and realize meeting and congress services and host events of varying level.

Contents of the course: Choosing the place, facilities and equipment for a congress, stages of planning, marketing, cooperation with congress bureaux.

Prerequisites: Basic studies

KM2308 Tourism product design, 2 crs/3 ECTS crs

Objectives of the course: The student understands the importance of product development as a essential success factor and as a part of customer centered marketing in tourism industry. She/he can manage phases of the product development and pricing.

Contents of the course: Phases of the product design, product development, legislation, pricing, VAT.

Prerequisites: KM1202 Basics of marketing, KM2201 Basics of travel and tourism industry

KM2309 Marketing planning of tourism services, 2 crs/3 ECTS crs

Objectives of the course: Students understand tourism as a long-range process and are able to evaluate the effects of the use of competitive measures. Students know the different phases of a planning process and are able to plan and carry out a marketing campaign.

Contents of the course: Planning system, strategies, objectives, measures and monitoring; marketing of tourist attractions / areas and tourism companies

Prerequisites: Basic studies, professional studies

KM2310 Introduction to catering services, 2 crs/3 ECTS crs

Objectives of the course: The student studies the economic planning of restaurant catering services, is able to work in the restaurant kitchen and masters the customer service of good quality.

Contents of the course: Dish and meal planning, working in the restaurant kitchen, customer service, quality control

Prerequisites:

KM2311 Visual marketing, 3 crs/4,5 ECTS crs

Objectives of the course: The student makes acquaintance with the sales work as a form of communication and marketing of the company. The student is able to plan advertising, to choose suitable advertising methods and implement them into practice as well as to arrange Sales Promotion and Public Relation events and campaigns.

Contents of the course: Lay-out techniques, introduction to Corel Draw 9.0 drawing program, working with Sign Maker , planning an advertising campaign.

Prerequisites: Basics of marketing

KM2351 Travel agency and transport services, 5 crs/7,5 ECTS crs

Objectives of the course: Students get acquainted with travel agency and transport services as well as with planning and management in a travel agency. Students learn to use the most commonly used booking and information systems.

Contents of the course: Amadeus-course and practical training in a travel agency

Prerequisites: Basic studies

KM2352 Tourism in the nature, 5 crs/7,5 ECTS crs

Objectives of the course: The student understands the concept of nature-based tourism and the importance of it in the tourism industry as well as the problems and the challenges. The student knows the characteristics and special circumstances of the Finnish nature. She/he has a general insight of Finland's vegetation zones and she/he knows the most common Finnish plants and animals. The student is capable of adapting the knowledge of nature-based tourism in planning and carrying out of the tourism product.

Contents of the course: Different forms of nature-based tourism, expertise on nature, nature protection, planning and organizing nature trips.

Prerequisites: Basic studies

KM2354 Training for experiential education instructors, 5 crs/7,5 ECTS crs

Objectives of the course: While in training students get acquainted with experiential education through theory and experiential activity. Students get to know and also experience group-centered leadership. They go through all the essential elements of Outward Bound programs and courses and learn to plan and implement them in practice. After training students are capable of acting as assistant instructors.

Contents of the course: Training takes place at weekends (from Friday evenings till Sunday afternoons) in Nurmes (3 times) and Joensuu (2 times). Part 1: Experiential education course, outdoor course, the most typical tools used in experiential education (outdoor course). Part 2: Theory and philosophy of experiential education, individual and group growth and development in the course, instructor's role. Part 3: Application of experiential education, experiential and adventure exercises, reflection, adapting skills into everyday life. Part 4: Safety issues in experiential education, instructors' skill levels, safety plan and preparations, emergency and problem situations, safety and first aid in the wilderness, simulation exercises of leadership. Part 5: Design of experiential education program and exercises, instruction practice, solo and reflection

Prerequisites:

KM2355 Tourism centres and networking, 5 crs/7,5 ECTS crs

Objectives of the course: Students understand the regularities of business activity based on tourism centres' attraction factors, know the centres' pull factors, horizontal and vertical organizing possibilities and forms of joint marketing. Students get to know more closely the operation in one centre: organization, networking, marketing, clientele and organizing events.

Contents of the course: Tourism centres, organizing, horizontal and vertical cooperation, resort's life span, organizing events

Prerequisites: Basic studies

KM2356AE Guide and tour conductor activity - english, 1 crs/1,5 ECTS crs

Objectives of the course: The aim of the course is to provide students with language skills fluent enough for acting as a guide or a tour leader and to encourage students to take the nationally recognized guide qualification test.

Contents of the course: Guidance to self-expression,

guiding exercises, words and phrases needed in guiding tours

Prerequisites: basic and advanced language studies

KM2356AR Guide and tour conductor activity - swedish, 1 crs/1,5 ECTS crs

Objectives of the course: The aim of the course is to provide students with language skills fluent enough for acting as a guide or a tour leader and to encourage students to take the nationally recognized guide qualification test

Contents of the course: Guidance to self-expression, guiding exercises, words and phrases needed in guiding tours

Prerequisites: basic and advanced language studies

KM2356B Further language studies, 3 crs/4,5 ECTS crs

Objectives of the course: The course provides basic vocabulary and grammar of the language and introduces geography and customs of the linguistic area. Students acquire skills for developing more demanding language skills needed in tourism industry, business life and customer service.

Contents of the course: Writing, pronunciation and intonation, basic grammar, me and my background, customer service, small talk, customs and culture

Prerequisites: -

KM2356C Further language studies, 3 crs/4,5 ECTS crs

Objectives of the course: The course provides students with oral and written skills needed in the most common situations of tourism industry, business life and customer service. Students become familiar with the geography, society and customs of the linguistic area.

Contents of the course: Grammar, tourism vocabulary, customs and culture, the basics of communication

Prerequisites: 2-3 years of language studies

KM2359 Foreign business contacts, 1 crs/1,5 ECTS crs

Objectives of the course: The course provides students with the language skills needed for arranging company visits, hosting visitors as well as for representing a company and community.

Contents of the course: Company vocabulary, company presentation, company visits

Prerequisites: KM1272

Tourism

KM2360 Language of meetings and negotiations, 1 crs/1,5 ECTS crs

Objectives of the course: Students further develop competence in spoken English so that they will manage well in demanding work-related situations requiring good oral skills. Students are encouraged to personal self-expression.

Contents of the course: Demanding language of negotiations (meetings, negotiations, discussions), presentations

Prerequisites: KM1272

KM2361 Som värd och gäst, 1 crs/1,5 ECTS crs

Objectives of the course: The course provides students with the language skills needed for arranging company visits, hosting visitors as well as for representing a

company and community

Contents of the course: Company vocabulary, company presentation, company visits

Prerequisites: KM1252

KM2362 Mötes- och förhandlingsteknik, 1 crs/1,5 ECTS crs

Objectives of the course: Students further develop competence in spoken Swedish so that they will manage well in demanding work-related situations requiring good oral skills. Students are encouraged to personal self-expression.

Contents of the course: Demanding language of negotiations (meetings, negotiations, discussions), presentations

Prerequisites: KM1261

DEGREE PROGRAMME IN BIOMEDICAL SCIENCES

General description and aims of the degree

This field offers three degree programmes: Nursing, Rehabilitation and Biomedical Laboratory Science. The extent of studies in these degree programmes is 140 Finnish credits, which equals to 210 ECTS credits. The principal objective in all health care education is to furnish the health care services with trained professionals who master their own fields of profession. Mastering a field of profession requires good scientific knowledge, ability to apply this knowledge into practice and willingness to develop and improve in the profession. The programme is further aimed at helping the students to develop the ability and capacity for independent professional work and development, and for collaboration with representatives of their own or other fields of profession on the national and international levels. Studies are divided into basic studies (60 ECTS credits) and professional studies (150 ECTS credits). Basic studies offer a wide scope of skills and knowledge in own field of profession. Professional studies offer skills and knowledge for tasks requiring special professional expertise. Professional studies contain compulsory professional studies, elective professional studies, practical training, optional studies and final paper. The students choose optional courses during the fourth or fifth and sixth and seventh terms, but it is possible to take these studies also during the other terms, if schedules allow this. In the degree programmes in the health care sciences the student is seen as an active, goal-oriented and self-directed learner. The aim is to teach the student to gather information which supports his/her thinking and actions so that he/she can apply his/her skills and knowledge to professional tasks and problems. The student acts in the learning process as an active, goal-oriented and responsible learner whose self-directed studying activities are supported in the learning process. The student is encouraged to develop an enquiring and critical attitude in his/her approach to studying and later on to his/her field of profession. These principles are applied in the programme by selecting forms of study which are founded on self-directing and cooperation. The students' self-directing demands that they take full responsibility for themselves and their own studies and this in turn makes extensive demands on the students' studying skills and learning motivation. The role of the teacher is increasingly of a tutor, who through instruction and guidance, makes the learning process possible by sup-

porting the student's self-directing progress in the studies. The students' progress in their studies is monitored through an assessment scheme. Accredited performances in the courses within the programmes are assessed either by pass/fail -grading or by using a numerical grading from 5 to 1 (5 = excellent, 4-3 = good, 2-1 = fair).

INTRODUCTION to The Degree Programme in Biomedical Laboratory Science

The extent of studies in biomedical laboratory science is 140 Finnish credits (210 ECTS-credits, 3½- 4 years). One Finnish credit (1,5 ECTS credits) represents 40 hours of work. The studies consist of: Basic studies (60 ECTS-credits), of which 15 credits are studies for all the students in Polytechnic, 20 credits are studies for the students in the health care sciences programmes and 25 credits are for the students in the degree programme in Biomedical Laboratory Science. Professional studies (150 ECTS-credits), These are divided to practical training (75 ECTS credits), final paper (15 ECTS credits), elective courses (15 ECTS credits), optional courses (15 ECTS credits) and other professional studies (30 ECTS credits).

In planning these studies we have utilised the degree programmes in Biomedical Laboratory Science world wide and in doing so have received the co-operation and the support of various universities and polytechnics. We have endeavoured to anticipate the challenges and changes which the future may bring along in the directional development of the profession. We have thus aimed at finding and providing our students with the essential professional skills and knowledge which enable a medical laboratory technologist to perform an extensive range of tasks and duties in a laboratory. We have based our educational philosophy on striving to educate our students to advance, through reflection, from the initial orientation to mastering a wide range of practical professional skills. The importance of the practise within the learning process is emphasised and the practical training periods are spread throughout the studies. The basic and professional studies and the thesis all advance simultaneously in a progressive pattern and each is thus phased out over a long time span. Throughout the studies there is co-operation and interaction with the other departments of Polytechnic as well as the University of Joensuu.

Biomedical Sciences

BASIC STUDIES	Code	1. year	2. year	3. year	4. year
Basic statistics	TL1004	0	0	1.5	0
IT-Passport	TL1054	3	0	0	0
Clinical Psychology	TL1010	2	0	0	0
Introduction to international awareness	TL1008	1	0	0	0
Finnish language and communication	TL1007	0			
Finnish language and communication, part 1	TL10071	0	0	1	0
Finnish language and communication, part 2	TL10072	0	0	1	0
Social and Health Care policy	TL1018	0			
Social and Health Care policy, part 1	TL10181	1	0	0	0
Social and Health Care policy, part 2	TL10182	0	0	1	0
Health sociology	TL1218	0	0	1	0
Education science	TL1013	0.5	0	0	0
Swedish	TL1016	0			
Swedish, part 1	TL10161	0	1	0	0
Swedish, part 2	TL10162	0	0	1	0
Swedish, part 3	TL10163	0	0	1	0
Health Care English	TT1306A	1	0	0	0
English for Biomedical Laboratory Scientists I	TL1017A	0	1	0	0
English for Biomedical Laboratory Scientists II	TL1017B	0	0	1	0
First aid	TL1012	1	0	0	0
Anatomy and physiology, part 2	TL10212	1.5	0	0	0
Anatomy and physiology	TL1021	0			
Anatomy and physiology, part 1	TL10211	1.5	0	0	0
Physiology	TL1040	0			
Physiology, part 1	TL10401	0	0.5	0	0
Physiology, part 2	TL10402	0	0.5	0	0
Organic and Inorganic Chemistry	TL1022	2.5	0	0	0
Physics	TL1023	1	0	0	0
Introduction to Biomedical Laboratory Work	TL1034	0			
Introduction to Biomedical Laboratory Work, part 1	TL10341	2	0	0	0
Introduction to Biomedical Laboratory Work, part 2	TL10342	0	1	0	0
General Pathology and Medical Science	TL1035	0			
General Pathology and Medical Science, part 1	TL10351	1	0	0	0
General Pathology and Medical Science, part 2	TL10352	0	2	0	0
Instrumentation, Laboratory Technique and Health and Safety	TL1031	0			
Instrumentation, Laboratory Technique and Health and Safety, part 1	TL10311	3	0	0	0
Instrumentation, Laboratory Technique and Health and Safety, part 2	TL10312	0.5	0	0	0
Instrumentation, Laboratory Technique and Health and Safety, part 3	TL10313	0	0.5	0	0
Environmental Health Care	TL1135	0	0	0	1.5
Mathematics	TL1032	1	0	0	0
Preanalytical Factors, Practice	TL4040	0.5	0	0	0
PROFESSIONAL STUDIES					
Preanalytical Factors	TL2125	1.5	0	0	0
Biochemistry	TL2026	0			
Biochemistry, part 1	TL20261	2	0	0	0
Biochemistry, part 2	TL20262	0	2	0	0
Molecular Biology	TL2028	0			
Molecular Biology, part 1	TL20281	1	0	0	0

Molecular Biology, part 2	TL20282	0	2	0	0
Immunology	TL2027	1	0	0	0
Microbiology	TL2029	0			
Microbiology, part 1	TL20291	0	1	0	0
Microbiology, part 2	TL20292	0	1	0	0
Pharmacology and Toxicology	TL2030	0	0	0	2.5
Investigation Methods of Micro-organisms, part 1	TL40321	0	3.5	0	0
Investigation Methods of Micro-organisms	TL4032	0			
Investigation Methods of Micro-organisms, part 2	TL40322	0	0	3	0
Investigation Methods of Molecular	TL4033	0	3	0	0
Cell and Tissue investigation Methods I	TL4070	0			
Cell and Tissue investigation Methods I, part 1	TL40701	4	0	0	0
Cell and Tissue investigation Methods I, part 2	TL40702	0	1	0	0
Immunological Investigation Methods	TL4036	1	0	0	0
Cell and Tissue investigation Methods II	TL4035	0			
Cell and Tissue investigation Methods II, part 1	TL40351	0	3	0	0
Cell and Tissue investigation Methods II, part 2	TL40352	0	5	0	0
Cell and Tissue investigation Methods II, part 3	TL40353	0	0	3	0
Biochemical Investigation Methods I	TL4038	0			
Biochemical Investigation Methods I, part 1	TL40381	2	0	0	0
Biochemical Investigation Methods I, part 2	TL40382	0	5	0	0
Biochemical Investigation Methods I, part 3	TL40383	0	2	0	0
Biochemical Investigation Methods I, part 4	TL40384	0	0	2	0
Physiological Investigation Methods	TL4039	0			
Physiological Investigation Methods, part 1	TL40391	0	2	0	0
Physiological Investigation Methods, part 2	TL40392	0	0	3	0
Blood Banking	TL4037	0	0	0	0
Blood Banking, part 1	TL40371	0	0	2	0
Blood Banking, part 2	TL40372	0	0	1	0
Investigation Methods	TL2042	0			
Investigation Methods, part 1	TL20421	0	1	0	0
Investigation Methods, part 2	TL20422	0	2	0	0
Development in Biomedical Laboratory	TL2041	0	0	0	2
Thesis	TL5001	0			
Thesis, part 2	TL50002	0	0	5	0
Thesis, part 1	TL50001	0	0	4	0
Thesis, part 3	TL50003	0	0	0	1
Administrative Studies and Health Care					
Economics	TL2141	0			
Administrative Studies and Health Care					
Economics, part 1	TL21411	0	0	1	0
Administrative Studies and Health Care Economics, part 2	TL21412	0	0	1	0
Administrative Studies and Health Care Economics, part 3	TL21413	0	0	0	3
Biochemical Investigation Methods II	TL20431	0	0	3	0
Biochemical Investigation Methods II, practice	TL4043	0	0	0	2
Cell an Tissue Investigation Methods III	TL 20041	0	0	3	0
Cell an Tissue Investigation Methods III, practice	TL4044	0	0	0	2
OPTIONAL STUDIES		0	2	6	2
PRACTICAL TRAINING		0	0	0	0
THESIS		0	0	0	0

BASIC STUDIES

TL20041 , 3 crs/4,5 ECTS crs

Objectives of the course: Students advance their knowledge and practical skills in haematology.

Contents of the course: The advancement of blood cell morphology and laboratory diagnostics of blood diseases, the haematological special investigation methods, the professional development trends and research project of haematology.

Prerequisites: Orientation Studies in Biomedical Laboratory Science; a Part of the Professional Studies.

TL1004 Basic statistics, 1,5 crs/2,25 ECTS crs

Objectives of the course: The students acquire skills in gathering and processing data and in graphic presentation of this data. The students develop an understanding of the progress of statistical research, presentation of the results, the most commonly used parameters, probability calculations and testing.

Contents of the course: Stages of statistical research, sampling methods, measuring scales, uni- and bidimensional frequency distribution and presenting them in graphic and table forms. The most important parameters and correlation of frequency distribution. Probability calculations, testing, multiple variant methods.

Prerequisites: Not required

TL1007 Finnish language and communication, 2 crs/3 ECTS crs

Objectives of the course: The students recognise their own communicative abilities and adopt a positive attitude towards improving them. The students learn to express their thoughts in a natural manner in all situations and they acquire skills in clear and correct written expression and in the language of their own field.

Contents of the course: Meetings techniques, negotiation principles. Features of different types of texts. Correct language use. Special problems connected with academic and scientific writing. Documents of meetings and negotiations.

Prerequisites: Not required

TL10071 Finnish language and communication, part 1, 1 crs/1,5 ECTS crs

Objectives of the course: Students recognise their own communicative abilities and adopt a positive attitude towards improving them. Students learn to express their thoughts naturally in all situations. Students acquire skills in clear and correct written expression and language of their own field.

Contents of the course: meetings techniques, negotia-

tion principles. Characteristics of different types of texts. Correct language usage. Special problems connected with academic and scientific writing. Documents of meeting and negotiation.

Prerequisites: None required

TL10072 Finnish language and communication, part 2, 1 crs/1,5 ECTS crs

Objectives of the course: The students recognise their own communicative abilities and adopt a positive attitude towards improving them. The students learn to express their thoughts in a natural manner in all situations and they acquire skills in clear and correct written expression and in the language of their own field.

Contents of the course: Meetings techniques, negotiation principles. Features of different types of texts. Correct language use. Special problems connected with academic and scientific writing. Documents of meetings and negotiations.

Prerequisites: Not required

TL1008 Introduction to international awareness, 1 crs/1,5 ECTS crs

Objectives of the course: The students develop an awareness of both their own culture and of unfamiliar cultures, and they learn about international student exchange programmes and international co-operation. The students will be prepared to work as medical laboratory technologists within different cultures.

Contents of the course: Cultural awareness. International organisational activities.

Prerequisites: Not required

TL1010 Clinical Psychology, 2 crs/3 ECTS crs

Objectives of the course: The student gets acquainted with team work in organizations, the advantages and disadvantages of working in teams, and with how to solve problems of team work. The student deepens his/her knowledge of human behavior for understanding it and getting facilities for helping the customers.

Contents of the course: Team work, roles in teams, communication, leadership, conflicts and problem solving. Patients in different age groups with different problems. Coping methods.

Prerequisites: Not required

TL1012 First aid, 1 crs/1,5 ECTS crs

Objectives of the course: The students understand the importance of immediate vital functions to the human being and learn to recognise the need for immediate first aid, realise the importance of calmness and mental support in first aid situations. The students also learn to

render first aid to children and adults. The students become motivated in keeping their first aid skills and knowledge up to date and are aware of the methods of further treatment after first aid.

Contents of the course: Assessment of accident situations. Emergency first aid situations as crises for both the person rendering first aid and for the recipient. Treatment and prevention of shock, bleeds, burns, frost bites and electric injuries, fractures and joint injuries, poisonings, head injuries, emergency child births, acute attacks of illness.

Prerequisites: Not required

TL1013 Education science, 0,5 crs/0,75 ECTS crs

Objectives of the course: The students acquire skills in planning, implementation and evaluation of learning and counselling.

Contents of the course: Basic concepts of pedagogy and learning as a phenomenon. The process of learning and counselling it. Planning learning. Counselling.

Prerequisites: Not required

TL1016 Swedish, 3 crs/4,5 ECTS crs

Objectives of the course: Health care Swedish, written Swedish, spoken Swedish.

Contents of the course:

Prerequisites: Not required

TL10161 Swedish, part 1, 1 crs/1,5 ECTS crs

Objectives of the course: Health Care Swedish: Students learn basic vocabulary of health care Swedish.

Contents of the course: Core vocabulary of health care Swedish (professional titles, wards and departments, anatomical vocabulary, etc.)

Prerequisites: None required

TL10162 Swedish, part 2, 1 crs/1,5 ECTS crs

Objectives of the course: Written Swedish: Students understand Swedish texts of their own field and gain practise in the use of different aids in the interpretation of the contents of the texts. Students learn to write their own presentations and summaries in Swedish.

Contents of the course: Understanding structure and contents of Swedish scientific texts. Understanding Swedish texts connected with students' own special elective professional studies.

Prerequisites: Health Care Swedish

TL10163 Swedish, part 3, 1 crs/1,5 ECTS crs

Objectives of the course: Spoken Swedish: Students learn to cope in Swedish in situations connected with their special field.

Contents of the course: Guidance expressions, instructions, reports, explaining contents of students' own special elective professional studies, listening comprehension.

Prerequisites: Health Care Swedish and Written Swedish

TL1017A English for Biomedical Laboratory Scientists I, 1 crs/1,5 ECTS crs

Objectives of the course: The student improves his knowledge of English and command of terminology in biomedical laboratory science and copes easily and naturally in different guidance and counselling situations with clients. The student understands authentic texts related to the sector and is able to take part in discussions based on the texts. In addition, the student is able to tell about his education and future profession.

Contents of the course: Terminology, situations with clients, group discussions, oral presentations, job-seeking process.

Prerequisites: Health Care English

TL1017B English for Biomedical Laboratory Scientists II, 1 crs/1,5 ECTS crs

Objectives of the course: The student continues to improve his written and oral command of English required in his professional sector. The student sees personal knowledge of a language as an essential part of his vocational proficiency in the internationalizing world.

Contents of the course: Presenting a work place and work community, acting as a host, language of meetings and negotiations, familiarisation with academic literature and publications of the sector, writing an abstract.

Prerequisites: Health Care English, English for Biomedical Laboratory Scientists I

TL1018 Social and Health Care policy, 2 crs/3 ECTS crs

Objectives of the course: The students identify social and health policy as a part of social policy. The students are acquainted with the historical development trends and aims of Finnish and European social and health care and with principles and actions in social and health care regarding laws and regulations. The students are familiar with the methods of social security.

Contents of the course: Health care and social welfare organisations. Laws, regulations and health care policies.

Prerequisites: Not required

TL10181 Social and Health Care policy, part 1, 1 crs/1,5 ECTS crs

Objectives of the course: Students identify social and

Biomedical Sciences

health policy as part of social policy. They are acquainted with historical development trends and aims of Finnish and European social and health care. They are acquainted with principles and actions in social and health care regarding laws and regulations. They are familiar with methods of social security.

Contents of the course: Health care and social welfare services organisation. Laws, stipulations and health care policies.

Prerequisites: None required

TL10182 Social and Health Care policy, part 2, 1 crs/1,5 ECTS crs

Objectives of the course: Students identify social and health policy as part of social policy. They are acquainted with historical development trends and aims of Finnish and European social and health care. They are acquainted with principles and actions in social and health care regarding laws and regulations. They are familiar with methods of social security.

Contents of the course: Health care and social welfare services organisation. Laws, stipulations and health care policies.

Prerequisites: None required

TL1021 Anatomy and physiology, 3 crs/4,5 ECTS crs

Objectives of the course: The students acquire the essential knowledge of the structures and physiological functions of the cells, tissues and organs. The students understand the significance of anatomical and physiological knowledge in biomedical laboratory studies.

Contents of the course: Cells and tissues, endocrine system, organs of motion, circulatory system and body fluids, breathing, digestion, urinary system, metabolic regulation, reproduction, sensory and nervous systems.

Prerequisites: Not required.

TL10211 Anatomy and physiology, part 1, 1,5 crs/2,25 ECTS crs

Objectives of the course: Students acquire the essential knowledge of the structures and the physiological functions of the cells, tissues and organs. Students understand the significance of the anatomical and physiological knowledge in the biomedical laboratory studies.

Contents of the course: Cells and tissues, endocrine system, organs of motion, circulatory system and body fluids, breathing digestion, urinary system, metabolic regulation, reproduction, sensory and nervous systems.

Prerequisites: Non required.

TL10212 Anatomy and physiology, part 2, 1,5 crs/2,25 ECTS crs

Objectives of the course: Students acquire the essential knowledge of the structures and the physiological functions of the cells, tissues and organs. Students understand the significance of the anatomical and physiological knowledge in the biomedical laboratory studies.

Contents of the course: Cells and tissues, endocrine system, organs of motion, circulatory system and body fluids, breathing digestion, urinary system, metabolic regulation, reproduction, sensory and nervous systems.

Prerequisites: Non required.

TL1022 Organic and Inorganic Chemistry, 2,5 crs/3,75 ECTS crs

Objectives of the course: The students acquire basic knowledge and skills in chemistry for studying courses of biomedical laboratory science.

Contents of the course: Basic chemical elements, common organic and inorganic compounds and their properties, principal chemical effects and reactions.

Prerequisites: Upper Secondary School level chemistry.

TL1023 Physics, 1 crs/1,5 ECTS crs

Objectives of the course: The students acquire basic knowledge and skills in physics for studying courses of biomedical laboratory science. The students learn to recognise and understand the phenomena of physics which are utilised in biomedical laboratory work and in patient care.

Contents of the course: Laws of physics which are utilised in the study methods, in biomedical laboratory work and in patient care, and which apply to working principles of equipment and instrumentation.

Prerequisites: Upper Secondary School level physics.

TL1031 Instrumentation, Laboratory Technique and Health and Safety, 4 crs/5,5 ECTS crs

Objectives of the course: The students become familiar with the operating principles and with the use of the basic equipment and instruments used in biomedical laboratory work. The students understand the principles and legislation of safety at laboratory work.

Contents of the course: Principles of laboratory work and measurement. Quality assurance of analyses. Microscopic examination. Practise at laboratories.

Prerequisites: Not required.

TL10311 Instrumentation, Laboratory Technique and Health and Safety, part 1, 3 crs/4,5 ECTS crs

Objectives of the course: Students become familiar with the operating principles and the usage of the basic equipment and instruments used in biomedical laboratory work. Students understand the principles and legislation of safety at laboratory work.

Contents of the course: The principles of laboratory work and measurement. The quality assurance of analyses. The microscopic examination. Practise at laboratories.

Prerequisites: Non required.

TL10312 Instrumentation, Laboratory Technique and Health and Safety, part 2, 0,5 crs/0,75 ECTS crs

Objectives of the course: Students become familiar with the operating principles and the usage of the basic equipment and instruments used in biomedical laboratory work. Students understand the principles and legislation of safety at laboratory work.

Contents of the course: The principles of laboratory work and measurement. The quality assurance of analyses. The microscopic examination. Practise at laboratories.

Prerequisites: Non required.

TL10313 Instrumentation, Laboratory Technique and Health and Safety, part 3, 0,5 crs/0,75 ECTS crs

Objectives of the course: Students become familiar with the operating principles of the basic cell counter instruments used in haematology laboratories.

Contents of the course: Operation principles of counters and specially cellDyn 1600. Instrument and method validation in haematology.

Prerequisites:

TL1032 Mathematics, 1 crs/1,5 ECTS crs

Objectives of the course: The students master the basic mathematics required in professional studies and acquire proficiency in applying their professional work. The course provides the students with such practical mathematical knowledge and skills which enable them to continue to advanced studies and keep abreast with the professional development.

Contents of the course: Calculations required in carrying out biomedical laboratory investigations, preparation of reagents, dilution of samples and their liquids, in quality control and in statistical reports.

Prerequisites: Upper Secondary School lower mathematics

TL1034 Introduction to Biomedical Laboratory Work, 3 crs/4,5 ECTS crs

Objectives of the course: The students understand the laws governing the activity of medical laboratories and recognise the importance and the role of the central administrative authorities. The students learn to appreciate the hierarchical grading of medical laboratories within the health care system and the quality criteria applied to them. The students familiarise themselves with the profession of a medical laboratory technologist, the procedural nature of the work and the ethical principles guiding the profession. The students are introduced to the work and education of a medical laboratory technologist and to the theory and ethics behind the work.

Contents of the course: Statutory laws, areas of operation of the central administrative authorities, operational grading of medical laboratories, accreditation, quality systems.

Prerequisites: Not required.

TL10341 Introduction to Biomedical Laboratory Work, part 1, 2 crs/3 ECTS crs

Objectives of the course: Students understand the laws which govern the activity of medical laboratories and recognise the importance and the role of the central administrative authorities. Students learn to appreciate the hierarchical grading of medical laboratories within the health care system and the quality criteria applied to them. Students familiarise themselves with the profession of the medical laboratory technologists, the procedural nature of the work and the ethical principles which guide the profession. Students are introduced to the medical laboratory technologist's work and education, the theory and ethics behind the work.

Contents of the course: Statutory laws, areas of operation of central administrative authorities, operational grading of medical laboratories, accreditation, quality systems.

Prerequisites: Non required.

TL10342 Introduction to Biomedical Laboratory Work, part 2, 1 crs/1,5 ECTS crs

Objectives of the course: Students understand the laws which govern the activity of medical laboratories and recognise the importance and the role of the central administrative authorities. Students learn to appreciate the hierarchical grading of medical laboratories within the health care system and the quality criteria applied to them. Students familiarise themselves with the profession of the medical laboratory technologists, the procedural nature of the work and the ethical principles which guide the profession. Students are introduced to

Biomedical Sciences

the medical laboratory technologist's work and education, the theory and ethics behind the work.

Contents of the course: Statutory laws, areas of operation of central administrative authorities, operational grading of medical laboratories, accreditation, quality systems.

Prerequisites: Non required.

TL1035 General Pathology and Medical Science, 3 crs/4,5 ECTS crs

Objectives of the course: The students understand the central concept of pathology and the general principles of the development of diseases and of the reacting of organs to them. The students understand the main principles of the investigation methods of common diseases.

Contents of the course: Origins of diseases, cell and tissue modifications, vascular changes and circulatory disorders, inflammatory reactions, immuno-pathology, tumours, diagnostics, diagnostic pathology and obduction. The students obtain basic information of common diseases and their occurrences, aetiology, pathophysiology, diagnostics and treatment. The significance of the common medical laboratory investigation methods in the treatment of the patient.

Prerequisites: Anatomy and Physiology

TL10351 General Pathology and Medical Science, part 1, 1 crs/1,5 ECTS crs

Objectives of the course: Students understand the central concept of pathology and the general principles of how diseases develop and how the organs react to them. Students understand the main principles of the investigation methods of the common diseases.

Contents of the course: Origins of diseases, cell and tissue modifications, vascular changes and circulatory disorders, inflammatory reactions, immuno-pathology, tumours, diagnostics, diagnostic pathology and obduction. Students obtain basic information on the common diseases and their occurrences, aetiology, pathophysiology, diagnostics and treatment. The significance of the common medical laboratory investigation methods in the treatment of the patient.

Prerequisites: Non required.

TL10352 General Pathology and Medical Science, part 2, 2 crs/3 ECTS crs

Objectives of the course: Students understand the central concept of pathology and the general principles of how diseases develop and how the organs react to them. Students understand the main principles of the investigation methods of the common diseases.

Contents of the course: Origins of diseases, cell and tissue modifications, vascular changes and circulatory disorders, inflammatory reactions, immuno-pathology, tumours, diagnostics, diagnostic pathology and obduction. Students obtain basic information on the common diseases and their occurrences, aetiology, pathophysiology, diagnostics and treatment. The significance of the common medical laboratory investigation methods in the treatment of the patient.

Prerequisites: Non required.

TL1040 Physiology, 1 crs/1,5 ECTS crs

Objectives of the course: The students deepen their knowledge of the physiology of different organs.

Contents of the course: Physiology of the circulatory and respiratory systems, alimentary tract and urinary system.

Prerequisites: Anatomy and Physiology , Biochemistry

TL10401 Physiology, part 1, 0,5 crs/0,75 ECTS crs

Objectives of the course: Students advance their knowledge in the physiology of different organs.

Contents of the course: Physiology of circulatory system, respiratory system, alimentary tract and urinary system.

Prerequisites: Anatomy and Physiology , Biochemistry

TL10402 Physiology, part 2, 0,5 crs/0,75 ECTS crs

Objectives of the course: Students advance their knowledge in the physiology of different organs.

Contents of the course: Physiology of circulatory system, respiratory system, alimentary tract and urinary system.

Prerequisites: Anatomy and Physiology , Biochemistry

TL1054 IT-Passport, 3 crs/4,5 ECTS crs

Objectives of the course: The students acquire basic skills in telematics and data processing for using them in studies and in work.

Contents of the course: Basics of telematics and information retrieval. Basic programmes.

Prerequisites: Not required

TL1135 Environmental Health Care, 1,5 crs/2,25 ECTS crs

Objectives of the course: The students understand the importance of environmental health care, become acquainted with the common investigations at the environmental laboratory and with their significance in the well-being of a human being, animal and environment.

Contents of the course: Functions of environmental health care, direction and control of activity, common

chemical and microbiological investigations.

Prerequisites: Not required.

TL1218 Health sociology, 1 crs/1,5 ECTS crs

Objectives of the course: The students learn to analyze and interpret the action of individuals and communities in the changing world. The students identify social connections of health and illness and they are able to apply social knowledge to their profession.

Contents of the course: Basic concepts of sociology, nature of social knowledge, social explanations and interpretation of deviation, changes in society, social structures. Health, illness and health care organizations and different actors as a part of the structures of society and of the process of change.

Prerequisites: Not required

TL2026 Biochemistry, 4 crs/6 ECTS crs

Objectives of the course: The students understand the biomedical processes occurring in living organisms, cells and tissues. The students understand the principles of biochemistry applying to biomedical laboratory investigation methods. The students learn to appreciate the connection between metabolic disorders and diseases.

Contents of the course: Cellular chemistry, macro molecular syntheses, entzymology, energy metabolism, metabolic functions in carbohydrates, amino acids, proteins, lipids, purins and pyrimides. Regulation of metabolic functions.

Prerequisites: Anatomy and Physiology; Organic and Inorganic Chemistry.

TL20261 Biochemistry, part 1, 2 crs/3 ECTS crs

Objectives of the course: Students understand the biomedical processes which occur in living organisms, cells and tissues. Student understand the principles of biochemistry which apply in biomedical laboratory investigation methods. Students learn to appreciate the connection between metabolic disorders and diseases.

Contents of the course: Cellular chemistry, macro molecular syntheses, entzymology, energy metabolism, metabolic functions in carbohydrates, amino acids, proteins, lipids, purins and pyrimides. Regulation of metabolic functions.

Prerequisites: Anatomy and Physiology; Organic and Inorganic Chemistry.

TL20262 Biochemistry, part 2, 2 crs/3 ECTS crs

Objectives of the course: Students understand the biomedical processes which occur in living organisms, cells and tissues. Student understand the principles of biochemistry which apply in biomedical laboratory in-

vestigation methods. Students learn to appreciate the connection between metabolic disorders and diseases.

Contents of the course: Cellular chemistry, macro molecular syntheses, entzymology, energy metabolism, metabolic functions in carbohydrates, amino acids, proteins, lipids, purins and pyrimides. Regulation of metabolic functions.

Prerequisites: Anatomy and Physiology; Organic and Inorganic Chemistry.

TL2027 Immunology, 1 crs/1,5 ECTS crs

Objectives of the course: The students understand the development, function and co-operation of the defence mechanisms of the organs. The students understand the hypersensitivity reactions of the background mechanism.

Contents of the course: Specified and unspecified immunity and its development and function. Immunologic mechanisms in tissue damages.

Prerequisites: Anatomy and Physiology; General Pathology.

TL2028 Molecular Biology, 3 crs/4,5 ECTS crs

Objectives of the course: The students understand the structure and function of the cell, and the fundamentals of heredity and genetics. The students understand the significance of genes in diagnostics and in the treatment of diseases.

Contents of the course: Common properties of cells, basic cell types, cellular organelles, structure of nucleic acids, replication, mutations, genetic regulation and recombinant DNA technology.

Prerequisites: Anatomy and Physiology.

TL20281 Molecular Biology, part 1, 1 crs/1,5 ECTS crs

Objectives of the course: Students understand the structure and the function of the cell, the fundamentals of heredity and the genetics. Students understand the significance of the genes in diagnostics and treatment of diseases.

Contents of the course: Common properties of cells, basic cell types, cellular organelles, structure of nucleic acids, replication, mutations, genetic regulation and recombinant DNA technology.

Prerequisites: Anatomy and Physiology.

TL20282 Molecular Biology, part 2, 2 crs/3 ECTS crs

Objectives of the course: Students understand the structure and the function of the cell, the fundamentals of heredity and the genetics. Students understand the

Biomedical Sciences

significance of the genes in diagnostics and treatment of diseases.

Contents of the course: Common properties of cells, basic cell types, cellular organelles, structure of nucleic acids, replication, mutations, genetic regulation and recombinant DNA technology.

Prerequisites: Anatomy and Physiology.

TL2029 Microbiology, 2 crs/3 ECTS crs

Objectives of the course: The students know the microbes which are clinically the most important. The students are initiated into the taking of microbiological specimens. The students learn the aseptic methods and recognise the importance of correct waste handling and disposal methods.

Contents of the course: Classification, structures, properties and spreading of bacteria, fungi, viruses and parasites. Collecting, handling, storing and transport of microbiological specimens.

Prerequisites: Not required.

TL20291 Microbiology, part 1, 1 crs/1,5 ECTS crs

Objectives of the course: Objectives and Contents Students know the microbes which are clinically the most important. Student are initiated into the taking of microbiological specimens. Students learn aseptic methods and recognise the importance of correct waste handling and disposal methods. Classification, structures, properties and spreading of bacteria, fungi, viruses and parasites. Collecting, handling, storing and transport of microbiological specimens.

Contents of the course:

Prerequisites: Non required

TL20292 Microbiology, part 2, 1 crs/1,5 ECTS crs

Objectives of the course: Objectives and Contents Students know the microbes which are clinically the most important. Student are initiated into the taking of microbiological specimens. Students learn aseptic methods and recognise the importance of correct waste handling and disposal methods. Classification, structures, properties and spreading of bacteria, fungi, viruses and parasites. Collecting, handling, storing and transport of microbiological specimens.

Contents of the course:

Prerequisites: Non required

TL2030 Pharmacology and Toxicology, 2,5 crs / 3,75 ECTS crs

Objectives of the course: The students understand the resorption, predisposition, metabolism and excretion of different compounds. The students understand the me-

chanism of toxic reaction.

Contents of the course: Pharmacokinetics and pharmacodynamics of medicines. Pharmacological legislation.

Prerequisites: Molecular Biology; Biochemistry; Immunology.

TL2041 Development in Biomedical Laboratory, 2 crs/3 ECTS crs

Objectives of the course: The students deepen their holistic understanding, theoretical knowledge and professional expertise in biomedical laboratory science. The students initiate and take active part in research and development projects e.g. with different laboratories and institutes.

Contents of the course: The contents will be defined by the scope and type of the research project and by topical aspects of biomedical laboratory science.

Prerequisites: Orientational Studies in Biomedical Laboratory Science; a Part of the Professional Studies.

TL2042 Investigation Methods, 3 crs/4,5 ECTS crs

Objectives of the course: The students become acquainted with the practical skills and abilities in applying quantitative and qualitative research methods to their independent biomedical laboratory studies. The students learn to analyze and assess quantitative and qualitative research and its significance and usage within practical biomedical laboratory work.

Contents of the course: Quantitative and qualitative research tradition, research process, research ethics, reliability of research, usage of research at practical biomedical laboratory work.

Prerequisites: Orientational Studies in Biomedical Laboratory Science; Pre-analytical Factors; Biochemistry; Instrumentation, Basic Methodology, Laboratory Technique and Safety at Laboratory Work.

TL20421 Investigation Methods, part 1, 1 crs/1,5 ECTS crs

Objectives of the course: Students become equipped with the practical skills and abilities to apply quantitative and qualitative research methods in their independent biomedical laboratory studies. Students learn to analyze and assess quantitative and qualitative research and its significance and usage within practical biomedical laboratory work. Quantitative and qualitative research tradition, research process, research ethics, reliability of research, usage of research at practical biomedical laboratory work.

Contents of the course:

Prerequisites: Orientational Studies in Biomedical La-

laboratory Science; Pre-analytical Factors; Biochemistry; Instrumentation, Basic Methodology, Laboratory Technique and Safety at Laboratory Work.

TL20422 Investigation Methods, part 2, 2 crs/3 ECTS crs

Objectives of the course: Students become equipped with the practical skills and abilities to apply quantitative and qualitative research methods in their independent biomedical laboratory studies. Students learn to analyze and assess quantitative and qualitative research and its significance and usage within practical biomedical laboratory work. Quantitative and qualitative research tradition, research process, research ethics, reliability of research, usage of research at practical biomedical laboratory work.

Contents of the course:

Prerequisites: Orientation Studies in Biomedical Laboratory Science; Pre-analytical Factors; Biochemistry; Instrumentation, Basic Methodology, Laboratory Technique and Safety at Laboratory Work.

TL20431 Biochemical Investigation Methods II, 3 crs/4,5 ECTS crs

Objectives of the course: The students deepen their knowledge of the functions of healthy and diseased organs and master the special biochemical investigation methods regarding these. The students deepen their knowledge of the properties of environmental chemicals and of their effects to the environment and know investigation methods to measure these. The students deepen their knowledge of investigation methods of foodstuff.

Contents of the course: Chemical special investigations. The development projects of biochemistry, environmental and foodstuff investigations.

Prerequisites: Orientation Studies in Biomedical Laboratory Science; a Part of the Professional Studies.

TL2125 Preanalytical Factors, 1,5 crs/2,25 ECTS crs

Objectives of the course: The students understand the significance of biomedical laboratory investigations in patient treatment, diagnostics, follow-up of the treatment and at environmental laboratories. The students understand the significance and the effect of the pre-analytical factors as a part of reliable and high-quality laboratory work. The students become initiated in sampling methods and they gain insight into the role of health pedagogics in the work of a medical laboratory technologist. The students acquire proficiency in aseptic work and know the principles of the prevention of infection.

Contents of the course: The effects of the clinical and physiological factors on the results of clinical laboratory investigations and results. Patient guidance, sampling, sample handling, storage and dispatch methods.

Prerequisites: Orientation Studies in Biomedical Laboratory Science.

TL2141 Administrative Studies and Health Care Economics, 5 crs/7,5 ECTS crs

Objectives of the course: The students internalise the basic concepts of administration, theory and dynamics of management, and the basics of organisations. The students understand the continuing alteration of laboratory activity, continuing planning, evaluation and development of laboratory production process and marketing resources. The students learn to see the economics of health care services as a part of the overall national economy. The students understand the significance of personnel management and the personnel services as a resource for successful activity.

Contents of the course: Basic concepts of administration. Essential organisational theories. Culture of an organisation. Management. Material administration and logistics. Quality systems. Personnel. Managing an alteration. Activity culture and its development. Special issues of working life. Labour legislation. Basic concepts of health economics. Effectiveness and productivity and their evaluation in health care.

Prerequisites: Social and Health Care Policy.

TL21411 Administrative Studies and Health Care Economics, part 1, 1 crs/1,5 ECTS crs

Objectives of the course: Students internalise the basic concepts of administration, theory of management and dynamics, and basis of organisation. Students understand continuing alteration of laboratory activity, continuing planning, evaluation and development of laboratory production process and marketing resources. Students learn to see the economics of health care services as part of the overall national economy. Students understand the significance of management of personnel and personnel sources as a part of management and productive activity.

Contents of the course: Basic concepts of administration. Essential organisation theory. Culture of organisation. Management. Material management and logistics. Quality system. Staff. Leading of alteration. Activity culture and its development. Special issues of working life. Labour legislation. Basic concepts of health economics. Effectiveness and productivity and their evaluation in health care.

Prerequisites: Social and Health Care policy

TL21412 Administrative Studies and Health Care Economics, part 2, 1 crs/1,5 ECTS crs

Objectives of the course: Students internalise the basic concepts of administration, theory of management and dynamics, and basis of organisation. Students understand continuing alteration of laboratory activity, continuing planning, evaluation and development of laboratory production process and marketing resources. Students learn to see the economics of health care services as part of the overall national economy. Students understand the significance of management of personnel and personnel sources as a part of management and productive activity.

Contents of the course: Basic concepts of administration. Essential organisation theory. Culture of organisation. Management. Material management and logistics. Quality system. Staff. Leading of alteration. Activity culture and its development. Special issues of working life. Labour legislation. Basic concepts of health economics. Effectiveness and productivity and their evaluation in health care.

Prerequisites: Social and Health Care policy

TL21413 Administrative Studies and Health Care Economics, part 3, 3 crs/4,5 ECTS crs

Objectives of the course: Students internalise the basic concepts of administration, theory of management and dynamics, and basis of organisation. Students understand continuing alteration of laboratory activity, continuing planning, evaluation and development of laboratory production process and marketing resources. Students learn to see the economics of health care services as part of the overall national economy. Students understand the significance of management of personnel and personnel sources as a part of management and productive activity.

Contents of the course: Basic concepts of administration. Essential organisation theory. Culture of organisation. Management. Material management and logistics. Quality system. Staff. Leading of alteration. Activity culture and its development. Special issues of working life. Labour legislation. Basic concepts of health economics. Effectiveness and productivity and their evaluation in health care.

Prerequisites: Social and Health Care policy

TL4032 Investigation Methods of Micro-organisms, 6,5 crs/9,75 ECTS crs

Objectives of the course: The students understand the biochemistry of micro-organisms and know the methods used in their detection in specimens, the maintenance of equipments and instruments, and the prepara-

tion and quality assurance of reagents. The students gain proficiency in taking specimens and in aseptic laboratory work.

Contents of the course: The common examination methods of bacteria, fungi, viruses and parasites. Practise at laboratories.

Prerequisites: Immunology; Immunological investigation methods, Instrumentation, Laboratory Technique and Health and Safety.

TL40321 Investigation Methods of Micro-organisms, part 1, 3,5 crs/5,25 ECTS crs

Objectives of the course: Students understand the biochemistry of micro-organisms and know the methods used in their detection in specimens, the maintenance of equipments and instruments, the preparation and quality assurance of reagents. Students gain proficiency in specimens taking and aseptic laboratory work.

Contents of the course: The common examination methods of bacteria, fungi, viruses and parasites. Practise at laboratories.

Prerequisites: Immunology; Immunological investigation methods, Instrumentation, Laboratory Technique and Health and Safety.

TL40322 Investigation Methods of Micro-organisms, part 2, 3 crs/4,5 ECTS crs

Objectives of the course: Students understand the biochemistry of micro-organisms and know the methods used in their detection in specimens, the maintenance of equipments and instruments, the preparation and quality assurance of reagents. Students gain proficiency in specimens taking and aseptic laboratory work.

Contents of the course: The common examination methods of bacteria, fungi, viruses and parasites. Practise at laboratories.

Prerequisites: Immunology; Immunological investigation methods, Instrumentation, Laboratory Technique and Health and Safety.

TL4033 Investigation Methods of Molecular Biology, 3 crs/4,5 ECTS crs

Objectives of the course: The student understands the principles of research methods in Molecular Biology and the use of the results in diagnostics and as a method of treatment.

Contents of the course: Basics of recombinant DNA techniques, PCR-work and occupational health and safety at gene technology laboratories, and ethical issues.

Prerequisites: Biochemistry, Molecular Biology, Biochemical Investigation Methods

TL4035 Cell and Tissue investigation Methods II, 11 crs/16,5 ECTS crs

Objectives of the course: The students understand the development and functions of blood cells as a part of the human physiology. The students know the common investigation methods of blood and its cell morphology and haemopoiesis. The students know the blood coagulation and its investigation methods.

Contents of the course: Haemopoiesis, blood coagulations, blood diseases and their investigation methods. Common equipment and its principles and operation. Quality assurance at a haematological laboratory. Practise at laboratories.

Prerequisites: Cell and Tissue Investigation Methods I.

TL40351 Cell and Tissue investigation Methods II, part 1, 3 crs/4,5 ECTS crs

Objectives of the course: Students understand the development and the functions of blood cells as a part of human physiology. Students know the common investigation methods of blood and their cell morphology and haemopoiesis. Students know the blood coagulation and their investigation methods.

Contents of the course: Haemopoiesis, blood coagulations, blood diseases their investigation methods. The common equipments and their principles and operation. Quality assurance at haematological laboratory. Practise at laboratories.

Prerequisites: Cell and Tissue Investigation methods I.

TL40352 Cell and Tissue investigation Methods II, part 2, 5 crs/7,5 ECTS crs

Objectives of the course: Students understand the development and the functions of blood cells as a part of human physiology. Students know the common investigation methods of blood and their cell morphology and haemopoiesis. Students know the blood coagulation and their investigation methods.

Contents of the course: Haemopoiesis, blood coagulations, blood diseases their investigation methods. The common equipments and their principles and operation. Quality assurance at haematological laboratory. Practise at laboratories.

Prerequisites: Cell and Tissue Investigation methods I.

TL40353 Cell and Tissue investigation Methods II, part 3, 3 crs/4,5 ECTS crs

Objectives of the course: Students understand the development and the functions of blood cells as a part of human physiology. Students know the common investigation methods of blood and their cell morphology and haemopoiesis. Students know the blood coagulation and

their investigation methods.

Contents of the course: Haemopoiesis, blood coagulations, blood diseases their investigation methods. The common equipments and their principles and operation. Quality assurance at haematological laboratory. Practise at laboratories.

Prerequisites: Cell and Tissue Investigation methods I.

TL4036 Immunological Investigation Methods, 1 crs/1,5 ECTS crs

Objectives of the course: The students understand the immunological reactions in the investigation of cells and tissues. The students master the principles of immunological methods.

Contents of the course: Investigation methods utilizing precipitation, agglutination and marked immunocomponents. Practise at laboratories.

Prerequisites: Molecular Biology; Immunology; A part of Biochemical Investigation Methods.

TL4037 Blood Banking, 3 crs/4,5 ECTS crs

Objectives of the course: The students understand the basis and the principles of the serological blood group methods. The students understand the significance of blood banking at laboratory work and the co-operation with the wards treating the patients.

Contents of the course: Legislation applying to blood banking. Blood banking and laboratory investigation of blood. Blood donor service. Quality assurance in blood banking. Practise at laboratories.

Prerequisites: Immunology; Immunological Investigations Methods.

TL40371 Blood Banking, part 1, 2 crs/3 ECTS crs

Objectives of the course: Students understand the basis and the principles of blood group serological methods. Students understand the significance of blood banking at laboratory work and co-operation with wards which treat the patients.

Contents of the course: The legislation applying to blood banking. Blood banking and their laboratory investigations. Blood donor service. Quality assurance in blood banking. Practise at laboratories.

Prerequisites: Immunology; Immunological Investigations Methods.

TL40372 Blood Banking, part 2, 1 crs/1,5 ECTS crs

Objectives of the course: Students understand the basis and the principles of blood group serological methods. Students understand the significance of blood banking at laboratory work and co-operation with wards which treat the patients.

Biomedical Sciences

Contents of the course: The legislation applying to blood banking. Blood banking and their laboratory investigations. Blood donor service. Quality assurance in blood banking. Practise at laboratories.

Prerequisites: Immunology; Immunological Investigations Methods.

TL4038 Biochemical Investigation Methods I, 11 crs/16,5 ECTS crs

Objectives of the course: The students understand the function of healthy and diseased organs. The students learn the commonly used biochemical investigation methods used in their detection and monitoring. The students get acquainted with the chemical substances found in the environment and their environmental effects. The students learn the commonly used biochemical methods used in the investigation and monitoring of these effects. The students understand the compositions of foodstuffs and know the commonly used methods in their investigation.

Contents of the course: Laboratory investigation processes used in detecting the primary substances of the organs and the environment: determination technique of proteins, enzymes, centrifugation, spectrometry, electrochemistry, radioisotopes, chromatography and mass spectrometry. Practise at laboratories.

Prerequisites: Orientation Studies in Biomedical Laboratory Science; Pre-analytical Factors; Biochemistry; Instrumentation, Basic Methodology, Laboratory Technique and Health and Safety.

TL40381 Biochemical Investigation Methods I, part 1, 2 crs/3 ECTS crs

Objectives of the course: Students understand body functions of health and diseased organs. Students learn the common used biochemical investigation methods used in their detection and monitoring. Students acquaint themselves with the chemical substances found in the environment and their environmental effects. Students learn the common used biochemical methods used in the investigation and monitoring of these effects. Students understand the compositions of foodstuffs and know the common used methods in their investigation.

Contents of the course: Laboratory investigation processes used in detecting the main primary substances of the organs and environment: determination technique of proteins, enzymes, centrifugation, spectrometry, electrochemistry, radioisotopes, chromatography and mass spectrometry. Practise at laboratories.

Prerequisites: Orientation Studies in Biomedical Laboratory Science; Pre-analytical Factors; Biochemistry; Instrumentation, Basic Methodology, Laboratory Technique and Health and Safety.

TL40382 Biochemical Investigation Methods I, part 2, 5 crs/7,5 ECTS crs

Objectives of the course: Students understand body functions of health and diseased organs. Students learn the common used biochemical investigation methods used in their detection and monitoring. Students acquaint themselves with the chemical substances found in the environment and their environmental effects. Students learn the common used biochemical methods used in the investigation and monitoring of these effects. Students understand the compositions of foodstuffs and know the common used methods in their investigation.

Contents of the course: Laboratory investigation processes used in detecting the main primary substances of the organs and environment: determination technique of proteins, enzymes, centrifugation, spectrometry, electrochemistry, radioisotopes, chromatography and mass spectrometry. Practise at laboratories.

Prerequisites: Orientation Studies in Biomedical Laboratory Science; Pre-analytical Factors; Biochemistry; Instrumentation, Basic Methodology, Laboratory Technique and Health and Safety.

TL40383 Biochemical Investigation Methods I, part 3, 2 crs/3 ECTS crs

Objectives of the course: Students understand body functions of health and diseased organs. Students learn the common used biochemical investigation methods used in their detection and monitoring. Students acquaint themselves with the chemical substances found in the environment and their environmental effects. Students learn the common used biochemical methods used in the investigation and monitoring of these effects. Students understand the compositions of foodstuffs and know the common used methods in their investigation.

Contents of the course: Laboratory investigation processes used in detecting the main primary substances of the organs and environment: determination technique of proteins, enzymes, centrifugation, spectrometry, electrochemistry, radioisotopes, chromatography and mass spectrometry. Practise at laboratories.

Prerequisites: Orientation Studies in Biomedical Laboratory Science; Pre-analytical Factors; Biochemistry; Instrumentation, Basic Methodology, Laboratory Technique and Health and Safety.

TL40384 Biochemical Investigation Methods I, part 4, 2 crs/3 ECTS crs

Objectives of the course: Students understand body functions of health and diseased organs. Students learn the common used biochemical investigation methods used in their detection and monitoring. Students acquaint themselves with the chemical substances found in the

environment and their environmental effects. Students learn the common used biochemical methods used in the investigation and monitoring of these effects. Students understand the compositions of foodstuffs and know the common used methods in their investigation.

Contents of the course: Laboratory investigation processes used in detecting the main primary substances of the organs and environment: determination technique of proteins, enzymes, centrifugation, spectrometry, electrochemistry, radioisotopes, chromatography and mass spectrometry. Practise at laboratories.

Prerequisites: Orientation Studies in Biomedical Laboratory Science; Pre-analytical Factors; Biochemistry; Instrumentation, Basic Methodology, Laboratory Technique and Health and Safety.

TL4039 Physiological Investigation Methods, 5 crs/7,5 ECTS crs

Objectives of the course: The students understand the physiological and neurophysiological functions of the organs as well as the principles of the instruments, equipment and methods used in physiological, neurophysiological and radio-active isotopic investigations. The students acquire proficiency in guiding patients undergoing physiological investigations, in carrying out these investigations and in co-operating with other health care personnel.

Contents of the course: Operation and service of instruments and equipment. Practise at laboratories.

Prerequisites: Anatomy and Physiology; Pre-analytical Factors; Introduction to Biomedical Laboratory Work; Immunology; Immunological Investigation Methods.

TL40391 Physiological Investigation Methods, part 1, 2 crs/3 ECTS crs

Objectives of the course: Students understand the physiological and the neurophysiological functions of the organs and understand the principles of the instruments and equipments and methods used in physiological, neurophysiological and radio-active isotopic investigations. Students acquire proficiency in guiding patients undergoing physiological investigations, in carrying out these investigations and in co-operating with other health care personnel.

Contents of the course: The operation and service of instruments and equipments. Practise at laboratories.

Prerequisites: Anatomy and Physiology; Pre-analytical Factors; Introduction to Biomedical Laboratory Work; Immunology; Immunological Investigation Methods.

TL40392 Physiological Investigation Methods, part 2, 3 crs/4,5 ECTS crs

Objectives of the course: Students understand the physiological and the neurophysiological functions of the organs and understand the principles of the instruments and equipments and methods used in physiological, neurophysiological and radio-active isotopic investigations. Students acquire proficiency in guiding patients undergoing physiological investigations, in carrying out these investigations and in co-operating with other health care personnel.

Contents of the course: The operation and service of instruments and equipments. Practise at laboratories.

Prerequisites: Anatomy and Physiology; Pre-analytical Factors; Introduction to Biomedical Laboratory Work; Immunology; Immunological Investigation Methods.

TL4040 Preanalytical factors, Practice, 0,5 crs/0,75 ECTS crs

Objectives of the course: Students understand the significance of biomedical laboratory investigations in the patient treatment, diagnostics, follow-up of the treatment and at environmental laboratories. Students understand the significance and the effect of the pre-analytical factors as part of reliable and high-quality laboratory work. Students become initiated in sampling methods and gain insight into the role of health pedagogics in the work of the medical laboratory technologists. Students gain proficiency in aseptic work and know the principles of the prevention of infection.

Contents of the course: The effects of the clinical and physiological factors on the results of clinical laboratory investigations and results. Patient guidance, sampling, sample handling, storage and dispatch methods.

Prerequisites: Orientation Studies in Biomedical Laboratory Science.

TL4043 Biochemical Investigation Methods II, Practice, 2 crs/3 ECTS crs

Objectives of the course: Students advance their knowledge in the function of healthy and diseased organs and master special biochemical investigation methods regarding these. Students advance their knowledge properties of environmental chemicals and their effects environment and regarding investigation methods. Students advance their knowledge investigation methods of food stuff.

Contents of the course: Chemical special investigations. The development projects of biochemistry, environmental and food stuff investigations. Practise at laboratories.

Prerequisites: Orientation Studies in Biomedical Laboratory Science; a Part of the Professional Studies.

Biomedical Sciences

TL4044 Cell and Tissue investigation Methods III, Practice, 2 crs/3 ECTS crs

Objectives of the course: Students advance their knowledge and practical skills in haematology.

Contents of the course: The advancement of blood cell morphology and laboratory diagnostics of blood diseases, the haematological special investigation methods, the professional development trends and research project of haematology. Practise at laboratories.

Prerequisites: Orientation Studies in Biomedical Laboratory Science; a Part of the Professional Studies.

TL4070 Cell and Tissue investigation Methods I, 5 crs/7,5 ECTS crs

Objectives of the course: The students understand the role of histological and cytological methods as a part of the investigation methods of organs. The students become acquainted with the preparation and handling of histological and cytological specimens, and with urinalysis. The students know the normal findings of the most important cytological specimens.

Contents of the course: The most important tissue structures of the human body. The handling of histology and cytology specimens and their preparation. The most important stainings and recognition of normal cytological findings. Basic urinalysis. Cell morphology of body fluids. Practise at laboratories.

Prerequisites: General Pathology and Medical Science; Anatomy and Physiology.

TL40701 Cell and Tissue investigation Methods, part 1, 4 crs/6 ECTS crs

Objectives of the course: Students understand the role of histological and cytological methods as a part of the investigation methods of the organs. Students become acquainted with the preparation and the handling of histological and cytological specimens, and urinalysis. Students know the normal findings of the most important cytological specimens.

Contents of the course: The most important tissue structures of the human body. The handling of histology and cytology specimens and their preparations. The most important stainings and recognition of normal cytological findings. Basic urinalysis. Cell morphology of body fluids. Practise at laboratories.

Prerequisites: General Pathology and Medical Science; Anatomy and Physiology.

TL40702 Cell and Tissue investigation Methods, part 2, 1 crs/1,5 ECTS crs

Objectives of the course: Students understand the role of histological and cytological methods as a part of

the investigation methods of the organs. Students become acquainted with the preparation and the handling of histological and cytological specimens, and urinalysis. Students know the normal findings of the most important cytological specimens.

Contents of the course: The most important tissue structures of the human body. The handling of histology and cytology specimens and their preparations. The most important stainings and recognition of normal cytological findings. Basic urinalysis. Cell morphology of body fluids. Practise at laboratories.

Prerequisites: General Pathology and Medical Science; Anatomy and Physiology.

TL50001 Thesis, part 1, 4 crs/6 ECTS crs

Objectives of the course: Students gain proficiency in the independent scientific research and reporting processes required in biomedical laboratory science.

Contents of the course: A research study of the subject connected with the student withhis/her professional field of biomedical laboratory science.

Prerequisites: Partly courses in the Methodological Studies in Biomedical Laboratory Science; Research Methods of Biomedical Laboratory Science.

TL50002 Thesis, part 2, 5 crs/7,5 ECTS crs

Objectives of the course: Students gain proficiency in the independent scientific research and reporting processes required in biomedical laboratory science.

Contents of the course: A research study of the subject connected with the student withhis/her professional field of biomedical laboratory science.

Prerequisites: Partly courses in the Methodological Studies in Biomedical Laboratory Science; Research Methods of Biomedical Laboratory Science.

TL50003 Thesis, part 3, 1 crs/1,5 ECTS crs

Objectives of the course: Students gain proficiency in the independent scientific research and reporting processes required in biomedical laboratory science.

Contents of the course: A research study of the subject connected with the student withhis/her professional field of biomedical laboratory science.

Prerequisites: Partly courses in the Methodological Studies in Biomedical Laboratory Science; Research Methods of Biomedical Laboratory Science.

TL5001 Thesis, 10 crs/15 ECTS crs

Objectives of the course: The students gain proficiency in independent scientific research and reporting processes required in biomedical laboratory science.

Contents of the course: A research study of the sub-

ject connected with the student and his/her professional field of biomedical laboratory science.

Prerequisites: Partly courses in the Methodological Studies in Biomedical Laboratory Science; Research Methods of Biomedical Laboratory Science.

TT1306A Health Care English, 1 crs/1,5 ECTS crs

Objectives of the course: The student masters the central vocabulary of the health care sector, understands general publications of the sector and can cope in the verbal and written situations required in his professional sector.

Contents of the course: Health care terminology, situations with clients, telephone English, small talk, short written messages.

Prerequisites: A good command of the knowledge gained in secondary school courses or comprehensive school and vocational school courses in English language.

DEGREE PROGRAMME IN NURSING

General description and aims of the degree

The Degree Programme in Nursing educates experts who work in the fields of planning, implementation and development in nursing and public health nursing. During the studies, students become health care professionals and experts who have abilities and skills in four sectors: know-how, development, management and entrepreneurship. Expertise is based on nursing science. During the studies, students learn to implement, develop and improve professional practise to promote the health of the population. In addition, students learn to work independently and in cooperation with representatives of various professions at the national and international level. During the studies, students adopt an active role in the continuous development of their expertise. Degrees of Nurse and Public Health Nurse fulfil the requirements for the education of a nurse responsible for general care as defined in the European Council directives 77/452/EEC and 77/453/EEC and the supplementing directives. In the implementation of the education, national qualification requirements for health care professions are taken into account.

Structure and syllabus of the studies

The studying environment is an open learning environment in which learning is based on socio-constructive learning concept. Various cooperative and project work methods, lectures, lecture-discussions, practice and independent studying are used as learning methods. The learning environment utilizes technology that students can apply in their future professions. Reaching the aims is assessed by using both internal and external evaluation methods. Internal evaluation is students' self-evaluation into which students are initiated right from the beginning of their studies. External evaluation is peer evaluation and evaluation given by both teachers and counsellors and it is implemented both as formative and summative, quantitative and/or qualitative evaluation.

Orientation option of Nursing

The Polytechnic Degree in Social Services and Health (140 cr) with the orientation option of Nursing leads to a professional qualification of a Nurse. In the orientation option of Nursing the aim is to educate nurses who have a wide knowledge base and skills and abilities to work in nursing practice. They work independently in

planning, implementation, and development tasks in the field. They show responsibility in their work and evaluate the quality of nursing and economic efficiency of the practice in their own work as well as in the work unit and take into consideration the structures and functions within society and occurring changes. Nurses have all the clinical and interaction skills necessary in the nursing of different individuals, families and communities. They are capable of multicultural cooperation with individuals, families, communities and those participating in the nursing of clients / patients. Based on reflection and teamwork, nurses move towards self-directiveness and well-founded development of their own work. They learn to think conceptually and critically and acquire information. In addition, they are capable of making use of these skills in the decision-making process in nursing practice. In addition, nurses are able to make use of research results in nursing and related sciences and develop their professional skills and work community with the help of development projects, research, studying, and international activities. Nurses internalise their responsibility for continuous development as a human being and a nurse. Nurses recognize the societal significance of nursing practice and their own roles in the society.

Orientation option of Public Health Nursing

The Polytechnic Degree in Social Services and Health (160 cr) with the orientation option of Public Health Nursing leads to a professional qualification of a Nurse and Public Health Nurse. The aim of the studies is to educate public health nurses who have a wide knowledge base and skills and abilities to work in nursing practice. They are able to work both independently and in teams in planning, implementation, evaluation and development tasks related to nursing of individuals, families, communities and population at large both at the national and international level. Public health nurses have skills for multicultural nursing. They make use of research results in health sciences and adopt explorative and developing approach to work. They show responsibility in their work and evaluate the quality of nursing and economic efficiency of the practice in their own work as well as in the work unit and take into consideration the structures and functions within society and occurring changes.

During the education the student learns skills and abilities central in clinical nursing and public health nursing. In addition she learns conceptual and critical thinking, information acquisition and their utilization in nursing. Public health nurses recognize the societal significance of nursing practice and their own roles in the society.

During the education students learn the central clinical skills needed in nursing and public health nursing. In addition, they learn to think conceptually and critically, acquire information and make use of these skills in nursing practice.

BASIC STUDIES	Code	1. year	2. year	3. year	4. year
ORIENTATIVE STUDIES					
Professional Growth and Nursing	TT1340A	0	0	0	0
	TT13401	0.5	0	0	0
	TT13402	0.5	0	0	0
	TT13403	0	0.5	0	0
	TT13404	0	0	0.5	0
	TT13405	0	0	0	0.5
IT-passport	TT1302	0	0	0	0
IT-Passport, part 1	TT13021	2	0	0	0
IT-Passport, part 2	TT13022	1	0	0	0
Finnish language and communication	TT1304	0	0	0	0
	TT13041	1.0	0	0	0
	TT13042	0	0	0.5	0
	TT13043	0	0	0.5	0
Swedish	TT1305	0	0	0	0
Swedish, part 1	TT13051	0	1	0	0
Swedish, part 2	TT13052	0	1	0	0
Swedish, part 3	TT13053	0	0	1	0
Health Care English	TT1306A	1	0	0	0
English for Nurses	TT1306B	1	0	0	0
	TT1306D	0	0	0.5	0
THE BASICS OF HEALTH SCIENCES					
Nursing science	TT1309	0	0	0	0
	TT13091	1.0	0	0	0
	TT13092	0.5	0	0	0
	TT13093A	0	0.5	0	0
	TT13094C	0	0	1.5	0
	TT13095	0	0	0	1
Anatomy and physiology	TT1310A	0	0	0	0
	TT13101	1.5	0	0	0
	TT13102	1.5	0	0	0
Nutrition	TT1311	1	0	0	0
Health psychology	TT13121	1	0	0	0
Health sociology	TT1313	0	0	0	0
	TT13131	0	1.0	0	0
	TT13132	0	0	0.5	0
Public health science and environmental health	TT1314A	0	0	0	0
	TT13141	1.0	0	0	0
	TT13142	0	0	1.0	0
Social and health care policy	TT1315	0	0	0	0
	TT13151	1.5	0	0	0
	TT13152	0	1.0	0	0

Nursing

PROFESSIONAL STUDIES

BASIC STUDIES IN NURSING

First aid	TT1308	1	0	0	0
Research methods in health sciences	TT2301	0	0	0	0
	TT23011	0	1.5	0	0
	TT23012	0	1.0	0	0
Basic statistics	TT1303	0	1	0	0
Microbiology and clinical laboratory science	TT2302	0	0	0	0
	TT23025	0.5	0	0	0
	TT23026	0.5	0	0	0
Clinical pharmacology	TT2303	0	0	0	0
	TT23031	0.5	0	0	0
	TT23032	0	0.5	0	0
Human needs and nursing interventions	TT2305A	0	0	0	0
	TT23051B	3.5	0	0	0
	TT23052A	1.5	0	0	0
Orientation placement (in Nursing)	TT4301A	4	0	0	0

PUBLIC HEALTH NURSING OF INDIVIDUAL, FAMILY AND COMMUNITY

Health promotion (Health education)	TT2304	0	0	0	0
	TT23041A	1.0	0	0	0
	TT23042	1.0	0	0	0
	TT23043	0	0	1.0	0
Public health nursing of children and adolescents	TT2306	1	0	0	0
Practical Placement in public health nursing of children and adolescents	TT4302	4	0	0	0
Public health nursing of adults	TT2307A	0	0	0	0
	TT23071	1.0	0	0	0
	TT23072A	1.0	0	0	0
Obstetrics and gynaecology	TT23081	0.5	0	0	0
Practical placement in public health nursing of adults	TT4303A	5	0	0	0

NURSING OF INDIVIDUAL, FAMILY AND COMMUNITY

Medical-Surgical Nursing	TT2309A	0	0	0	0
Medical nursing	TT23091	0	1.0	0	0
	TT23092A	0	0	1.0	0
	TT23093	0	1.0	0	0
	TT23094	0	1.0	0	0
	TT23095	0	0.5	0	0
Internal medicine	TT23082	0	1	0	0
Practical placement in medical- surgical nursing	TT4304A	0	0	0	0
Practical Placement in medical nursing	TT43041	0	4	0	0
Practical Placement in Surgical Nursing	TT43043	0	4	0	0
Surgery and anaesthetics	TT23083	0	1.5	0	0
Practical placement in district nursing	TT43042A	0	0	4	0
Mental health care	TT2312A	0	2	0	0
Practical Placement in Perioperative Nursing	TT43044	0	2	0	0
Psychiatry	TT23084	0	1	0	0
Practical Placement in mental health care	TT4305	0	5	0	0
Eldery care	TT2314	0	1	0	0
Geriatrics	TT23085	0	0.5	0	0
Practical placement in eldery care	TT4306	0	4	0	0
Paediatrics	TT23086	0	0	1	0

Practical placement in nursing of children and adolescents	TT4307	0	0	4	0
Nursing of children and adolescents	TT2316	0	0	1.5	0
ADVANCED PROFESSIONAL STUDIES IN NURSING					
Nursing administration	TT2050	0	0	0	0
	TT20501A	0	0	1.5	0
	TT20502A	0	0	0	1.0
Health care economics	TT1019	0	0	1	0
Advanced Studies of Nursing	TT2338A	0	0	0	0
	TT2338A1	0	0	4.0	0
	TT2338A2	0	0	0	2.0
Practical placement in advanced nursing	TT4338A	0	0	0	10
OPTIONAL STUDIES		0	1	4	5
PRACTICAL TRAINING		0	0	0	0
THESIS		0	1	9	0
THESIS	TT5010	0	0	0	0
Seminar on the ideas and topics of the thesis	TT5014	0	0.5	0	0
Seminar on the plan for the thesis	TT5021	0	0	0.5	0
Seminar on the thesis	TT5022	0	0	0.5	0
Independent study and supervision, part 1	TT5023	0	0.5	0	0
Independent study and supervision, part 2	TT5024B	0	0	2	0
Independent study and supervision, part 3	TT5025B	0	0	6	0

Orientation option of Public Health Nursing

	Code	1. year	2. year	3. year	4. year
BASIC STUDIES					
ORIENTATIVE STUDIES					
Professional Growth and Nursing	TT1340A	2.5	0	0	0
	TT13401	0.5	0	0	0
	TT13402	0.5	0	0	0
	TT13403	0	0.5	0	0
	TT13404	0	0	0.5	0
	TT13405	0	0	0	0.5
IT-passport	TT1302	3	0	0	0
IT-Passport, part 1	TT13021	2	0	0	0
IT-Passport, part 2	TT13022	1	0	0	0
Finnish language and communication	TT1304	2	0	0	0
	TT13041	1.0	0	0	0
	TT13042	0	0	0.5	0
	TT13043	0	0	0.5	0
Swedish	TT1305	3	0	0	0
Swedish, part 1	TT13051	0	1	0	0
Swedish, part 2	TT13052	0	1	0	0
Swedish, part 3	TT13053	0	0	1	0
Health Care English	TT1306A	1	0	0	0
English for Nurses	TT1306B	1	0	0	0
English for Public Health Nurses	TT1306C	0	0	0.5	0
THE BASICS OF HEALTH SCIENCES					
Nursing science	TT1309	4.5	0	0	0
	TT13091	1.0	0	0	0
	TT13092	0.5	0	0	0
	TT13093A	0	0.5	0	0
	TT13094C	0	0	1.5	0

Nursing

	TT13095	0	0	0	1
Anatomy and physiology	TT1310A	3	0	0	0
	TT13101	1.5	0	0	0
	TT13102	1.5	0	0	0
	TT1311	1	0	0	0
Nutrition	TT13121	1	0	0	0
Health psychology	TT1313	1.5	0	0	0
Health sociology	TT13131	0	1.0	0	0
	TT13132	0	0	0.5	0
	TT1314A	2	0	0	0
	TT13141	1.0	0	0	0
Public health science and environmental health	TT13142	0	0	1.0	0
	TT1315	2.5	0	0	0
	TT13151	1.5	0	0	0
Social and health care policy	TT13152	0	1.0	0	0
PROFESSIONAL STUDIES					
BASIC STUDIES IN NURSING					
First aid	TT1308	1	0	0	0
Research methods in health sciences	TT2301	2.5	0	0	0
	TT23011	0	1.5	0	0
	TT23012	0	1.0	0	0
	TT1303	0	1	0	0
Basic statistics	TT2302	1	0	0	0
Microbiology and clinical laboratory science	TT23025	0.5	0	0	0
	TT23026	0.5	0	0	0
	TT2303	1	0	0	0
	TT23031	0.5	0	0	0
Clinical pharmacology	TT23032	0	0.5	0	0
	TT2305A	5	0	0	0
	TT23051B	3.5	0	0	0
Human needs and nursing interventions	TT23052A	1.5	0	0	0
	TT4301A	4	0	0	0
Orientation placement (in Nursing)					
PUBLIC HEALTH NURSING OF INDIVIDUAL, FAMILY AND COMMUNITY					
Health promotion (Health education)	TT2304	3	0	0	0
	TT23041A	1.0	0	0	0
	TT23042	1.0	0	0	0
	TT23043	0	0	1.0	0
Public health nursing of children and adolescents	TT2306	1	0	0	0
Practical Placement in public health nursing of children and adolescents	TT4302	4	0	0	0
Public health nursing of adults	TT2307A	2.0	0	0	0
	TT23071	1.0	0	0	0
	TT23072A	1.0	0	0	0
	TT23081	0.5	0	0	0
Obstetrics and gynaecology	TT4303A	5	0	0	0
Practical placement in public health nursing of adults					
NURSING OF INDIVIDUAL, FAMILY AND COMMUNITY					
Medical-Surgical Nursing	TT2309A	4.5	0	0	0
Medical nursing	TT23091	0	1.0	0	0
	TT23092A	0	1.0	0	0
	TT23093	0	1.0	0	0
	TT23094	0	0	1.0	0
	TT23095	0	0	0.5	0
	TT23082	0	1	0	0
Internal medicine					

Practical placement in medical surgical nursing	TT4304B	10	0	0	0
Surgery and anaesthetics	TT23083	0	1.5	0	0
Practical Placement in medical nursing	TT43041	0	4	0	0
Practical Placement in Surgical Nursing	TT43043	0	4	0	0
Practical Placement in Perioperative Nursing	TT43044	0	2	0	0
Psychiatry	TT23084	0	1	0	0
Practical Placement in mental health care	TT4305	0	5	0	0
Geriatrics	TT23085	0	0.5	0	0
Eldery care	TT2314	0	1	0	0
Mental health care	TT2312A	0	2	0	0
Practical placement in district nursing and in elderly care	TT4336A	0	5	0	0
Paediatrics	TT23086	0	0	1	0
Nursing of children and adolescents	TT2316	0	0	1.5	0
Practical Placement in nursing of children and adolescents	TT4307A	0	0	5	0
PROFESSIONAL STUDIES IN PUBLIC HEALTH NURSING					
Nursing administration	TT2050	2.5	0	0	0
	TT20501A	0	0	1.5	0
	TT20502A	0	0	0	1.0
Health care economics	TT1019	0	0	1	0
Interventions in health promotion	TT2367A	0	0	0	1
Supporting the early communication between a mother and a child	TT2368	3.0	0	0	0
	TT23681	0	0	2.0	0
	TT23682	0	0	0	1.0
Preventive work with the abusers of the drugs and intoxicants	TT2369	0	0	0	1
Sexual health	TT2371	0	0	0	0.5
Breast feeding counselling	TT2372	0	0	1	0
Evidence based public health nursing	TT2373A	0	0	0	0.5
Pactical placement in public health care	TT4340	0	0	5	0
Practical placement in health care of the school-aged children and adolescents	TT4343	0	0	0	6
PROFESSIONAL STUDIES OF THE PUBLIC HEALTH NURSE					
Public health nursing of the childbearing families	TT2374	0	0	1.5	0
Public health nursing of the children and their families	TT2375	0	0	0	1.5
Health care of the school-aged children and adolescents	TT2376	0	0	0	2
Occupational health care	TT2377	0	0	0	1
Health of the women	TT2378	0	0	0	1
Health of the men	TT2379	0	0	0	1
Health care of the elderly	TT2380	0	0	0	1
Developmental Assignment in Health Care	TT2366	0	0	0	3
Practical placement in advanced public health care	TT4342	0	0	0	8
OPTIONAL STUDIES		0	1	4	5
PRACTICAL TRAINING		0	0	0	0
THESIS		10	0	0	0
Seminar on the ideas and topics of the thesis	TT5014	0	0.5	0	0
Seminar on the plan for the thesis	TT5021	0	0	0.5	0
Seminar on the thesis	TT5022	0	0	0.5	0
Independent study and supervision, part 1	TT5023	0	0.5	0	0
Independent study and supervision, part 2	TT5024B	0	0	2	0
Independent study and supervision, part 3	TT5025B	0	0	6	0

BASIC STUDIES

TT1302 IT-passport, 00 crs/00 ECTS crs

Objectives of the course: The students will master the computer literacy in telematics, information technology and data processing and are able to use them in their studies and in their other working tasks.

Contents of the course: The basics of information technology and data acquisition as well as the most important programs (text processing, spreadsheet and computer graphics)

Prerequisites: non

TT13021 IT-Passport, part 1, 2 crs/3 ECTS crs

Objectives of the course:

Contents of the course:

Prerequisites:

TT13022 IT-Passport, part 2, 1 crs/1,5 ECTS crs

Objectives of the course:

Contents of the course:

Prerequisites:

TT1304 Finnish language and communication, 00 crs/00 ECTS crs

Objectives of the course: The students will learn to communicate clearly and naturally and will learn a relevant and fluent way to express themselves. They practice with spoken and written texts.

Contents of the course: Presentation exercises, the efficient meeting, correct use of language, different texts and styles to write, writing exercises, academic writing.

Prerequisites: none

TT13041 , 1 crs/1,5 ECTS crs

Objectives of the course:

Contents of the course:

Prerequisites:

TT13042 , 0,5 crs/0,75 ECTS crs

Objectives of the course:

Contents of the course:

Prerequisites:

TT13043 , 0,5 crs/0,75 ECTS crs

Objectives of the course:

Contents of the course:

Prerequisites:

TT1305 Swedish, 00 crs/00 ECTS crs

Objectives of the course: The students will learn the basic vocabulary and phrases of professional Swedish in health care and are able to speak Swedish in the most common communication situations. The students are

able to discuss issues related to health care, the nursing profession and to education. The students will learn to understand texts related to the nursing profession and will learn to interpret different texts as well as to write texts and presentations in Swedish.

Contents of the course: The basic vocabulary of health care Swedish (terms such as professional titles, areas and departments of nursing, anatomic terminology), communication situations with clients, guidance and counselling of clients, discussions in small groups based on articles, analyses of text structures and contents, listening comprehension, use of different terminology, writing out (written) reports.

Prerequisites: studies in high school, upper secondary school

TT13051 Swedish, part 1, 1 crs/1,5 ECTS crs

Objectives of the course:

Contents of the course:

Prerequisites:

TT13052 Swedish, part 2, 1 crs/1,5 ECTS crs

Objectives of the course:

Contents of the course:

Prerequisites:

TT13053 Swedish, part 3, 1 crs/1,5 ECTS crs

Objectives of the course:

Contents of the course:

Prerequisites:

TT1306A Health Care English, 1 crs/1,5 ECTS crs

Objectives of the course: The student masters the central vocabulary of the health care sector, understands general publications of the sector and can cope in the verbal and written situations required in his professional sector.

Contents of the course: Health care terminology, situations with clients, telephone English, small talk, short written messages.

Prerequisites: A good command of the knowledge gained in secondary school courses or comprehensive school and vocational school courses in English language.

TT1306B English for Nurses, 1 crs/1,5 ECTS crs

Objectives of the course: The student improves his knowledge of English and command of terminology in nursing and copes easily and naturally in different guidance and counselling situations with clients. The student understands authentic texts related to the sector and is able to take part in discussions based on the texts. In addition, the student is able to tell about his education and future profession.

Contents of the course: Nursing terminology, situations with clients, group discussions, oral presentations, job-seeking process.

Prerequisites: Health Care English

TT1306D , 0,5 crs/0,75 ECTS crs

Objectives of the course:

Contents of the course:

Prerequisites:

TT1309 Nursing science, 00 crs/00 ECTS crs

Objectives of the course: The students will be familiar with the development of nursing science and will understand the meaning and significance of nursing science as a basis of the nursing profession. The students will learn the basic concepts of nursing ethics and understand the different ethical values and principles in nursing care. The students will learn to recognize and analyse ethical dilemmas in nursing care. The students will be acquainted with structures and development process of nursing theories. The students will be familiar with the history of nursing as well as its significance for the nursing profession.

Contents of the course: Basics of nursing science, philosophy and ethics in nursing, the most important concepts of nursing, conceptual analysis, nursing theories and their significance for nurses and for nursing, the use of nursing research in professional work, history of nursing and its development to the present day.

Prerequisites: none

TT13091 , 1 crs/1,5 ECTS crs

Objectives of the course: The Students will be familiar with the development of nursing science and will understand the meaning and significance of nursing science as a basis of the nursing profession

Contents of the course: Basics of nursing science, philosophy and ethics in nursing.

Prerequisites:

TT13092 , 0,5 crs/0,75 ECTS crs

Objectives of the course: The students will learn the basic concepts of nursing ethics and understand different ethical values and principles in nursing care. The students will learn to recognize and analyse ethical dilemmas in nursing care.

Contents of the course: The ethics and ethical knowledge of nursing. Values and ethical principles guiding nursing. Humanity. Nursing as an ethical point of view. Ethical dilemmas in nursing

Prerequisites: none

TT13093A , 0,5 crs/0,75 ECTS crs

Objectives of the course: The Students will be familiar with the history of nursing as well as its significance for the modern nursing profession.

Contents of the course: History of nursing and its development to the present day.

Prerequisites: parts TT13091 and TT13092

TT13094C , 1,5 crs/2,25 ECTS crs

Objectives of the course: The students will learn the basic principles in development process of nursing theories. The students will be acquainted with the structures and development process of nursing theories.

Contents of the course: The most important concepts of nursing in development process of nursing theories. Conceptual analysis. Nursing theories and their significance for nurses and for nursing. The presentation of theories: Roper & Logan & Thierney, King, Leininger

Prerequisites:

TT13095 , 1 crs/1,5 ECTS crs

Objectives of the course: The Students will learn the basic concepts of nursing ethics and understand the different ethical values and principles in nursing care. The Students will learn to recognize and analyse ethical dilemmas in nursing care.

Contents of the course: The levels of ethical aspects. The nurse and an ethical decision making. Ethical dilemmas in nursing.

Prerequisites:

TT13101 , 1,5 crs/2,25 ECTS crs

Objectives of the course:

Contents of the course:

Prerequisites:

TT13102 , 1,5 crs/2,25 ECTS crs

Objectives of the course:

Contents of the course:

Prerequisites:

TT1310A Anatomy and physiology, 00 crs/00 ECTS crs

Objectives of the course: The students will have the essential knowledge of the structure and physiological functions of human being and will understand the significance of anatomical and physiological knowledge in professional studies and in nursing.

Contents of the course: Cells and tissues, skin, the locomotor system, blood and circulation, respiration, digestion, excretion, reproduction, the endocrine system, thermoregulation, the senses and nervous system

Prerequisites: none

Nursing

TT1311 Nutrition, 1 crs/1,5 ECTS crs

Objectives of the course: The students will understand the importance of nutrition in health promotion and well-being as well as in the prevention of diseases. The students will be acquainted with how to guide the patient/client who needs a special diet or who has dietary problems. The students will familiarize themselves with the outlines of the population's nutritional stage in the world and the main factors influencing on it.

Contents of the course: Importance of nutrition in health promotion and prevention of dietary disorders. Special diets. The nutritional factors influencing on the population in the world.

Prerequisites: none

TT13121 Health psychology, 1 crs/1,5 ECTS crs

Objectives of the course: The students will understand how an individual's personal history and maturation process, social relationships and behavioral factors are connected to human development and lifestyles. The students will be acquainted with the most common facts and interventions in psychology, which they can use as a means of health promotion and healthy functioning as well as of avoiding illnesses.

Contents of the course: Mental life-span development at the different stages of human life. Psychological development of the child, the main factors influencing on it. Adolescence as a stage of life. Characteristics and the most typical changes in the adult age. Conventional continuity of ageing and the individual factors affecting on it.

Prerequisites: the basic studies of psychology recommended

TT1313 Health sociology, 00 crs/00 ECTS crs

Objectives of the course: The students will be acquainted with how to analyze and interpret the actions and changes of society and individuals, how to identify social connections of health and illness and how to use sociological knowledge in professional work.

Contents of the course: The basic concepts of sociology. The nature of sociological knowledge. Sociological explanations and interpretations of social behaviour and deviance. Structures and changes in a society. Health and illness and health care organizations as well as health care actors as a part of community and in the process of change.

Prerequisites: none

TT13131 , 1 crs/1,5 ECTS crs

Objectives of the course:

Contents of the course:

Prerequisites:

TT13132 , 0,5 crs/0,75 ECTS crs

Objectives of the course:

Contents of the course:

Prerequisites:

TT13141 , 1 crs/1,5 ECTS crs

Objectives of the course:

Contents of the course:

Prerequisites:

TT13142 , 1 crs/1,5 ECTS crs

Objectives of the course:

Contents of the course:

Prerequisites:

TT1314A Public health science and environmental health, 00 crs/00 ECTS crs

Objectives of the course: Public health science: The Students will be familiar with the area of public health medicine as well as with the basic concepts of epidemiology. Students can describe public health and the basic methods used in public health medicine. They can analyse research and studies on public health medicine and will use their results in their own professional work. The environmental health: The students will be acquainted with environmental factors, risks, environmental health care and nature conservation influencing human health. The students will recognize their personal and professional responsibility of promoting and conserving healthy environment and nature. The students will be able to respect healthy environment and will embrace an active role by influencing environmental health promotion.

Contents of the course: Public health science: Theory of public health medicine. Research (concerning public health work) and its results. Statistical descriptions about risk factors, morbidity and death rates in Finland. (Objectives and content of environmental health are announced later at the beginning of the course). The Environmental health: Basic concepts, the main factors in human environment affecting health: the quality of air, water and nutriment, noise, radiation, waste and toxic refuses. Community as an influential factor to individual health.

Prerequisites: none

TT1315 Social and health care policy, 00 crs/00 ECTS crs

Objectives of the course: The Students will be familiar with social and health care policy. The Students will learn about the history and development of social and health care policy. The Students will be acquainted with the legislation and regulations as well as the systems and

organizations in social and health care policy. The Students will learn about the most common objectives and values of the Finnish and EU's social and health care policy as well as understand the significance of cooperation in social welfare. The Students will be familiar with the methods of social work and will be able to use them in the professional work.

Contents of the course: The history of social and health care policy. The legislation and organizations in social and health care policy. Social security as a part of social and health care policy. The most common health care programs and objectives in Finnish and European policy. The support system in social welfare.

Prerequisites:

TT13151 , 1,5 crs/2,25 ECTS crs

Objectives of the course:

Contents of the course:

Prerequisites:

TT13152 , 1 crs/1,5 ECTS crs

Objectives of the course:

Contents of the course:

Prerequisites:

TT13401 , 0,5 crs/0,75 ECTS crs

Objectives of the course:

Contents of the course: The theme of this part is studying, learning and professional growth

Prerequisites:

TT13402 , 0,5 crs/0,75 ECTS crs

Objectives of the course:

Contents of the course: The theme of this part is portfolio

Prerequisites:

TT13403 , 0,5 crs/0,75 ECTS crs

Objectives of the course:

Contents of the course:

Prerequisites:

TT13404 , 0,5 crs/0,75 ECTS crs

Objectives of the course:

Contents of the course:

Prerequisites:

TT13405 , 0,5 crs/0,75 ECTS crs

Objectives of the course:

Contents of the course:

Prerequisites:

TT1340A Professional Growth and Nursing, 00 crs/00 ECTS crs

Objectives of the course: The students will process their professional growth according to the theme of the on-going period. The students will learn the meaning of

the portfolio as a supportive and useful way in their professional development and they will internalize what a responsibility and self directivity means in nursing profession as well as are eager to develop their entrepreneurial skills.

Contents of the course: Studies at the Polytechnic. Development of the studying skills. Selfdirective and selfevaluative skills, portfolio. Personal and the professional growth. Tutoring

Prerequisites: none

PROFESSIONAL STUDIES

TT1019 Health care economics, 1 crs/1,5 ECTS crs

Objectives of the course: The students will be acquainted with the basic concepts of economics. They will familiarize themselves with the changes in health care and with the transitional settings in it.

Contents of the course: The basic concepts of economy and ways of thinking in it. Efficiency, productivity and affectivity as well as evaluation of them in health care.

Prerequisites: TT1315 Social and health care policy

TT1303 Basic statistics, 1 crs/1,5 ECTS crs

Objectives of the course: The Students will be familiar with data acquisition and data processing as well as graphic presentation of data. The Students will learn about the stages of statistical study, presentation of statistics and graphic presentation as well as the most important parameters, probability and statistical testing.

Contents of the course: The stages of statistical study, the most common methods of sampling, scales, frequency distribution and the presentation of frequencies in one- and two dimensional graphics, the most important parameters in frequency distributions, correla-tive and linear models, statistical testing and correlation.

Prerequisites: none

TT1308 First aid, 1 crs/1,5 ECTS crs

Objectives of the course: The Students will recognize the need for immediate first aid as well as understand the meaning of calm behaviour and the importance of mental support in critical situations. The Students are capable of acting as helpers in situations in which first aid is needed either for children or for adults as well as taking them to emergency care. The Students will have the motivation to maintain their skills and knowledge about first aid.

Contents of the course: First aid as a part of care activities, first aid tactics, life-saving first aid, advanced life support after first aid, special characteristics in the first

Nursing

aid of children, co-operation with the primary /emergency care unit as well as with outpatient departments.

Prerequisites: none

TT2050 Nursing administration, 00 crs/00 ECTS crs

Objectives of the course: The students will be aware about changes in health care. They will be acquainted with the basic concepts of administration and are able to apply them in the professional (nursing) work. The students will learn about basics of organizational thinking as well as methods to develop their working communities. The students will realize that everybody is involved with the management and leadership in their workplaces. The students will be able to take part in planning, assessment and development of qualified organization of health care services.

Contents of the course: Transitional processes in health care organizations. The basic concepts of administration. Organizational skills and culture. Healthy working community. Development in workplaces. Leadership and management in nursing. Quality management in nursing and in health care. Special issues about professional work.

Prerequisites: TT1315 Social and health care policy

TT20501A , 1,5 crs/2,25 ECTS crs

Objectives of the course:

Contents of the course:

Prerequisites:

TT20502A , 1 crs/1,5 ECTS crs

Objectives of the course:

Contents of the course:

Prerequisites:

TT2301 Research methods in health sciences, 00 crs/00 ECTS crs

Objectives of the course: TT23011 Quantitative research 2,25 ECTS credits =1,5 Fc: The Students will be provided with practical skills for independent work related to nursing research by using selected quantitative research method. The Students will be acquainted with the analysis and evaluation of quantitative studies as well as with their significance in nursing practice. TT23012 Qualitative research 1,5 ECTS credits =1 Fc: The Students will be familiar with the qualitative research tradition and the most common types of qualitative research methods.

Contents of the course: The Quantitative research tradition and research process, quantitative study formulation, the ethics of quantitative research, reliability and validity of research, quantitative studies in nursing prac-

tice. TT23012 Philosophical, ontological and epistemological approaches to qualitative research. The ethics of qualitative research. Credibility in qualitative research. The process of qualitative research. Phenomenology, grounded theory and ethn nursing. Historical research. Action research.

Prerequisites: none

TT23011 , 1,5 crs/2,25 ECTS crs

Objectives of the course:

Contents of the course:

Prerequisites:

TT23012 , 1 crs/1,5 ECTS crs

Objectives of the course:

Contents of the course:

Prerequisites:

TT2302 Microbiology and clinical laboratory science, 00 crs/00 ECTS crs

Objectives of the course: The Students will be familiar with the most common laboratory tests and their applications in patient care. The Students will understand the procedures and stages included in the testing process as well as the importance of preparing the patient (so as to get reliable test results). The Students will learn about classifications, structures, properties, occurrences and spreadings of the most known microbes as well as the etiology of infectious diseases and the function of the biological defence system.

Contents of the course: Clinical laboratory science in health care. Preanalytic factors in laboratory investigations. Guidance of patient and preparation for laboratory tests. Sampling, preservation and test analyses. Interpretation of the tests and reporting them to client. Problems with dry chemical methods and analyses.

Prerequisites: none

TT23025 , 0,5 crs/0,75 ECTS crs

Objectives of the course:

Contents of the course:

Prerequisites:

TT23026 , 0,5 crs/0,75 ECTS crs

Objectives of the course:

Contents of the course:

Prerequisites:

TT2303 Clinical pharmacology, 00 crs/00 ECTS crs

Objectives of the course: The students will acquire the basic knowledge about the usage of medication in different kind of diseases and disorders. They will know the most important meanings of medication with hospitalized or outcare-patients. The students will understand

the appropriate use of medication and effects of them to the patient and will master the observation methods used in pharmacological care.

Contents of the course: Including parts TT23031 and TT23032.(each 0,75 ECTS credits) Medication in different kind of diseases and disorders. Antimicrobial drugs. Drugs for cardiovascular diseases. Painkillers. Psychopharmaceuticals. Expectorans and antitussives. Cytostatics. Antiepileptica and drugs for Parkinson's disease. Diabetic drugs. Drugs for dermatological diseases. Drugs for thyroidic diseases, hypertoxicosis and hypothyroidism. Ophthalmological drugs. Drugs for otorhinolaryngological diseases and mouth diseases. Hormonal preparations. cytostatics, an-tibiotics, hormonal replacement therapy, drug abuse etc.

Prerequisites: none

TT23031 , 0,5 crs/0,75 ECTS crs

Objectives of the course:

Contents of the course:

Prerequisites:

TT23032 , 0,5 crs/0,75 ECTS crs

Objectives of the course:

Contents of the course:

Prerequisites:

TT2304 Health promotion (Health education), 00 crs/00 ECTS crs

Objectives of the course: The Students will acquire philosophical and scientific basics of health promotion and health education. The Students will be familiar with personal and universal factors influencing in health behaviour and will be aware of their responsibility in health promotion and prevention of diseases in their own, client's and community life. The Students will ponder over ethical issues in health promotion and will be familiar with health cultures and the methods of health promotion as well as with different types of health communication. They also familiarize themselves with the health pedagogy and with the issues of patient counselling as well as are able to plan, implement and evaluate health promotive sessions.

Contents of the course: The Concept of health promotion and its relation to health and health education. The basic concepts and approaches of pedagogy and education. Learning process and tutoring. The models and objectives of health education. Theories concerning health education and health behaviour. The ethical basics of health promotion and health education. Health promotion with individuals, groups and in communities. Planning, usage and evaluation of materials for health promotion, counselling and health education.

Prerequisites: none

TT23041A , 1 crs/1,5 ECTS crs

Objectives of the course:

Contents of the course:

Prerequisites:

TT23042 , 1 crs/1,5 ECTS crs

Objectives of the course:

Contents of the course:

Prerequisites:

TT23043 , 1 crs/1,5 ECTS crs

Objectives of the course:

Contents of the course:

Prerequisites:

TT23051B , 3,5 crs/5,25 ECTS crs

Objectives of the course:

Contents of the course:

Prerequisites:

TT23052A , 1,5 crs/2,25 ECTS crs

Objectives of the course:

Contents of the course:

Prerequisites:

TT2305A Human needs and nursing interventions, 00 crs/00 ECTS crs

Objectives of the course: The Students will be familiar with human needs in the whole life span. They are able to recognize human needs and typical deficits of the needs. The Students will acquire the nursing process as a method of patient's care. They will learn about basics of pharmacy as well as of asepsis and are familiar with the applications of them. The Students will have facilities to choose relevant interventions for nursing and care of patients. They will understand the principles of nursing and basic concepts of nursing and are aware of significance of them in applied nursing.

Contents of the course: Human needs and the life span. Nursing interventions. Professional nursing. Nursing process, documentation and decision making in nursing. Co-operation with the patient. The principals of nursing and significance of conceptual thinking in nursing. Asepsis. The basics of pharmacy. Interventions and measures of nursing. Practical demonstrations: how to help patient to eat, sleep, rest, move, wash her/himself and relief the pain. How to estimate and measure pulses of the body, the blood pressure, the body-temperature, the fluid balance. How to help patient who is having nutritional problems, secretion problems (ways of urinary cathetrization and supracystotomy, obstipation or diarrhoea), respiratory problems (like insufficiency, to suck the airways), problems of medication such as peroral, im.injection, id and s.c.injections.

Prerequisites: none

Nursing

TT2306 Public health nursing of children and adolescents, 1 crs/1,5 ECTS crs

Objectives of the course: The Students are able to assess the needs of children and adolescents and will learn about their health resources and health behaviours during nursing assessment, interventions and evaluation.

Contents of the course: Health promotion and public health nursing of children and adolescents as a part of community life. Prevention and assessment of factors undermining health.

Prerequisites:

TT23071 , 1 crs/1,5 ECTS crs

Objectives of the course:

Contents of the course:

Prerequisites:

TT23072A , 1 crs/1,5 ECTS crs

Objectives of the course:

Contents of the course:

Prerequisites:

TT2307A Public health nursing of adults, 00 crs/00 ECTS crs

Objectives of the course: The students are familiar with nursing in communities and health resources (and needs) of population and are able to meet adults as clients and as members of their families and communities. The students will acquire the personal and professional way of public health nursing of adults.

Contents of the course: Prevention and intervention in health care problems of adults. Nursing of expectant mothers, newborns and their families. Supporting clients and their families to use their resources. Participation in current projects concerning health promotion in communities. Practical demonstrations: child-birth which is occurring outside the hospital, web-maternity clinic.

Prerequisites:

TT23081 Obstetrics and gynaecology, 0,5 crs/0,75 ECTS crs

Objectives of the course: The Students will acquire the basic knowledge of the physiology of women, including normal progress of pregnancy, labour and puerperal period. The students will be acquainted with the most common problems and abnormalities during pregnancy, labour and puerperium. The students will learn about the most important methods of contraception as well as the most common gynaecological disorders. They also will familiarize themselves with some diagnostic methods and treatments in gynaecology.

Contents of the course: Biological cycles of women,

forms of contraception, the most common gynaecological disorders (etiology, diagnostics, symptoms and treatment), normal pregnancy, labour and puerperium, and the most common disorders in those, the most typical gynaecological tumours, climacteric phase.

Prerequisites: none

TT23082 Internal medicine, 1 crs/1,5 ECTS crs

Objectives of the course: The Students will familiarize themselves with the basic etiology and pathophysiology of internal medicine as well as know about the basic problems caused by internal diseases, dysfunctions and syndromes, their prevention, diagnostics, treatment and prognoses.

Contents of the course: The most common diseases, dysfunctions and syndromes in internal medicine. The pathophysiology and diagnostics in internal medicine. Prevention, treatments and prognostics of internal medicine. Clinical pharmacology in internal medicine.

Prerequisites:

TT23083 Surgery and anaesthetics, 1,5 crs/2,25 ECTS crs

Objectives of the course: The students will familiarize themselves with the basics of etiology and pathophysiology of surgical diseases as well as with the problems caused by surgical diseases, traumas, dysfunctions and syndromes. The prevention, examination, treatment and prognostics used in surgery and anesthesiology. The students will know about the ways and methods of anesthesia. They will be able to apply knowledge and skills of surgical treatment or resuscitation skills in the care of a patient/client in hospital as well as they will acquire the skills in nursing of an unconscious patient.

Contents of the course: Etiology and pathophysiology of surgical diseases. Prevention, diagnostics, treatment and prognostics of surgical diseases. Substances and Methods of anesthesia. Resuscitation in hospital, care of unconscious patient. Clinical pharmacology in surgery.

Prerequisites: none

TT23084 Psychiatry, 1 crs/1,5 ECTS crs

Objectives of the course: The students will acquire the basics of the etiology and pathophysiology of mental disorders and illnesses as well as those of psychic dysfunctions. They will know the main problems that patients are suffering during their mental illnesses. The students will be familiar with the most common interventions and treatments used in diagnostics and prognostics of mental illnesses and disorders.

Contents of the course: Mental problems, Psychic dys-

functions and illnesses. Etiology and pathophysiology of mental illnesses as well as prevention, diagnostics, treatments, therapies and prognostics of those. Connections in different psychic disorders with individual and community as well as in those with somatic dysfunctions. The progression of mental treatment. Clinical pharmacology in psychiatrics.

Prerequisites: none

TT23085 Geriatrics, 0,5 crs/0,75 ECTS crs

Objectives of the course: The students will acquire the basics of gerontology and geriatrics and will be familiar with the biological, psychological and social interpretations of ageing theories. The students will know about the normal age-related changes of the human physiology as well as about the etiology and pathophysiology of geriatric disorders and the problems caused by them.

Contents of the course: Ageing theories, biological, psychological and social changes related to ageing. Prevention, diagnostics, etiology, treatment and prognoses of geriatric disorders. Special issues of clinical pharmacology.

Prerequisites:

TT23086 Paediatrics, 1 crs/1,5 ECTS crs

Objectives of the course: The students will acquire the basic knowledge of the most common paediatric diseases. They will know about the etiology, symptoms and their effects of the most common diseases of the child and the adolescent. The students will familiarize themselves with the ways of prevention and treatment used in paediatric medicine.

Contents of the course: Diseases of newborn baby. Prematurity. Contagious diseases. Infections of digestive and urinary system. Diseases of nervous system: convulsions. Diseases of endocrine glands. The juvenile diabetes. Allergic diseases such as asthma and eczemas. Specific delays in development and developmental disorders.

Prerequisites:

TT23091 Medical nursing, 1 crs/1,5 ECTS crs

Objectives of the course:

Contents of the course:

Prerequisites:

TT23092A , 1 crs/1,5 ECTS crs

Objectives of the course:

Contents of the course:

Prerequisites:

TT23093 , 1 crs/1,5 ECTS crs

Objectives of the course:

Contents of the course:

Prerequisites:

TT23094 , 1 crs/1,5 ECTS crs

Objectives of the course:

Contents of the course:

Prerequisites:

TT23095 , 0,5 crs/0,75 ECTS crs

Objectives of the course:

Contents of the course:

Prerequisites:

TT2309A Medical-Surgical Nursing, 00 crs/00 ECTS crs

Objectives of the course: The students will understand the characteristics of medical-surgical, perioperative and district nursing. The students will be able to apply the main nursing interventions in different settings with medicinal, surgical and operable patients as well as with the clients in district nursing. The students will be aware of the importance of professional teamwork with patients/ clients and with their families and will acquire the professional and responsible way in nursing (interventions, actions and measures) and as the members of multidisciplinary team as well as in drug therapy. In addition the students will acquire the basic knowledge about the medical equipment and safety way to use them as well as will familiarize themselves with radiological methods and the radiation risks included in those.

Contents of the course: The characteristics of medical nursing and internal medicinal patients as well as nursing interventions in the main areas of medical nursing; nursing of cardiac patient, patient with cerebral apoplexy, a rheumatic patient, patient with diabetes, self-care and nursing of asthmatic patient, a patient with leukemia. Practical demonstrations with Bopath, ECG, cardio-pulmonary resuscitation. The process of surgical patient, asepsis in surgical nursing, pain reliefment and pain-killers for the patient in surgical nursing. Treatment and care on acute gastric or intestinal problems. Nursing interventions: patient with acute gastric problems, patient with hip fracture, patient with lower limb amputation, patient with stoma, patient with breast cancer, patient with prostata cancer. Chlinical radiology. Practical demonstrations with wound treatment, plaster cast, walking on elbow crutches. Approaches to perioperative nursing. Nursing process in perioperative nursing. The principles of aseptic work. Documentation, reporting and multiprofessional teamwork in perioperative nursing. Medical equipment in perioperative care. Practical demonstrations with: preparation of patient going to surgery, hand disinfection before surgery, the skin de-

Nursing

sinfektion before surgery, how to prepare sterile desk, the basic instruments, suture supplies, how to monitor the patient during the operation, monitoring equipment, intra venous drug treatment, bloodinfusion, sterile liquids, The characteristics of district nursing and home-care units. Multiprofessional teamwork in district nursing. Supporting and intervening self-care patients. Patient with the hospice care. Possibility to die at home. Development of the district nursing.

Prerequisites:

TT2312A Mental health care, 2 crs/3 ECTS crs

Objectives of the course: The students will form a general view and an opinion about the system of the mental health care and the legislation directing it. The students will be able to follow the guidelines of preventive mental health care as well as to meet individuals, families and communities in the crisis. The students will be familiar with and will be acquainted with how to apply nursing assessment, planning and interventions in mental health care. The students can cooperate with different professional teams. The students are able to use work counselling as a supportive procedure in professional mental health care

Contents of the course: Concepts, system and legislation of the mental health care. Cooperation in professional mental health care. Factors affecting in mental health. Phases of mental crisis. Nursing interventions in mental health care.

Prerequisites:

TT2314 Eldery care, 1 crs/1,5 ECTS crs

Objectives of the course: The students will learn to evaluate the needs of healthy and ill old persons and their families as well as are able to apply planning, implementation and assessing in eldery care. They are able to apply principles of nursing and nursing interventions for eldery client/patient care. The students will familiarize themselves to the ways of developing eldery home care as well as hospitalized services in it.

Contents of the course: The ageing person as a biological and psychosocial being. The principles in eldery care. Health care services for ageing people and patients. Characteristics of eldery care and nursing. Community nursing of eldery. Family and friends as well as cooperation in eldery care. Quality assurance in eldery care.

Prerequisites:

TT2316 Nursing of children and adolescents, 1,5 crs/2,25 ECTS crs

Objectives of the course: The students will develop

and practise in the application of nursing process as well as the justifications used in nursing of children and adolescents. The students are able to assess the needs of children and their families and will become aware of the meaning of the family and community for children's wellbeing.

Contents of the course: The philosophical foundations of nursing of children and adolescents. Resources that are needed when illness/sickness meets the child, adolescent and their family. The nursing process in child and adolescent care. Different kind of illnesses and different phases in sickness (acute or chronic illness, mental health problems, pre-maturity, disability, incurability, child being close to death). Special issues: pain, therapeutic play, drug therapy, cultural nursing, multiprofessional teamwork.

Prerequisites: TT2306 and TT4302 Public health nursing of children and adolescents and practical placement in it

TT2338A Advanced Studies of Nursing, 00 crs/00 ECTS crs

Objectives of the course: The students learn more about nursing and will be familiarized themselves with the different areas of nursing. The students will learn more about the ethical dilemmas in nursing as well as will be familiar with the ethical debate. The students are able to cooperate in multidisciplinary teams in social services and with health care personnels as well as with voluntary workers and organizations. The students will understand the meaning of the different cultures in nursing. The students will acquire advanced knowledge about current transitional processes in nursing and realize their meaning in nursing care. The students will be acquainted with nursing theories and theoreticians and will apply the knowledge in developing the professional nursing. The students will acquire the wider scope of nursing through critical evaluation and use of nursing researches and studies.

Contents of the course:

Prerequisites:

TT2338A1 , 4 crs/6 ECTS crs

Objectives of the course:

Contents of the course:

Prerequisites:

TT2338A2 , 2 crs/3 ECTS crs

Objectives of the course:

Contents of the course:

Prerequisites:

TT4301A Orientation placement (in Nursing), 4 crs/6 ECTS crs

Objectives of the course: The Students will adopt the respective way and the main professional principles in communication with clients and patients as well as with the families of those. The Students will recognize the meaning of healthy environment and community for individual's well-being. The Students are able to assess, implement (apply nursing implementations) and evaluate human needs in different settings. The Students will learn to evaluate their own professional skills and action in nursing care. They familiarize themselves with the documentation and reporting in nursing process. The Students will learn a responsible way of practising professional nursing.

Contents of the course: Clinical placement in relevant nursing unit, in which the objectives are able to achieve.

Prerequisites: none

TT4302 Practical Placement in public health nursing of children and adolescents, 4 crs/6 ECTS crs

Objectives of the course: The students are able to assess the needs of children and adolescents and can have practice in nursing interventions by using the health resources of the families.

Contents of the course: Public health nursing and health promotion of children and adolescents. Identification and prevention of unhealthiness factors

Prerequisites: none

TT4303A Practical placement in public health nursing of adults, 5 crs/7,5 ECTS crs

Objectives of the course: The Students are familiar with nursing in communities and health resources (and needs) of population and are able to meet adults as clients and as members of their families and communities. The Students will acquire the personal and professional way of public health nursing of adults.

Contents of the course: Prevention and intervention in health care problems of adults. Nursing of expectant mothers, newborns and their families. Supporting clients and their families to use their resources. Participation in current projects concerning health promotion in communities. Practical demonstrations: child-birth which is occurring outside the hospital, web-maternity clinic.

Prerequisites:

TT43041 Practical Placement in medical nursing, 4 crs/6 ECTS crs

Objectives of the course: The Students will understand the characteristics of medical-surgical, periopera-

tive and district nursing. The Students will be able to apply the main nursing interventions in different settings with medicinal, surgical and operable patients as well as with the clients in district nursing. The Students will be aware of the importance of professional teamwork with patients/ clients and with their families and will acquire the professional and responsible way of nursing (interventions, actions and measures) as members of multidisciplinary team. In addition the Students will acquire the basic knowledge about the medical equipment and safety way to use them as well as will familiarize themselves with radiological methods and the radiation risks included in those.

Contents of the course: The characteristics of medical nursing and internal medicinal patients as well as nursing interventions in the main areas of medical nursing; nursing of cardiac patient, patient with cerebral apoplexy, a rheumatic patient, patient with diabetes, self-care and nursing of asthmatic patient, a patient with leukemia. Practical demonstrations with Bopath, ECG, cardio-pulmonary resuscitation.

Prerequisites:

TT43042A Practical placement in district nursing, 4 crs/6 ECTS crs

Objectives of the course:

Contents of the course: The characteristics of district nursing and home-care units. Multiprofessional teamwork in district nursing. Supporting and intervening self-care patients. Patient with the hospice care. Possibility to die at home. Development of the district nursing.

Prerequisites:

TT43043 Practical Placement in Surgical Nursing, 4 crs/6 ECTS crs

Objectives of the course:

Contents of the course: The path of the patient and nursing interventions in surgical care. Asepsis in surgical nursing. Pain reliefment and pain-killers for the patient in surgical nursing. Treatment and care on acute gastric or intestinal problems. Patient with hip fractures. Patient with lower limb amputation. Patient with a stoma, with a breast cancer, with a prostate cancer. Clinical radiology. Practical demonstrations with wound treatment, plaster cast, walking on elbow crutches

Prerequisites:

TT43044 Practical Placement in Perioperative Nursing, 2 crs/3 ECTS crs

Objectives of the course:

Contents of the course: Approaches to perioperative

Nursing

nursing. Nursing process in perioperative nursing. The principles of aseptic work. Documentation, reporting and multiprofessional teamwork. in perioperative nursing. Medical equipment.

Prerequisites:

TT4304A Practical placement in medical- surgical nursing, 00 crs/00 ECTS crs

Objectives of the course: The Students will understand the characteristics of medical-surgical, perioperative and district nursing. The Students will be able to apply the main nursing interventions in different settings with medicinal, surgical and operable patients as well as with the clients in district nursing. The Students will be aware of the importance of professional teamwork with patients/ clients and with their families and will acquire the professional and responsible way of nursing (interventions, actions and measures) as members of multidisciplinary team. In addition the Students will acquire the basic knowledge about the medical equipment and safety way to use them as well as will familiarize themselves with radiological methods and the radiation risks included in those.

Contents of the course: The characteristics of medical nursing and internal medicinal patients as well as nursing interventions in the main areas of medical nursing; nursing of cardiac patient, patient with cerebral apoplexy, a rheumatic patient, patient with diabetes, self-care and nursing of asthmatic patient, a patient with leukemia. Practical demonstrations with Bopath, ECG, cardio-pulmonary resuscitation.

Prerequisites:

TT4305 Practical Placement in mental health care, 5 crs/7,5 ECTS crs

Objectives of the course: The Students will form a general view and an opinion about the system of the mental health care and the legislation directing it. The Students will be able to follow the guidelines of preventive mental health care as well as to meet individuals, families and communities in the crisis. The Students will be familiar with and will be acquainted with how to apply nursing interventions in mental health care. The Students can cooperate with different professional teams. The Students are able to use work counselling as a supportive procedure in professional mental health care work.

Contents of the course: Concepts, system and legislation of the mental health care. Cooperation in professional mental health care. Nursing interventions in men-

tal health care.

Prerequisites: TT4301

TT4306 Practical placement in elderly care, 4 crs/6 ECTS crs

Objectives of the course: The Students will learn to evaluate the needs of elderly and their families as well as are able to apply planning, implementation and assessing in elderly care (for healthy and ill old persons). The Students are able to apply principles of nursing and nursing interventions for elderly client/patient care. The Students will acquire the ways to develop elderly home care as well as hospitalized services in it.

Contents of the course: The ageing person as a biological and psychosocial being. The principles in elderly care. Health care services for ageing people and patients. Characteristics of elderly care and nursing. Community nursing of elderly. Family and friends as well as cooperation in elderly care. Quality assurance in elderly care

Prerequisites:

TT4307 Practical placement in nursing of children and adolescents, 4 crs/6 ECTS crs

Objectives of the course: The Students will possess the skills needed to have when they meet children and adolescents and the families of those with different kind of sicknesses. The Students are able to assess the needs of children and their families. The Students will practise the application of nursing process as well as the justifications used in nursing of children and adolescents. The Students will become aware of the meaning of the family and community for wellbeing of children.

Contents of the course: The philosophical foundations of nursing of children and adolescents. Resources that are needed when illness/sickness meets the child, adolescent and their family. The nursing process in child and adolescent care. Different kind of illnesses and different phases in sickness (acute or chronic illness, mental health problems, pre-maturity, disability, incurability, child being close to death). Special issues: pain, therapeutic play, drug therapy, cultural nursing, multiprofessional teamwork.

Prerequisites:

TT4338A Practical placement in advanced nursing, 10 crs/15 ECTS crs

Objectives of the course:

Contents of the course:

Prerequisites:

THESIS

TT5010 THESIS, 00 crs/00 ECTS crs

Objectives of the course: The students are able independently but supervised to use theoretical and empirical knowledge, to plan and implement research (study) or developmental work/study or project related to the field of nursing. In their thesis the students demonstrate their ability to apply their knowledge and skills in an expert level related to their advanced professional studies as well as demonstrate their profound familiarity with one of the main issue pertaining to the professional field.

Contents of the course: The form of the thesis can be an applied research or a developmental work/study as well as a project. It can also be an empirical/explorative, a quantitative or a qualitative research, a theoretical or a constructive study. The nature of the developmental work can be a project or it can be as a part of a multidisciplinary project in the polytechnic. Including parts/courses: TT5014 Seminar on the ideas and topics of the thesis (0,5ov = 0,75 ECTS cr), TT5021 Seminar on the plan for the thesis (0,5ov = 0,75 ECTS cr), TT5022 Seminar on the thesis (0,5 ov =0,75 ECTS cr). Also TT5023 Independent study and supervision (0,5 ov= 0,75 ECTS cr), TT5024B Independent study and supervision (2 ov= 3 ECTS cr), TT5025B Independent study and supervision (6 ov = 9 ECTS cr)

Prerequisites: TT1309 Nursing Science (partly), TT1302 IT-passport, TT1303 Basic Statistics, TT2301 Research methodology in health care sciences, TT2305 Human needs and nursing interventions.

TT5014 Seminar on the ideas and topics of the thesis, 0,5 crs/0,75 ECTS crs

Objectives of the course: The students are able supervised to choose the topic and implementation of their thesis.

Contents of the course: Course description: Participation in the seminars and creation of the idea and topic of the thesis (writ-ten paper)

Prerequisites:

TT5021 Seminar on the plan for the thesis, 0,5 crs/ 0,75 ECTS crs

Objectives of the course: The students are able independently but supervised to use theoretical and empirical knowledge, to plan and implement research (study) or developmental work/ study (project) related to the field of nursing. In their theses the students demonstrate their abilities to apply their knowledge and skills in

their expertise or development tasks related to their professional studies as well as demonstrate their profound familiarity with one of the central issues pertaining to a professional field. The form of the thesis can be an applied research or a developmental work/study as well as a project. It can be empirical/explorative quantitative or qualitative research, theoretical or constructive study. The nature of a developmental work can be a project or it can be as a part of some multidisciplinary project in the polytechnic. The students will be supervised familiarize themselves with collecting the data and planning for the thesis. In the seminars on the plan for the thesis the students will learn about presenting their written and oral plans for the theses. The students will be able to indicate the arguments with which they have been chosen the topic, implementation, methodology, as well as argument for collecting and analyzing the data they will have. The students will learn about scientific thinking with the help of argumentation, feedback and disciplinary conversation.

Contents of the course: Participation in seminars. The presentation of the research plan with the named opponents. Written research plan, plan for the thesis and project. Process of the thesis and stages of academic working.

Prerequisites:

TT5022 Seminar on the thesis, 0,5 crs/0,75 ECTS crs

Objectives of the course: The students will be able to present their done or nearly ready thesis as a written report and as an oral argumentation. The students will demonstrate their abilities to scientific communication as well as to applied, theoretical and empirical knowledge about the topic of the thesis and development of the profession.

Contents of the course: Participation in seminars on the theses, presentation of the thesis, acting as an opponent in the seminars

Prerequisites:

TT5023 Independent study and supervision, part 1, 0,5 crs/0,75 ECTS crs

Objectives of the course: The students are able as supervised to choose the topic and implementation of their thesis.

Contents of the course: Course description: Participation in the seminars and creation of the idea and topic of the thesis (writ-ten paper)

Prerequisites: TT1309(partly), TT2301(partly), TT1302,TT1303, TT2305

Nursing

TT5024B Independent study and supervision, part 2, 2 crs/3 ECTS crs

Objectives of the course: The students will be acquainted with collecting the data and planning for the thesis. In the seminars the students will learn about presenting their written and oral plans for the theses. The students will be able to indicate the arguments with which they have been chosen the topic, implementation, methodology, as well as argument for collecting and analyzing the data they will have. The students will learn about scientific thinking with the help of argumentation, feedback and disciplinary conversation.

Contents of the course: Participation in seminars. The presentation of the research plan with the named opponents.

Prerequisites:

TT5025B Independent study and supervision, part 3, 6 crs/9 ECTS crs

Objectives of the course: The Students will be able to present their done or nearly ready thesis as a written report and as an oral argumentation. The Students will demonstrate their abilities to scientific communication as well as to applied, theoretical and empirical knowledge about the topic of the thesis and development of the profession.

Contents of the course: Course description: Participation in seminars on the theses, presentation of the thesis, acting as an opponent in the seminars.

Prerequisites: TT5021, TT5022, TT5023

Public Health Nursing

BASIC STUDIES

TT1340A Professional Growth and Nursing, 2,5 crs/3,75 ECTS crs

Objectives of the course: The students will process their professional growth according to the theme of the on-going period. The students will learn the meaning of the portfolio as a supportive and useful way in their professional development and they will internalize what a responsibility and self directivity means in nursing profession as well as are eager to develop their entrepreneurial skills.

Contents of the course: Studies at the Polytechnic. Development of the studying skills. Selfdirective and selfevaluative skills, portfolio. Personal and the professional growth. Tutoring

Prerequisites: none

TT1302 IT-passport, 3 crs/4,5 ECTS crs

Objectives of the course: The students will master the computer literacy in telematics, information technology and data processing and are able to use them in their studies and in their other working tasks.

Contents of the course: The basics of information technology and data acquisition as well as the most important programs (text processing, spreadsheet and computer graphics)

Prerequisites: none

TT1304 Finnish language and communication, 2 crs/3 ECTS crs

Objectives of the course: The students will learn to communicate clearly and naturally and will learn a relevant and fluent way to express themselves They practice with spoken and written texts.

Contents of the course: Presentation exercises, the efficient meeting, correct use of language, different texts and styles to write, writing exercises, academic writing.

Prerequisites:

TT1305 Swedish, 3 crs/4,5 ECTS crs

Objectives of the course: The students will learn the basic vocabulary and phrases of professional Swedish in health care and are able to speak Swedish in the most common communication situations. The students are able to discuss issues related to health care, the nursing profession and to education. The students will learn to understand texts related to the nursing profession and will learn to interpret different texts as well as to write texts and presentations in Swedish.

Contents of the course: The basic vocabulary of health care Swedish (terms such as professional titles, areas and departments of nursing, anatomic terminology), communication situations with clients, guidance and counselling of clients, discussions in small groups based on articles, analyses of text structures and contents, listening comprehension, use of different terminology, writing out (written) reports.

Prerequisites: studies in high school, upper secondary school

TT1306A Health Care English, 1 crs/1,5 ECTS crs

Objectives of the course: The student masters the central vocabulary of the health care sector, understands general publications of the sector and can cope in the verbal and written situations required in his professional sector.

Contents of the course: Health care terminology, situations with clients, telephone English, small talk, short

written messages.

Prerequisites: A good command of the knowledge gained in secondary school courses or comprehensive school and vocational school courses in English language.

TT1306B English for Nurses, 1 crs/1,5 ECTS crs

Objectives of the course: The student improves his knowledge of English and command of terminology in nursing and copes easily and naturally in different guidance and counselling situations with clients. The student understands authentic texts related to the sector and is able to take part in discussions based on the texts. In addition, the student is able to tell about his education and future profession.

Contents of the course: Nursing terminology, situations with clients, group discussions, oral presentations, job-seeking process.

Prerequisites: Health Care English

TT1306C English for Public Health Nurses, 0,5 crs/0,75 ECTS crs

Objectives of the course:

Contents of the course:

Prerequisites:

TT1309 Nursing science, 4,5 crs/6,75 ECTS crs

Objectives of the course: The students will be familiar with the development of nursing science and will understand the meaning and significance of nursing science as a basis of the nursing profession. The students will learn the basic concepts of nursing ethics and understand the different ethical values and principles in nursing care. The students will learn to recognize and analyse ethical dilemmas in nursing care. The students will be acquainted with structures and development process of nursing theories. The students will be familiar with the history of nursing as well as its significance for the nursing profession.

Contents of the course: Basics of nursing science, philosophy and ethics in nursing, the most important concepts of nursing, conceptual analysis, nursing theories and their significance for nurses and for nursing, the use of nursing research in professional work, history of nursing and its development to the present day.

Prerequisites: none

TT1310A Anatomy and physiology, 3 crs/4,5 ECTS crs

Objectives of the course: The students will have the essential knowledge of the structure and physiological

functions of human being and will understand the significance of anatomical and physiological knowledge in professional studies and in nursing.

Contents of the course: Cells and tissues, skin, the locomotor system, blood and circulation, respiration, digestion, excretion, reproduction, the endocrine system, thermoregulation, the senses and nervous system

Prerequisites: none

TT1311 Nutrition, 1 crs/1,5 ECTS crs

Objectives of the course: The students will understand the importance of nutrition in health promotion and well-being as well as in the prevention of diseases. The students will be acquainted with how to guide the patient/client who needs a special diet or who has dietary problems. The students will familiarize themselves with the outlines of the population's nutritional stage in the world and the main factors influencing on it.

Contents of the course: Importance of nutrition in health promotion and prevention of dietary disorders. Special diets. The nutritional factors influencing on the population in the world.

Prerequisites: none

TT13121 Health psychology, 1 crs/1,5 ECTS crs

Objectives of the course: The students will understand how an individual's personal history and maturation process, social relationships and behavioral factors are connected to human development and lifestyles. The students will be acquainted with the most common facts and interventions in psychology, which they can use as a means of health promotion and healthy functioning as well as of avoiding illnesses.

Contents of the course: Mental life-span development at the different stages of human life. Psychological development of the child, the main factors influencing on it. Adolescence as a stage of life. Characteristics and the most typical changes in the adult age. Conventional continuity of ageing and the individual factors affecting on it.

Prerequisites: the basic studies of psychology recommended

TT1313 Health sociology, 1,5 crs/2,25 ECTS crs

Objectives of the course: The students will be acquainted with how to analyze and interpret the actions and changes of society and individuals, how to identify social connections of health and illness and how to use sociological knowledge in professional work.

Contents of the course: The basic concepts of sociology. The nature of sociological knowledge. Sociological explanations and interpretations of social behaviour

Nursing

and deviance. Structures and changes in a society. Health and illness and health care organisations as well as health care actors as a part of community and in the process of change.

Prerequisites: none

TT1314A Public health science and environmental health, 2 crs/3 ECTS crs

Objectives of the course: Public health science: The Students will be familiar with the area of public health medicine as well as with the basic concepts of epidemiology. Students can describe public health and the basic methods used in public health medicine. They can analyse research and studies on public health medicine and will use their results in their own professional work. The environmental health: The students will be acquainted with environmental factors, risks, environmental health care and nature conservation influencing human health. The students will recognize their personal and professional responsibility of promoting and conserving healthy environment and nature. The students will be able to respect healthy environment and will embrace an active role by influencing environmental health promotion.

Contents of the course: Public health science: Theory of public health medicine. Research (concerning public health work) and its results. Statistical descriptions about risk factors, morbidity and death rates in Finland. (Objectives and content of environmental health are announced later at the beginning of the course). The Environmental health: Basic concepts, the main factors in human environment affecting health: the quality of air, water and nutriment, noise, radiation, waste and toxic refuses. Community as an influential factor to individual health.

Prerequisites: none

TT1315 Social and health care policy, 2,5 crs/3,75 ECTS crs

Objectives of the course: The Students will be familiar with social and health care policy. The Students will learn about the history and development of social and health care policy. The Students will be acquainted with the legislation and regulations as well as the systems and organizations in social and health care policy. The Students will learn about the most common objectives and values of the Finnish and EU's social and health care policy as well as understand the significance of cooperation in social welfare. The Students will be familiar with the methods of social work and will be able to use them in the professional work.

Contents of the course: The history of social and

health care policy. The legislation and organizations in social and health care policy. Social security as a part of social and health care policy. The most common health care programs and objectives in Finnish and European policy. The support system in social welfare.

Prerequisites:

PROFESSIONAL STUDIES

TT1019 Health care economics, 1 crs/1,5 ECTS crs

Objectives of the course: The students will be acquainted with the basic concepts of economics. They will familiarize themselves with the changes in health care and with the transitional settings in it.

Contents of the course: The basic concepts of economy and ways of thinking in it. Efficiency, productivity and affectivity as well as evaluation of them in health care.

Prerequisites: TT1315 Social and health care policy

TT1303 Basic statistics, 1 crs/1,5 ECTS crs

Objectives of the course: The Students will be familiar with data acquisition and data processing as well as graphic presentation of data. The Students will learn about the stages of statistical study, presentation of statistics and graphic presentation as well as the most important parameters, probability and statistical testing.

Contents of the course: The stages of statistical study, the most common methods of sampling, scales, frequency distribution and the presentation of frequencies in one- and two dimensional graphics, the most important parameters in frequency distributions, correlation and linear models, statistical testing and correlation.

Prerequisites:

TT1308 First aid, 1 crs/1,5 ECTS crs

Objectives of the course: The Students will recognize the need for immediate first aid as well as understand the meaning of calm behaviour and the importance of mental support in critical situations. The Students are capable of acting as helpers in situations in which first aid is needed either for children or for adults as well as taking them to emergency care. The Students will have the motivation to maintain their skills and knowledge about first aid.

Contents of the course: First aid as a part of care activities, first aid tactics, life-saving first aid, advanced life support after first aid, special characteristics in the first aid of children, co-operation with the primary /emergency care unit as well as with outpatient departments.

Prerequisites:

**TT2050 Nursing administration, 2,5 crs/
3,75 ECTS crs**

Objectives of the course: The students will be aware about changes in health care. They will be acquainted with the basic concepts of administration and are able to apply them in the professional (nursing) work. The students will learn about basics of organizational thinking as well as methods to develop their working communities. The students will realize that everybody is involved with the management and leadership in their workplaces. The students will be able to take part in planning, assessment and development of qualified organization of health care services.

Contents of the course: Transitional processes in health care organizations. The basic concepts of administration. Organizational skills and culture. Healthy working community. Development in workplaces. Leadership and management in nursing. Quality management in nursing and in health care. Special issues about professional work.

Prerequisites: TT1315 Social and health care policy

**TT2301 Research methods in health sciences,
3,5 crs/5,25 ECTS crs**

Objectives of the course: TT2301 Quantitative research 2,25 ECTS credits =1,5 Fc: The Students will be provided with practical skills for independent work related to nursing research by using selected quantitative research method. The Students will be acquainted with the analysis and evaluation of quantitative studies as well as with their significance in nursing practice. TT2302 Qualitative research 1,5 ECTS credits =1 Fc: The Students will be familiar with the qualitative research tradition and the most common types of qualitative research methods.

Contents of the course: The Quantitative research tradition and research process, quantitative study formulation, the ethics of quantitative research, reliability and validity of research, quantitative studies in nursing practice. TT2302 Philosophical, ontological and epistemological approaches to qualitative research. The ethics of qualitative research. Credibility in qualitative research. The process of qualitative research. Phenomenology, grounded theory and ethnography. Historical research. Action research.

Prerequisites: none

TT2302 Microbiology and clinical laboratory science, 1 crs/1,5 ECTS crs

Objectives of the course: The students will be familiar with the most common laboratory tests and their applications in patient care. The students will understand the

procedures and stages included in the testing process as well as the importance of preparing the patient (so as to get reliable test results). The students will learn about classifications, structures, properties, occurrences and spreadings of the most known microbes as well as the etiology of infectious diseases and the function of the biological defence system.

Contents of the course: Clinical laboratory science in health care. Preanalytic factors in laboratory investigations. Guidance of patient and preparation for laboratory tests. Sampling, preservation and test analyses. Interpretation of the tests and reporting them to client. Problems with dry chemical methods and analyses.

Prerequisites: none

TT2303 Clinical pharmacology, 1 crs/1,5 ECTS crs

Objectives of the course: The Student acquires the basic knowledge about the usage of medication in different kind of diseases and disorders. The Student knows the most important meanings of medication with hospitalized or outcare-patients. The Student understands the appropriate use of medication and effects of that to the patient and masters the observation methods used in pharmacological care.

Contents of the course: Including parts TT23031 and TT23032.(each 0,75 ECTS credits) Medication in different kind of diseases and disorders. Antimicrobial drugs. Drugs for cardiovascular diseases. Painkillers. Psychopharmaceuticals. Expectorans and antitussives. Cytostatics. Antiepileptics and drugs for Parkinson's disease. Diabetic drugs. Drugs for dermatological diseases. Drugs for thyroidic diseases, hypothyroidism and hyperthyroidism. Ophthalmological drugs. Drugs for otorhinolaryngological diseases and mouth diseases. Hormonal preparations. Hormonal replacement therapy, drug abuse etc. cytostatics, anti-biotics,

Prerequisites: none

TT2304 Health promotion (Health education), 3 crs/4,5 ECTS crs

Objectives of the course: The Students will acquire philosophical and scientific basics of health promotion and health education. The Students will be familiar with personal and universal factors influencing in health behaviour and will be aware of their responsibility in health promotion and prevention of diseases in their own, client's and community life. The Students will ponder over ethical issues in health promotion and will be familiar with health cultures and the methods of health promotion as well as with different types of health communication. They also familiarize themselves with the health pedagogy and with the issues of patient

Nursing

counselling as well as are able to plan, implement and evaluate health promotive sessions.

Contents of the course: The Concept of health promotion and its relation to health and health education. The basic concepts and approaches of pedagogy and education. Learning process and tutoring. The models and objectives of health education. Theories concerning health education and health behaviour. The ethical basics of health promotion and health education. Health promotion with individuals, groups and in communities. Planning, usage and evaluation of materials for health promotion, counselling and health education.

Prerequisites: none

TT2305A Human needs and nursing interventions, 5 crs/7,5 ECTS crs

Objectives of the course: The students will be familiar with human needs in the whole life span. They are able to recognize human needs and typical deficits of the needs. The students will acquire the nursing process as a method of patient's care. They will learn about basics of pharmacy as well as of asepsis and are familiar with the applications of them. The students will have facilities to choose relevant interventions for nursing and care of patients. They will understand the principles of nursing and basic concepts of nursing and are aware of significance of them in applied nursing.

Contents of the course: Human needs and the life span. Nursing interventions. Professional nursing. Nursing process, documentation and decision making in nursing. Co-operation with the patient. The principals of nursing and significance of conceptual thinking in nursing. Asepsis. The basics of pharmacy. Interventions and measures of nursing. Practical demonstrations: how to help patient to eat, sleep, rest, move, wash her/himself and relief the pain. How to estimate and measure pulses of the body, the blood pressure, the body-temperature, the fluid balance. How to help patient who is having nutritional problems, secretion problems (ways of urinary cathetrization and supracystotomy, obstipation or diarrhoea), respiratory problems (like insufficiency, to suck the airways), problems of medication such as peroral, im.injection, id and s.c.injections.

Prerequisites: none

TT2306 Public health nursing of children and adolescents, 1 crs/1,5 ECTS crs

Objectives of the course: The students are able to assess the needs of children and adolescents and will learn about their health resources and health behaviours during nursing assessment, interventions and evaluation.

Contents of the course: Health promotion and public

health nursing of children and adolescents as a part of community life. Prevention and assessment of factors undermining health.

Prerequisites:

TT2307A Public health nursing of adults, 2 crs/3 ECTS crs

Objectives of the course: The students are familiar with nursing in communities and health resources (and needs) of population and are able to meet adults as clients and as members of their families and communities. The students will acquire the personal and professional way of public health nursing of adults.

Contents of the course: Prevention and intervention in health care problems of adults. Nursing of expectant mothers, newborns and their families. Supporting clients and their families to use their resources. Participation in current projects concerning health promotion in communities. Practical demonstrations: child-birth which is occurring outside the hospital, web-maternity clinic.

Prerequisites:

TT23081 Obstetrics and gynaecology, 0,5 crs/0,75 ECTS crs

Objectives of the course: The Students will acquire the basic knowledge of the physiology of women, including normal progress of pregnancy, labour and puerperal period. The students will be acquainted with the most common problems and abnormalities during pregnancy, labour and puerperium. The students will learn about the most important methods of contraception as well as the most common gynaecological disorders. They also will familiarize themselves with some diagnostic methods and treatments in gynaecology.

Contents of the course: Biological cycles of women, forms of contraception, the most common gynaecological disorders (ethiology, diagnostics, symptoms and treatment), normal pregnancy, labour and puerperium, and the most common disorders in those, the most typical gynaecological tumours, climacteric phase.

Prerequisites: none

TT23082 Internal medicine, 1 crs/1,5 ECTS crs

Objectives of the course: The Students will familiarize themselves with the basic etiology and pathophysiology of internal medicine as well as know about the basic problems caused by internal diseases, dysfunctions and syndromes, their prevention, diagnostics, treatment and prognoses.

Contents of the course: The most common diseases, dysfunctions and syndromes in internal medicine. The

pathophysiology and diagnostics in internal medicine. Prevention, treatments and prognostics of internal medicine. Clinical pharmacology in internal medicine.

Prerequisites:

TT23083 Surgery and anaesthetics, 1,5 crs/2,25 ECTS crs

Objectives of the course: The students will familiarize themselves with the basics of etiology and pathophysiology of surgical diseases as well as with the problems caused by surgical diseases, traumas, dysfunctions and syndromes. The prevention, examination, treatment and prognostics used in surgery and anesthesiology. The students will know about the ways and methods of anesthesia. They will be able to apply knowledge and skills of surgical treatment or resuscitation skills in the care of a patient/client in hospital as well as they will acquire the skills in nursing of an unconscious patient.

Contents of the course: Etiology and pathophysiology of surgical diseases. Prevention, diagnostics, treatment and prognostics of surgical diseases. Substances and Methods of anesthesia. Resuscitation in hospital, care of unconscious patient. Clinical pharmacology in surgery.

Prerequisites: none

TT23084 Psychiatry, 1 crs/1,5 ECTS crs

Objectives of the course: The students will acquire the basics of the etiology and pathophysiology of mental disorders and illnesses as well as those of psychic dysfunctions. They will know the main problems that patients are suffering during their mental illnesses. The students will be familiar with the most common interventions and treatments used in diagnostics and prognostics of mental illnesses and disorders.

Contents of the course: Mental problems, Psychic dysfunctions and illnesses. Etiology and pathophysiology of mental illnesses as well as prevention, diagnostics, treatments, therapies and prognostics of those. Connections in different psychic disorders with individual and community as well as in those with somatic dysfunctions. The progression of mental treatment. Clinical pharmacology in psychiatrics.

Prerequisites: none

TT23085 Geriatrics, 0,5 crs/0,75 ECTS crs

Objectives of the course: The students will acquire the basics of gerontology and geriatrics and will be familiar with the biological, psychological and social interpretations of ageing theories. The students will know about the normal age-related changes of the human physiology as well as about the etiology and pathophysiology of geriatric dis-orders and the problems caused by them.

biology of geriatric dis-orders and the problems caused by them.

Contents of the course: Ageing theories, biological, psychological and social changes related to ageing. Prevention, diagnostics, etiology, treatment and prognoses of geriatric disorders. Special issues of clinical pharmacology.

Prerequisites:

TT23086 Paediatrics, 1 crs/1,5 ECTS crs

Objectives of the course: The students will acquire the basic knowledge of the most common paediatric diseases. They will know about the etiology, symptoms and their effects of the most common diseases of the child and the adolescent. The students will familiarize themselves with the ways of prevention and treatment used in paediatric medicine.

Contents of the course: Diseases of newborn baby. Prematuritas. Contagious diseases. Infections of digestive and urinary system. Diseases of nervous system: convulsions. Diseases of endocrine glands. The juvenile diabetes. Allergic diseases such as asthma and eczemas. Specific delays in development and developmental disorders.

Prerequisites:

TT2309A Medical-Surgical Nursing, 4,5 crs/6,75 ECTS crs

Objectives of the course: The students will understand the characteristics of medical-surgical, perioperative and district nursing. The students will be able to apply the main nursing interventions in different settings with medicinal, surgical and operable patients as well as with the clients in district nursing. The students will be aware of the importance of professional teamwork with patients/ clients and with their families and will acquire the professional and responsible way in nursing (interventions, actions and measures) and as the members of multidisciplinary team as well as in drug therapy. In addition the students will acquire the basic knowledge about the medical equipment and safety way to use them as well as will familiarize themselves with radiological methods and the radiation risks included in those.

Contents of the course: The characteristics of medical nursing and internal medicinal patients as well as nursing interventions in the main areas of medical nursing; nursing of cardiac patient, patient with cerebral apoplexy, a rheumatic patient, patient with diabetes, self-care and nursing of asthmatic patient, a patient with leukemia. Practical demonstrations with Bopath, ECG, cardio-pulmonary resuscitation. The process of surgical

Nursing

patient, asepsis in surgical nursing, pain reliefment and pain-killers for the patient in surgical nursing. Treatment and care on acute gastric or intestinal problems. Nursing interventions: patient with acute gastric problems, patient with hip fracture, patient with lower limb amputation, patient with stoma, patient with breast cancer, patient with prostata cancer. Chlinical radiology. Practical demonstrations with wound treatment, plaster cast, walking on elbow crutches. Approaches to perioperative nursing. Nursing process in perioperative nursing. The principles of aseptic work. Documentation, reporting and multiprofessional teamwork in perioperative nursing. Medical equipment in perioperative care. Practical demonstrations with: preparation of patient going to surgery, hand disinfection before surgery, the skin disinfection before surgery, how to prepare sterile desk, the basic instruments, suture supplies, how to monitore the patient during the operation, monitoring equipment, intra venous drug treatment, bloodinfusion, sterile liquids, The characteristics of district nursing and home-care units. Multiprofessional teamwork in district nursing. Supporting and intervening self-care patients. Patient with the hospice care. Possibility to die at home. Development of the district nursing.

Prerequisites:

TT2312A Mental health care, 2 crs/3 ECTS crs

Objectives of the course: The students will form a general view and an opinion about the system of the mental health care and the legislation directing it. The students will be able to follow the guidelines of preventive mental health care as well as to meet individuals, families and communities in the crisis. The students will be familiar with and will be acquainted with how to apply nursing assesment, planning and interventions in mental health care. The students can cooperate with different professional teams. The students are able to use work counselling as a supportive procedure in professional mental health care

Contents of the course: Concepts, system and legislation of the mental health care. Cooperation in professional mental health care. Factors affecting in mental health. Phases of mental crisis. Nursing interventions in mental health care.

Prerequisites:

TT2314 Eldery care, 1 crs/1,5 ECTS crs

Objectives of the course: The students will learn to evaluate the needs of healthy and ill old persons and their families as well as are able to apply planning, implementation and assessing in eldery care. They are able to apply principles of nursing and nursing interventions

for eldery client/patient care. The students will familiarize themselves to the ways of developing eldery home care as well as hospitalized services in it.

Contents of the course: The ageing person as a biological and psychosocial being. The principles in eldery care. Health care services for ageing people and patients. Characteristics of eldery care and nursing. Community nursing of eldery. Family and friends as well as cooperation in eldery care. Quality assurement in eldery care.

Prerequisites:

TT2316 Nursing of children and adolescents, 1,5 crs/2,25 ECTS crs

Objectives of the course: The students will develop and practise in the application of nursing process as well as the justifications used in nursing of children and adolescents. The students are able to assess the needs of children and their families and will became aware of the meaning of the family and community for children's wellbeing.

Contents of the course: The philosophical foundations of nursing of children and adolescents. Resources that are needed when illness/sickness meets the child, adolescent and their family. The nursing process in child and adolescent care. Different kind of illnesses and different phases in sickness (acute or chronic illness, mental health problems, pre-maturity, disability, incurability, child being close to death). Special issues: pain, therapeutic play, drug therapy, cultural nursing, multiprofessional teamwork.

Prerequisites: TT2306 and TT4302 Public health nursing of children and adolescents and practical palcement in it

TT2366 Developmental Assignment in Health Care, 3 crs/4,5 ECTS crs

Objectives of the course: The students will development their skills in the evidence-based public health nursing. They will continue on working with their theses at the point of view of public health nursing and the developmental assignment. The students will be able to use the expertise and knowledge -they have gained on their previous work with the theses- in developmental work of public health care. The written report will be done about the work in developmental assignment.

Contents of the course:

Prerequisites:

TT2367A Interventions in health promotion, 1 crs/1,5 ECTS crs

Objectives of the course: The students will have an advanced knowledge about the interventions in health

promotion as well as ability to react for new challenges in the future. The students will be able to apply evidence based know-how in health promotion of individuals and groups as well as communities and will have further capabilities critically assess and evaluate the material used in health promotion. The students will familiarize themselves with the basics of group-phenomenon and will analyse and describe factors influencing in group activities. The students will assess how to use the health orientative groups in public health care. They will describe themselves in the role of the group counsellor.

Contents of the course:

Prerequisites: professional nursing studies in poly-technic

TT2368 Supporting the early communication between a mother and a child, 3 crs/4,5 ECTS crs

Objectives of the course: The students can interview their clients in a way that will promote health and well-being of the children and their families. The students will identify the families in which children are exposed to social problems. They will embrace an efficient and supportive way to counsel the parents, the parenthood, self-esteem and self-respect of parents as well as support the communication between parents and their children. The students will adopt the role of the efficient helper and learn to minimize affects of the opinions and proposals of their own. They will analyse when and how to guide the families to the specialized follow-up treatment and care.

Contents of the course: The main characteristics of parent counselling. The support of the parenthood. Ways to maintain a supportive and active process and relationship in counselling. How to interview and discuss with clients as a client-orientative way. Rehearsals concerning the early communication between a mother and a child and the ways to support it. Participation to the tutor sessions.

Prerequisites: basic studies and professional nursing studies

TT2369 Preventive work with the abusers of the drugs and intoxicants, 1 crs/1,5 ECTS crs

Objectives of the course: The students will ponder over the characteristics of the care for the alcohol and drug abusers in a point of view of the values and ethics. The students will familiarize themselves with the acute situation of drug and intoxicant abusers in Finland with the help of the latest research findings. The students will know the characteristics of the legislation and organizations in public health services for drug and intoxicant abusers. They will familiarize themselves with the

most important courses of action and the interventions used in the preventive work with the drug and intoxicant abusers.

Contents of the course:

Prerequisites: professional studies in nursing in poly-technic

TT2371 Sexual health, 0,5 crs/0,75 ECTS crs

Objectives of the course: The students will familiarize themselves with the sexual health of the individuals and communities. They will know about the most important Finnish legislation concerning sexuality. The students will have the basic knowledge about the prevention and care of the contagious venereal diseases. The students will develop their abilities in sexual health promotion among clients in different ages and in different cultures as well as will adopt better abilities to meet people with different kind of sexual orientations and ways of expressing themselves as sexual beings. The students will be able to apply different kind of health promotive implementations in their work with individuals and communities.

Contents of the course: Sexual health in the individuals and in communities and in Finland. Legislation concerning sexuality. Sexuality in the life-span. Sexual violence. Meeting with the non-heterosexual person. Family planning. Prevention of venereal diseases.

Prerequisites:

TT2372 Breast feeding counselling, 1 crs/1,5 ECTS crs

Objectives of the course: The purpose of the studies in this course is that the students will embrace the abilities to act as a breastfeeding counsellor. They will be acquainted with the recommendations of the nutrition of the mothers and the newborns and the initiative of baby friendly hospital (- program). The students know how to support mothers having problems in their breastfeeding and how to guide them to the supportive peer groups. The students are able to observe the breastfeeding situations and the interaction between the mother and her baby. They will identify the advantages of breastfeeding and will be able to guide the mothers who have problems in breastfeeding techniques. The students also know how to guide mothers taking good care of their breasts, how to milk and how to prevent breast inflammation. The students will be motivated to develop their professional communication skills as a breastfeeding counsellor.

Contents of the course: Pregnancy, parenthood. The advantages of the breastfeeding. The first contact and the attachment after the childbirth. The recommenda-

Nursing

tions of nutrition for the newborns. The nutrition of the pregnant woman or the woman breastfeeding her child. Different breasts and breastfeeding. Prevention and care of breastinflammation. The communication skills of breastfeeding counsellor. The baby friendly hospital - initiative. WHO-codes. Supportive groups for breastfeeding mothers. Course is based on the recommendations of the WHO

Prerequisites:

TT2373A Evidence based public health nursing, 0,5 crs/0,75 ECTS crs

Objectives of the course: The students will have an advanced knowledge about the evidence based health care and they will find the most significant sources of information and inquiry for their decisionmaking and are able to critically assess the reliability of the knowledge they will find and can use in their professional work in public health care.

Contents of the course:

Prerequisites:

TT2374 Public health nursing of the childbearing families, 1,5 crs/2,25 ECTS crs

Objectives of the course: public health nursing of the childbearing families The students will identify resources, problems and special needs of childbearing family. They can meet the members of childbearing family as individuals and support both the personal transition and the developmental process of parenthood in the family. The students can plan, implement and evaluate the family training based on the needs of the expecting family and will know how to support the mother and the family. The students will master the procedures in health guidance and methods of screening in pregnancy with expectant mothers. The students will identify the most common health risks threatening the mother and her family and will be acquainted with the guidance of follow-up treatment and care.

Contents of the course: The resources and special needs of childbearing family. Health and well-being during the pregnancy. Phases of the pregnancy and childbirth. Developmental process of the parenthood. Family training. Procedures of screenings and typical health risks in pregnancy. Public health nursing after the childbirth.

Prerequisites: basic studies and professional studies in nursing

TT2375 Public health nursing of the children and their families, 1,5 crs/2,25 ECTS crs

Objectives of the course: The students will have ad-

vanced knowledge about the development and growth of the children and the lifestyle of the family and they will independently evaluate and support the favourable conditions of development and growth as well as evaluate the meaning of the lifestyle for the health of the family. The students will master the screening methods which are used in public health nursing of children. They will identify the risks and disorders threatening the health, security and social development of the child and will adopt the abilities to intervene in those with preventive way. The students will adopt the point of view of family centeredness and resource supportiveness. The students will have more abilities to recognize the special needs of healthy children and their families. The students will know how to work preventive with and how to care of the children threatening by the contagious diseases. The students will have capabilities to work as an expert in the vaccination programs of the children

Contents of the course:

Prerequisites:

TT2376 Health care of the school-aged children and adolescents, 2 crs/3 ECTS crs

Objectives of the course: The students will have advanced knowledge about supporting and following the development of the school-aged children and adolescents. The students will acquire the research-based knowledge about the health promotion of school-aged and adolescents and will apply the knowledge in the professional work of public health nurse. The students will act in health promotive way when working as public health nurses with schoolchildren

Contents of the course:

Prerequisites:

TT2377 Occupational health care, 1 crs/1,5 ECTS crs

Objectives of the course: Student is familiar with the central focus areas of adult public health nursing and occupational health care, is able to recognise the effects work, unemployment, working community and working and living environment have on a person's health, well-being and working capacity. Student is able to evaluate the factors promoting and burdening the health of the working population and assist an adult in promoting his/her on health and well-being at work. Student acquires the skills needed in working as a professional in occupational health care following the guidelines of good occupational health care practice.

Contents of the course:

Prerequisites:

TT2378 Health of the women, 1 crs/1,5 ECTS crs

Objectives of the course: The students will be aware of the factors influencing and threatening the health and wellbeing of the women. The student will apply the knowledge of the life-span development when working with the women in different ages.

Contents of the course: Woman, femininity, the status of the woman. The health of the women and the factors affecting on it. The risk factors in the woman's health at the different life stages. The life-span of the woman. The woman as a client of the public health nurse. Women and the violence.

Prerequisites:

TT2379 Health of the men, 1 crs/1,5 ECTS crs

Objectives of the course: Student becomes familiar with the special questions regarding a Finnish man's health and the challenges of public health nursing based on scientific research. Student acquires skills to meet male clients of different ages and in various situations in life. Student deepens his/her knowledge in central health risks in a Finnish man's life and prevention of the most common diseases.

Contents of the course:

Prerequisites:

TT2380 Health care of the elderly, 1 crs/1,5 ECTS crs

Objectives of the course: Student further develops in respectful interaction with an elderly person and his/her next of kin. Student recognises the individual resources of an elderly person and develops his working method supporting the client's resources. Student becomes familiar with the methods of public health nursing which can be used to support an elderly person in improving and maintaining his/her health. Student acquires skills to support an elderly person and his/her family in facing death. Student is able to apply scientific knowledge in developing public health nursing of the elderly.

Contents of the course:

Prerequisites: Nurse (Polytechnic)

TT4301A Orientation placement (in Nursing), 4 crs/6 ECTS crs

Objectives of the course: The Students will adopt the respective way and the main professional principles in communication with clients and patients as well as with the families of those. The Students will recognize the meaning of healthy environment and community for individual's well-being. The Students are able to assess, implement (apply nursing implementations) and evaluate human needs in different settings. The Students will

learn to evaluate their own professional skills and action in nursing care. They familiarize themselves with the documentation and reporting in nursing process. The Students will learn a responsible way of practising professional nursing.

Contents of the course: Clinical placement in relevant nursing unit, in which the objectives are able to achieve.

Prerequisites: none

TT4302 Practical Placement in public health nursing of children and adolescents, 4 crs/6 ECTS crs

Objectives of the course: The students are able to assess the needs of children and adolescents and can have practice in nursing interventions by using the health resources of the families.

Contents of the course: Public health nursing and health promotion of children and adolescents. Identification and prevention of unhealthiness factors

Prerequisites: none

TT4303A Practical placement in public health nursing of adults, 5 crs/7,5 ECTS crs

Objectives of the course: The Students are familiar with nursing in communities and health resources (and needs) of population and are able to meet adults as clients and as members of their families and communities. The Students will acquire the personal and professional way of public health nursing of adults.

Contents of the course: Prevention and intervention in health care problems of adults. Nursing of expectant mothers, newborns and their families. Supporting clients and their families to use their resources. Participation in current projects concerning health promotion in communities. Practical demonstrations: child-birth which is occurring outside the hospital, web-maternity clinic.

Prerequisites:

TT43041 Practical Placement in medical nursing, 4 crs/6 ECTS crs

Objectives of the course: The Students will understand the characteristics of medical-surgical, perioperative and district nursing. The Students will be able to apply the main nursing interventions in different settings with medicinal, surgical and operable patients as well as with the clients in district nursing. The Students will be aware of the importance of professional teamwork with patients/ clients and with their families and will acquire the professional and responsible way of nursing (interventions, actions and measures) as members of multidisciplinary team. In addition the Students will acquire the basic knowledge about the medical

Nursing

equipment and safety way to use them as well as will familiarize themselves with radiological methods and the radiation risks included in those.

Contents of the course: The characteristics of medical nursing and internal medicinal patients as well as nursing interventions in the main areas of medical nursing; nursing of cardiac patient, patient with cerebral apoplexy, a rheumatic patient, patient with diabetes, self-care and nursing of asthmatic patient, a patient with leukemia. Practical demonstrations with Bopath, ECG, cardio-pulmonary resuscitation.

Prerequisites:

TT43043 Practical Placement in Surgical Nursing, 4 crs/6 ECTS crs

Objectives of the course:

Contents of the course: The path of the patient and nursing interventions in surgical care. Asepsis in surgical nursing. Pain reliefment and pain-killers for the patient in surgical nursing. Treatment and care on acute gastric or intestinal problems. Patient with hip fractures. Patient with lower limb amputation. Patient with a stoma, with a breast cancer, with a prostate cancer. Clinical radiology. Practical demonstrations with wound treatment, plaster cast, walking on elbow crutches

Prerequisites:

TT43044 Practical Placement in Perioperative Nursing, 2 crs/3 ECTS crs

Objectives of the course: as mentioned in TT2309 and TT4304

Contents of the course: Approaches to perioperative nursing. Nursing process in perioperative nursing. The principles of aseptic work. Documentation and reporting. Multiprofessional teamwork.

Prerequisites: TT1310, TT2303, TT2305

TT4304B Practical placement in medical surgical nursing, 10 crs/15 ECTS crs

Objectives of the course: The Students will understand the characteristics of medical-surgical, perioperative and district nursing. The Students will be able to apply the main nursing interventions in different settings with medicinal, surgical and operable patients as well as with the clients in district nursing. The Students will be aware of the importance of professional teamwork with patients/ clients and with their families and will acquire the professional and responsible way of nursing (interventions, actions and measures) as members of multidisciplinary team. In addition the Students will acquire the basic knowledge about the medical

equipment and safety way to use them as well as will familiarize themselves with radiological methods and the radiation risks included in those.

Contents of the course: The characteristics of medical nursing and internal medicinal patients as well as nursing interventions in the main areas of medical nursing; nursing of cardiac patient, patient with cerebral apoplexy, a rheumatic patient, patient with diabetes, self-care and nursing of asthmatic patient, a patient with leukemia. Practical demonstrations with Bopath, ECG, cardio-pulmonary resuscitation.

Prerequisites:

TT4305 Practical Placement in mental health care, 5 crs/7,5 ECTS crs

Objectives of the course: The Students will form a general view and an opinion about the system of the mental health care and the legislation directing it. The Students will be able to follow the guidelines of preventive mental health care as well as to meet individuals, families and communities in the crisis. The Students will be familiar with and will be acquainted with how to apply nursing interventions in mental health care. The Students can cooperate with different professional teams. The Students are able to use work counselling as a supportive procedure in professional mental health care work.

Contents of the course: Concepts, system and legislation of the mental health care. Cooperation in professional mental health care. Nursing interventions in mental health care.

Prerequisites: TT4301

TT4307A Practical Placement in nursing of children and adolescents, 5 crs/7,5 ECTS crs

Objectives of the course: The Students will possess the skills needed to have when they meet children and adolescents and the families of those with different kind of sicknesses. The Students are able to assess the needs of children and their families. The Students will practise the application of nursing process as well as the justifications used in nursing of children and adolescents. The Students will become aware of the meaning of the family and community for wellbeing of children.

Contents of the course: The philosophical foundations of nursing of children and adolescents. Resources that are needed when illness/sickness meets the child, adolescent and their family. The nursing process in child and adolescent care. Different kind of illnesses and different phases in sickness (acute or chronic illness, mental health problems, pre-maturity, disability, incurability,

child being close to death). Special issues: pain, therapeutic play, drug therapy, cultural nursing, multiprofessional teamwork.

Prerequisites:

TT4336A Practical placement in district nursing and in elderly care, 5 crs/7,5 ECTS crs

Objectives of the course: The students will learn to assess, to plan, to implement and to evaluate the needs of health and sick clients and their families. They are able to apply the principles of nursing in elderly care and district nursing and will apply nursing interventions with elderly home care patients. The students will acquire the ways to develop nursing and the services in elderly care as well as in the hospitalized settings.

Contents of the course:

Prerequisites:

TT4340 Practical placement in public health care, 5 crs/7,5 ECTS crs

Objectives of the course: Student practices nursing instruction, supporting early interaction and public health nursing of child-expecting families and children thus supplementing the skills he/she has acquired during nurse education. Student practices is primary health care and/ or specialised health care. Practical placement includes supervision of work in early interaction.

Contents of the course:

Prerequisites: Five first semesters of basic and professional studies in nursing according to the curriculum.

TT4342 Practical placement in advanced public health care, 8 crs/12 ECTS crs

Objectives of the course: Student deepens and broadens his wisdom on public health care. Student develops his/her skills in nursing interventions in public health care. Student is trained in evidence-based public health care. Student has a practical placement in one or two central areas in public health care.

Contents of the course:

Prerequisites: Nurse (Polytechnic)

TT4343 Practical placement in health care of the school-aged children and adolescents, 6 crs/9 ECTS crs

Objectives of the course: Student studies health care of the school-aged children and adolescents: observing and supporting growth, nursing interventions in public health nursing, applying scientific knowledge and developing public health nursing, promoting well-being in a school community. Student plans, carries out and evaluates a health-promotional group process.

Contents of the course:

Prerequisites: Nurse (Polytechnic)

THESIS

TT5010 THESIS, 10 crs/15 ECTS crs

Objectives of the course: The students are able independently but supervised to use theoretical and empirical knowledge, to plan and implement research (study) or developmental work/study or project related to the field of nursing. In their thesis the students demonstrate their ability to apply their knowledge and skills in an expert level related to their advanced professional studies as well as demonstrate their profound familiarity with one of the main issue pertaining to the professional field.

Contents of the course: The form of the thesis can be an applied research or a developmental work/study as well as a project. It can also be an empirical/explorative, a quantitative or a qualitative research, a theoretical or a constructive study. The nature of the developmental work can be a project or it can be as a part of a multidisciplinary project in the polytechnic. Including parts/courses: TT5014 Seminar on the ideas and topics of the thesis (0,5ov = 0,75 ECTS cr), TT5021 Seminar on the plan for the thesis (0,5ov = 0,75 ECTS cr), TT5022 Seminar on the thesis (0,5 ov = 0,75 ECTS cr). Also TT5023 Independent study and supervision (0,5 ov = 0,75 ECTS cr), TT5024B Independent study and supervision (2 ov = 3 ECTS cr), TT5025B Independent study and supervision (6 ov = 9 ECTS cr)

Prerequisites: TT1309 Nursing Science (partly), TT1302 IT-passport, TT1303 Basic Statistics, TT2301 Research methodology in health care sciences, TT2305 Human needs and nursing interventions.

TT5014 Seminar on the ideas and topics of the thesis, 0,5 crs/0,75 ECTS crs

Objectives of the course: The students are able supervised to choose the topic and implementation of their thesis.

Contents of the course: Course description: Participation in the seminars and creation of the idea and topic of the thesis (written paper)

Prerequisites:

TT5021 Seminar on the plan for the thesis, 0,5 crs/0,75 ECTS crs

Objectives of the course: The students are able independently but supervised to use theoretical and empirical knowledge, to plan and implement research (study) or developmental work/ study (project) related to the

field of nursing. In their theses the students demonstrate their abilities to apply their knowledge and skills in their expertise or development tasks related to their professional studies as well as demonstrate their profound familiarity with one of the central issues pertaining to a professional field. The form of the thesis can be an applied research or a developmental work/study as well as a project. It can be empirical/explorative quantitative or qualitative research, theoretical or constructive study. The nature of a developmental work can be a project or it can be as a part of some multidisciplinary project in the polytechnic. The students will be supervised familiarize themselves with collecting the data and planning for the thesis. In the seminars on the plan for the thesis the students will learn about presenting their written and oral plans for the theses. The students will be able to indicate the arguments with which they have been chosen the topic, implementation, methodology, as well as argument for collecting and analyzing the data they will have. The students will learn about scientific thinking with the help of argumentation, feedback and disciplinary conversation.

Contents of the course: Participation in seminars. The presentation of the research plan with the named opponents. Written research plan, plan for the thesis and project. Process of the thesis and stages of academic working.

Prerequisites:

**TT5022 Seminar on the thesis, 0,5 crs/
0,75 ECTS crs**

Objectives of the course: The students will be able to present their done or nearly ready thesis as a written report and as an oral argumentation. The students will demonstrate their abilities to scientific communication as well as to applied, theoretical and empirical knowledge about the topic of the thesis and development of the profession.

Contents of the course: Participation in seminars on the theses, presentation of the thesis, acting as an opponent in the seminars

Prerequisites:

**TT5023 Independent study and supervision, part 1,
0,5 crs/0,75 ECTS crs**

Objectives of the course: The students are able as supervised to choose the topic and implementation of their thesis.

Contents of the course: Course description: Participation in the seminars and creation of the idea and topic of the thesis (written paper)

Prerequisites: TT1309 (partly), TT2301 (partly), TT1302,TT1303, TT2305

**TT5024B Independent study and supervision, part
2, 2 crs/3 ECTS crs**

Objectives of the course: The students will be acquainted with collecting the data and planning for the thesis. In the seminars the students will learn about presenting their written and oral plans for the theses. The students will be able to indicate the arguments with which they have been chosen the topic, implementation, methodology, as well as argument for collecting and analyzing the data they will have. The students will learn about scientific thinking with the help of argumentation, feedback and disciplinary conversation.

Contents of the course: Participation in seminars. The presentation of the research plan with the named opponents.

Prerequisites:

**TT5025B Independent study and supervision, part
3, 6 crs/9 ECTS crs**

Objectives of the course: The Students will be able to present their done or nearly ready thesis as a written report and as an oral argumentation. The Students will demonstrate their abilities to scientific communication as well as to applied, theoretical and empirical knowledge about the topic of the thesis and development of the profession.

Contents of the course: Course description: Participation in seminars on the theses, presentation of the thesis, acting as an opponent in the seminars.

Prerequisites: TT5021, TT5022, TT5023

DEGREE PROGRAMME IN SOCIAL WELFARE WORK

General description and aims of the degree

The aim of the degree programme in social welfare work is that the student understands the mission and significance of his/her profession in society, the social service system and client relations

- has profound multi-disciplinary knowledge and is able to apply it while examining practical problems
- comprehends and binds him/herself to independent intellectual, emotional and ethical growth
- is prepared to take various social duties in different social environments and functional situations
- adopts a searching and developing approach to work.

The programme comprises 140 credits (210 ETCS credits), approximately 3,5 years. It is a Polytechnic degree for social welfare work. The programme has two specialisation alternatives: social pedagogy and creative therapies.

Structure and syllabus of the studies

The degree programme consists of general basic and professional studies, basic and professional studies for social pedagogical specialisation lines, thesis work as well as general and optional studies common to all students at the polytechnic. Supervised practical training forms part of the basic and professional studies.

The aim of orientation studies is to encourage the student to learn to be the subject of hers/his learning and to start consciously in building his/her own concept of humanity and the world. This is supported by relating the new learning material to the already existing knowledge and experience of each student. During the orientation, the student ought to learn to observe his/hers thinking, understanding and skills. The student should be aware of his/her own ideas and the stages of his/hers own personal and professional growth. During the basic orientation studies, the student analyses his/her concept of society and its development, culture, people and their place in the world as well as the social significance, history and future of social work and vocations. It is important to adopt an approach which problematises social practices.

During the professional practical studies the student deepens his/her concept of human growth and its chal-

lenges as well as forms an opinion /understanding of professional efficiency (competence), the means and possibilities of social work to support individuals, families and different groups to master everyday life. The main emphasis is both on the content studies combining theory and practice, and on the critical evaluation, i.e.reflection, of one's own observation, thinking and approaches.

The shaping of people's living conditions along with social change leads to continuous changes in the field of social work. Workers who are able to carry on practical work as well as conceptualise and analyse ideas and develop new ways to function are needed. During professional practical studies, the viewpoint of developing one's work and research is emphasised.

The most important theoretical basis for socio-pedagogical studies is offered by sociology, social policy, social psychology and socio-pedagogical professional orientation integrating them all. Students are encouraged to understand reality by means of science, visual arts, music, drama and literature. The student's own learning experience facilitates him/her to support customers see reality and find their place using rational reflection and creative activities in the professional relationship.

The practice comprises 30 credits (45 ects). It consists of a 2-3 year client relationship, practice work in various centres so that the student spends 2-3 days each week practising and participates in the planning and realisation of a project during his/her third year of studies. The aim is to give students deep enough experience of long-term social processes.

Thesis comprises 10 credits (15 ects). The aim and content is that student gets acquainted independent with sector of social work to master fully the knowledge and skills involved.

The leading principles of learning pervading every stage of the diploma work are searching, reflection and cooperation. Group work is broached during different courses when analysing the processes used in group work.

Social Welfare Work

Reading professional literature is part of the studies. Exams, summaries, essays and presentations are used. In order to familiarise themselves with literature, students are encouraged to form reading circles where they can analyse new information. An important element is the writing of a reflection journal. In it the student reflects, i.e. takes a critical attitude to his/her own activities as a learner and participant in interaction. As a follow-up of extensive studies (each semester or year), the student writes an analysis

Structure of the Studies in the Degree Programme in Social Welfare Work, 140 cr 210 ects

Specialisation alternative of social pedagogy
Specialisation alternatives of creative arts

THESIS 10 CR
PRACTICAL TRAINING 30 CR
OPTIONAL STUDIES 10 CR
SPECIALISED PROFESSIONAL STUDIES 57 CR/
59 C
BASIC STUDIES 33 CR/31 CR

Orientation options / Elective studies

The programme has two specialisation alternatives: social pedagogy and creative therapies.

The Specialisation alternative of Social Pedagogy
The starting point of social pedagogical work is the conception that the human being is bound to society. In order to extricate oneself from the difficulties of life one must see oneself in relation to society and its functional possibilities. This includes not only the ability to understand how society functions but to be able to have a sensible attitude toward life and mould it.

The aim of social pedagogy is, by means of supporting and improving individual and public chances and facilities, to promote social participation of individuals, families and different social groups, open possibilities to sensible life and satisfaction as active members of society.

Socio-pedagogical work is needed when the ability of the individual, family or group to function has been hampered or is in danger to worsen by internal or external pressures. The aim is to activate those power resources by means of which now situation, have an effect on change in themselves or their environment.

Socio-pedagogical work takes place in everyday life. Its task is not only to find a solution to an occasional everyday problem, but to support those struggling with difficulties to find themselves activities that change their situation. In practice, this means starting such individual and social processes that make people's own problem solution possible.

The specialisation alternative of social pedagogy in the degree programme in social welfare work offers extensive abilities e.g. in
preventive and corrective education of children and the young,
- guidance, rehabilitation, tending and care services aimed at people representing different age groups and life situations,
constructive and customer centred social work, planning, developing and administrative duties in social, cultural, free-time and private services.

The Specialisation alternative of Creative Therapies
Music therapy, dance and movement therapy and art therapy

Music therapy refers to all those methods where music or its elements, its psycho-physical, physio-acoustic or socio-cultural influences are used in the prevention, rehabilitation or treatment of psychic or physical problems as well as to the link between individuality and communality when solving social problems. Music therapists work with different people and groups in multi-vocational social and health care centres, community work or as independent entrepreneurs.

Dance and movement therapy is a form of creative arts where dance and movement and/or games and play are linked to a creative process in order to prevent psychic and social problems as well as to benefit rehabilitation and treatment. Dance and movement therapists work in the field of social and health care as members of a multi-vocational team or as independent entrepreneurs.

Visual art therapy is a form of creative therapy where visual art and its making in combination with the creative process is used in prevention, cure or rehabilitation of psychic and social problems. A visual art therapist works in social and health care either in multi-vocational work communities or as an independent entrepreneur.

BASIC STUDIES	Code	1. year	2. year	3. year	4. year
Methology 1	SS09				
IT Passport: Toolkits 1	SS1026	1	0	0	0
IT Passport: Toolkits 2	SS1027	0	0	1	0
IT Passport: Basics of Information Retrieval	SS1025	1	0	0	0
IT-Passport - Adaptation of Tool Programmes	SS1137	1	0	0	0
Information and Research in the Field of Social Welfare	SS1138	1	0	0	0
Professional Growth as a Subject of Research	SS1139	0	1	0	0
Developing Method Research	SS1140	0	0	1	0
Research Methods	SS1141	0	0	3	0
Language Studies	SS03				
English for the Social Field 1	SS1121	1	0	0	0
English for the social field 2	SS1122	0	1	0	0
English for the Social Field 3	SS1159	0	0	1	0
Swedish for the Social Field 1	SS1124	1	0	0	0
Swedish for the Social Welfare 2	SS1142	0	2	0	0
Written and Oral Expression 1	SS1033	1	0	0	0
Written and Oral Expression 2	SS1034	1	0	0	0
Written and Oral Expression 3	SS1143	0	0	1	0
	SS22				
Introduction to the Studies and Professional Growth	SS1144	1	0	0	0
Introduction to Social Pedagogy 1	SS1039	1	0	0	0
The Individual as a Part of the Society	SS1145	2	0	0	0
From a Poorhouse to the Welfare Society	SS1146	1	0	0	0
Social Change Reflected by Culture	SS1147	1	0	0	0
Progressive and Dynamic Individual	SS1148	3	0	0	0
Basics in Philosophy and Ethics	SS1149	1	0	0	0
	SS23				
Introduction to Social Pedagogy 2	SS1110	1	0	0	0
Social Policy	SS1150	2	0	0	0
Social and Health Care Service Systems as a Work Environment	SS1028	2	0	0	0
Social Philosophy	SS1151	1	0	0	0
Professional Ethics	SS1152	1	0	0	0
Professional Growth 2	SS2080	1	0	0	0
	SS32				
Introduction to Creative Expression	SS1153	1	0	0	0
Creative Activities as an Experience 1	SS1154	1	0	0	0
Creative Action as an Experience 2	SS1155	2	0	0	0
Creative Process	SS1156	2	0	0	0
Creative Activity as a Form in Socio-Pedagogical Work	SS1157	0	2	0	0
Creative Work and Community Art	SS1158	0	0	1	0
PROFESSIONAL STUDIES					
	SS24				
Disturbances in the Development and Disability	SS2090	0	2	0	0
Sign Language	SS2054	0	1	0	0
Management of Everyday-Life	SS2091	0	2	0	0
Special Physical Education	SS2006	0	1	0	0
	SS25				
Processes Guiding the Development	SS2092	0	1	0	0
Social Legislation	SS2051	0	3	0	0
First Aid 1	SS2113	0	1	0	0

Social Welfare Work

Professional Growth 3	SS2114	0	0	1	0
Disturbances and Support in Developmental Processes	SS2117	0	2.5	0	0
	SS26				
Basics in Professional Customer Service	SS2115	0	2	0	0
Guidance of Alteration Process	SS2116	0	3	0	0
Seminar of Customer Service	SS2093	0	1.5	0	0
Clientship and Society	SS2094	0	2	0	0
	SS27				
Group Dynamics and How to Use the Group in Social Welfare Work	SS2095	0	0	1	0
Social Pedagogy in the Society	SS2096	0	0	1	0
	SS28				
Community and Environment	SS2097	0	0	1	0
Community and Environment - Literature	SS2098	0	0	1	0
Theory and Methods of the Community Work	SS2099	0	0	1	0
Theory and Methods of the Co-Operaton - Literature	SS2100	0	0	1	0
	SS29				
Basics of Labour Legislation	SS2101	0	0	1	0
Organisations, Networks and Work Community	SS2102	0	0	2	0
Organisations, Networks and Work Community - Literature	SS2103	0	0	1	0
	SS31				
Theory of Project Work	SS2104	0	0	1	0
Theory of Project Work - Literature	SS2105	0	0	1	0
Towards a Community Project	SS2106	0	0	2	0
	SS30				
Cultural Identity	SS2107	0	0	1	0
Cultural Identity - Literature	SS2108	0	0	1	0
Community Art	SS2109	0	0	1	0
Community Art - Literature	SS2110	0	0	1	0
	SS16				
Creative Process - Advanced Studies	SS2111	0	0	0	1
Advanced Special Seminar for Customer Service	SS2118	0	0	0	1
Analysis of Professional Growth	SS2112	0	0	0	1
OPTIONAL STUDIES		0	3	4	3
PRACTICAL TRAINING		5	9	16	0
Customer Service Systems in Health Care and Social Welfare Work, Practical Training: Meeting the Field	SS4027	1	0	0	0
Customer Service Systems in Health Care and Social Welfare Work, Practical Training	SS4028	3	0	0	0
Supervised Work 1	SS4029	1	0	0	0
Customer Service - Practical Training	SS4030	0	6	0	0
Case Study 1	SS4031	0	1	0	0
Supervised Work 2	SS4032	0	1	0	0
Case Study 2	SS4033	0	1	0	0
Project Work 1 - Practical Training	SS4034	0	0	6	0
Community Project / Student Exchange	SS4035	0	0	8	0
Group Client	SS4036	0	0	1	0
Supervised Work 3	SS4037	0	0	1	0
THESIS		0	0	0	10

BASIC STUDIES

SS1025 IT Passport: Basics of Information Retrieval, 1 crs/1,5 ECTS crs

Objectives of the course: The student learns the basics of information technology and how to profit from its possibilities such as the Internet, networks, servers, library facilities and different databanks

Contents of the course: Signing into the web from the Polytechnic, user identifications, e-mail, data control, netiquette. Internet, www-pages of the Polytechnic, virtual student services, other servers, electronic publications, e-mail, personal curriculum, basics of data acquisition

SS1026 IT Passport: Toolkits 1, 1 crs/1,5 ECTS crs

Objectives of the course: The student learns the basics in the Word-processing and learns how to work out documents. The student practises his/her skills in various Word processing exercises

Contents of the course: Word processing programmes

Prerequisites:

SS1027 IT Passport: Toolkits 2, 1 crs/1,5 ECTS crs

Objectives of the course: The student learns to work with spreadsheets and their modifications and with special-purpose graphics and becomes acquainted with image processing

Contents of the course: word processors, power point, image processing, frontpage

Prerequisites:

SS1028 Social and Health Care Service Systems as a Work Environment, 2 crs/3 ECTS crs

Objectives of the course: The student gets acquainted with service systems in the health care and social welfare work and the work in different sectors and how employees with the title "Social Welfare Worker" settle themselves in the field of social welfare work

Contents of the course: see above

Prerequisites:

SS1033 Written and Oral Expression 1, 1 crs/1,5 ECTS crs

Objectives of the course: To understand the writing as a polyform process, basics of scientific writing, and writing as a possible channel for influencing things, improve basic skills in oral expression.

Contents of the course: Writing as a process (own story) building-up of a portfolio, me as a communicator, exercises in oral expression alone and in a group

Prerequisites:

SS1034 Written and Oral Expression 2, 1 crs/1,5 ECTS crs

Objectives of the course: To improve skills in oral and written expression, to learn to evaluate critically the rhetorics of different sources and their reliability, to get the basic skills for contribution using the media.

Contents of the course: Criticality towards sources, rhetorics, the media and how to read it, impressive writing.

Prerequisites:

SS1039 Introduction to Social Pedagogy 1, 1 crs/1,5 ECTS crs

Objectives of the course: The student learns the meaning of social pedagogy and learns its history.

Contents of the course: The term "social pedagogy" and its history.

Prerequisites:

SS1110 Introduction to Social Pedagogy 2, 1 crs/1,5 ECTS crs

Objectives of the course: The student gets an impression of modern social pedagogy and the work in the field of social pedagogy from the socio-pedagogical point of view

Contents of the course: introduction to the basic terms in social pedagogy: emancipation and subjectivity

Prerequisites:

SS1121 English for the Social Field 1, 1 crs/1,5 ECTS crs

Objectives of the course: Learning basic communicative skills for every-day situations in the social welfare work. Basic vocabulary of the social welfare work. Social welfare systems in other countries.

Contents of the course: Dialogues, conversation in smaller groups, written expression, lectures held by foreign guest lecturers, their evaluation and reporting, material on the internet

Prerequisites:

SS1122 English for the social field 2, 1 crs/1,5 ECTS crs

Objectives of the course: To develop oral and written communicative skills, extend the knowledge of social welfare field, to learn to communicate in different situations at work.

Contents of the course: Texts regarding social welfare field, social problems, empowerment, internationalization, vocabulary of conferences and meetings, lectures by foreign lecturers, reporting, job applications

Prerequisites: English for the social field 1

Social Welfare Work

SS1124 Swedish for the Social Field 1, 1 crs/ 1,5 ECTS crs

Objectives of the course: Student gets skills in written and oral Swedish communication in the social welfare field

Contents of the course: basic vocabulary of the social welfare field, training of essential communicative situations in one's own job, reporting from the personal life, oral expression, dialogues and conversation in small groups

Prerequisites:

SS1137 IT-Passport - Adaptation of Tool Programmes, 1 crs/1,5 ECTS crs

Objectives of the course: The student learns to work with programmes especially using the Power Point and Imaging programmes, how to work out www-pages and how to adapt the programmes to work out experiences got during practical trainings

Contents of the course: Power Point Programme, Imaging, Frontpage

Prerequisites:

SS1138 Information and Research in the Field of Social Welfare, 1 crs/1,5 ECTS crs

Objectives of the course: The student learns the basics of the acquisition of information and research in the social welfare work.

Contents of the course: forms of information, philosophy, community linkage of information, its reliability, forms of acquisition of information, interviews as a method to acquire information, reporting, study through research

Prerequisites:

SS1139 Professional Growth as a Subject of Research, 1 crs/1,5 ECTS crs

Objectives of the course: Empirical and narrative research methods

Contents of the course: Making out an analysis based on self-evaluation of the practical training in the customer service exploiting various research methods

Prerequisites:

SS1140 Developing Method Research, 1 crs/ 1,5 ECTS crs

Objectives of the course: The student learns the basics of developing research and working method research

Contents of the course: developing research and working method research

Prerequisites:

SS1141 Research Methods, 3 crs/4,5 ECTS crs

Objectives of the course: The student becomes familiar with various research methods, qualitative and quantitative approach, ways of data collection, data analysis and interpretation and evaluation.

Contents of the course: During the course the student works out a research plan for the thesis. Evaluation of the project effected in the project training.

Prerequisites:

SS1142 Swedish for the Social Welfare 2, 2 crs/ 3 ECTS crs

Objectives of the course: The student deepens his/her written and oral skills and is able to act in the social welfare field in Swedish

Contents of the course: conversation and reporting, oral expressions about various issues, the central vocabulary of the social welfare field, disability, mental health problems, rehabilitation, drug abuse.

Prerequisites: ss1124

SS1143 Written and Oral Expression 3, 1 crs/ 1,5 ECTS crs

Objectives of the course: The student deepens his/her writing skills.

Contents of the course: Exercises in scientific writing, language, grammar.

Prerequisites:

SS1144 Introduction to the Studies and Professional Growth, 1 crs/1,5 ECTS crs

Objectives of the course: The student gets acquainted with the study facilities in at the polytechnic, study regulations, study counselling and the studies in the own degree programme. The student learns the meaning of the term professional growth and learns methods, which illustrate it during the studies, individual study plan.

Contents of the course: Forming a group, study plan and study guide and www-pages of the school. Orientation on the personal study plan procedure.

Prerequisites:

SS1145 The Individual as a Part of the Society, 2 crs/3 ECTS crs

Objectives of the course: The student pieces together, how the lifestyle has changed during the transformation in the social life and understands the significance of it at the social welfare work.

Contents of the course: Structures of the society, individual as a member of the society, transformations within the Finnish society, generations, day-to-day life, socialisation, tales from various ages, years 1900-1990, so-

biological and socio-political aspects.

Prerequisites:

SS1146 From a Poorhouse to the Welfare Society, 1 crs/1,5 ECTS crs

Objectives of the course: The student gets an impression of the structures in the social security and welfare and how the social welfare system has developed in different eras.

Contents of the course: History of social politics, social welfare, from the poorhouse to the social welfare state.

Prerequisites:

SS1147 Social Change Reflected by Culture, 1 crs/1,5 ECTS crs

Objectives of the course: The student gets an impression of the changes in the society from the viewpoint of different parts in the culture and learns to analyse the interchange between society and culture.

Contents of the course: literature, movies, theatre, visual arts, music and poetry.

Prerequisites:

SS1148 Progressive and Dynamic Individual, 3 crs/4,5 ECTS crs

Objectives of the course: The aims of this unit are to research the term education and consider, how people have been raised in different time periods. Groups investigate different material (guides, books, movies and interviews). Research methods and scientific reporting.

Contents of the course: 1. orientation in the group work 2. independent working 3. supervision 4. theory

Prerequisites:

SS1149 Basics in Philosophy and Ethics, 1 crs/1,5 ECTS crs

Objectives of the course: Philosophy as a field of science. The student pieces together the philosophical and ideological lines of the history of social field. The student gets acquainted with the ethical and moral problems in the life of an individual in different periods.

Contents of the course: History of ideologies, ideologies, forms of knowledge, values, right-wrong, truth

Prerequisites:

SS1150 Social Policy, 2 crs/3 ECTS crs

Objectives of the course: The student recognises the changes in the modern society and the frames of the social politics and how they can be influenced. The student regards the social politics as a producer of social welfare work and follows actual debates.

Contents of the course: Different models in the social politics, the administration of the social welfare work, the composed sector of social welfare, seminar with Socio-Political issues. What was said, what remained unsaid, what was forgotten?

Prerequisites: ss1145, ss1146

SS1151 Social Philosophy, 1 crs/1,5 ECTS crs

Objectives of the course: The student pieces together how a “good society” was formed in various eras, learns to know the theory of righteousness, philosophical basics of social welfare state and critical theories.

Contents of the course: Philosophical basics of the social welfare state, theory of righteousness, critical theory (Habermas)

Prerequisites: ss1149

SS1152 Professional Ethics, 1 crs/1,5 ECTS crs

Objectives of the course: The student gets an impression of value- and moral philosophy and the significance of the idea and image of man at the background of social welfare work and its ethical bases.

Contents of the course: ethics, significance of moral in the life of man, image of man, idea of man, ethic principles and bases in the social welfare work.

Prerequisites:

SS1153 Introduction to Creative Expression, 1 crs/1,5 ECTS crs

Objectives of the course: The student gets an overall impression of creative expression and its different methods and means for grouping.

Contents of the course: What does creative expression mean? Different exercises.

Prerequisites:

SS1154 Creative Activities as an Experience 1, 1 crs/1,5 ECTS crs

Objectives of the course: The student learns by experiential methods to understand lifestyle in different periods.

Contents of the course: everyday life, lifestyle, generations, dynamic in the society, perspective of an individual, drama education.

SS1155 Creative Action as an Experience 2, 2 crs/3 ECTS crs

Objectives of the course: The student develops and deepens his or her self-knowledge by means of creative expression.

Contents of the course: Image, movement and music.

Prerequisites:

Social Welfare Work

SS1156 Creative Process, 2 crs/3 ECTS crs

Objectives of the course: The student examines social phenomena using drama education and creative methods - how is it like to live in the world of today?

Contents of the course: social phenomena, methods of creative expression

Prerequisites:

SS1157 Creative Activity as a Form in Socio-Pedagogical Work, 2 crs/3 ECTS crs

Objectives of the course: The student understand and is exposed to how creative expression can be used in the sociopedagogical work.

Contents of the course: Planning and supervision of a creative expression unit to a selected target group. Planning and supervision exercises for the own group.

Prerequisites:

SS1158 Creative Work and Community Art, 1 crs/1,5 ECTS crs

Objectives of the course: The student enlarges and deepens knowledge of the use of creative methods and understands the meaning of community art for the social welfare work.

Contents of the course: see above

Prerequisites:

SS1159 English for the Social Field 3, 1 crs/1,5 ECTS crs

Objectives of the course: The student deepens his/her knowledge of the social welfare field, learns to use sources and literature in foreign language and to write scientifically; the student comprehends the importance of language skills and internationality as an essential part of his/her professionality and is capable of taking over international tasks.

Contents of the course: Deepening into community art and third sector, basics of scientific writing, reporting about practical trainings, negotiations with students from partner institutes, training for internationality

Prerequisites: SS1121, SS1122

SS2080 Professional Growth 2, 1 crs/1,5 ECTS crs

Objectives of the course: The student develops his/her abilities to reflect own self-knowledge and experiences as well as to analyse group processing emphasizing experiences from the practical training in the field of social welfare work. Subsidizing of mutual learning and professional growth.

Contents of the course: writing and analysing a reflective journal and report of the practical training, group dynamics and group processes, following up self know-

ledge from the point of view of the social welfare regarding: Who am I? Where do I go? Am I suitable for this? Am I capable? (SWOT-analysis)

Prerequisites:

PROFESSIONAL STUDIES

SS2006 Special Physical Education, 1 crs/1,5 ECTS crs

Objectives of the course: The student learns the possibilities physical education can offer as a tool in the work with the disabled.

Contents of the course: didactics of the physical education, basics of physical education for special groups.

Prerequisites:

SS2051 Social Legislation, 3 crs/4,5 ECTS crs

Objectives of the course: The student gets a general view of the social legislation and its contents, adaptations and central sources.

Contents of the course: Social legislation, social insurance (especially rehabilitation and child welfare)

Prerequisites:

SS2054 Sign Language, 1 crs/1,5 ECTS crs

Objectives of the course: The student learns to communicate adequately with sign language with people using the sign language and is encouraged to use the sign language.

Contents of the course: basics of sign language.

Prerequisites:

SS2090 Disturbances in the Development and Disability, 2 crs/3 ECTS crs

Objectives of the course: The student learns the basics of developmental and mental disorders. Significance of being handicapped for fending in everyday life. The students is being trained for encountering handicapped persons and understands the social stature of being handicapped.

Contents of the course: Mental disorders, neurologic disabilities, sensory and physical handicaps. Effection: independent acquisition and sharing of information. Pedagogical drama, activities together with handicapped.

Prerequisites:

SS2091 Management of Everyday-Life, 2 crs/3 ECTS crs

Objectives of the course: The student knows how the everyday management of the handicapped can be supported.

Contents of the course: Various forms of rehabilitation, basic treatment, support at home, alternative communication methods, early rehabilitation and special education. Lectures, practical knowledge of different rehabilitation methods and activity- and rehabilitation plans.

Prerequisites:

SS2092 Processes Guiding the Development, 1 crs/1,5 ECTS crs

Objectives of the course: The student understands, which processes guide the development and how they show in the lives of an individual and a family.

Contents of the course: Socialisation, increase of identity, education, early interaction. Independent acquisition of information, discourse seminars.

Prerequisites:

SS2093 Seminar of Customer Service, 1,5 crs/2,25 ECTS crs

Objectives of the course: The student trains social welfare work by means of sociodrama.

Contents of the course: Methods and customs in the field of social welfare work, outlines of situations at work. Seminar will be effected in intensive series of 1-2 days. Socio drama.

Prerequisites:

SS2094 Clientship and Society, 2 crs/3 ECTS crs

Objectives of the course: Understanding for social aspects involved in customership and work with clients, actual debates. Participation in sociopolitical discourses about themes arosed at work with clients.

Contents of the course: Influence, social structures, empowerment. Independent acquisition of information. Expert seminar, work in seminars, evaluation of own actions.

Prerequisites:

SS2095 Group Dynamics and How to Use the Group in Social Welfare Work, 1 crs/1,5 ECTS crs

Objectives of the course: The student understands the meaning and purpose of a group in social welfare work.

Contents of the course: Rules of group dynamic. Basic structure of group activity. Group supervision. Resistance inside the group. Learning and acting within the group. Integrated in the supervision and practical trainingwith the group.

Prerequisites:

SS2096 Social Pedagogy in the Society, 1 crs/1,5 ECTS crs

Objectives of the course: The student completes the knowledge of social pedagogy and its possibilities within the society.

Contents of the course: How to use the group in social pedagogic work, communal social pedagogy.

Prerequisites:

SS2097 Community and Environment, 1 crs/1,5 ECTS crs

Objectives of the course: The student familiarizes herself with community dynamic and linkage to the culture. The student gets the picture from various methods to esteem community and communality.

Contents of the course: Environment and surrounding, social planning,unrestrictedness, living conditions. Civic society. Integrated in the credit creative methods and community art.

Prerequisites:

SS2098 Community and Environment - Literature, 1 crs/1,5 ECTS crs

Objectives of the course: The student follows up her knowledge of community and environment by literature.

Contents of the course: Environment, community planning, unrestrictedness. living circumstances of citizens. Civic society. Independent acquisition of information, literature, essays, literature circle. Literature will be announced later.

Prerequisites:

SS2099 Theory and Methods of the Community Work, 1 crs/1,5 ECTS crs

Objectives of the course: The student understands the meaning of community work and its methods in the dynamic society.

Contents of the course: Public, private and third sector. Networks. Will be integrated in the credit creative methods and community art.

Prerequisites:

SS2100 Theory and Methods of the Co-Operaton - Literature, 1 crs/1,5 ECTS crs

Objectives of the course: The student builds up her/his knowledge of theory and methods of co-operation through literature.

Contents of the course: Public, private and third sector. Networks. Independent acquisition of information, literature, essays, reading circle. The literature will be announced later.

Social Welfare Work

SS2101 Basics of Labour Legislation, 1 crs/ 1,5 ECTS crs

Objectives of the course: The student gets acquainted with characteristics of the employment and job legislation.

Contents of the course: Labour agreement, contract of employment, job legislation, safety regulations, working as superior or manager. Social Welfare worker as a self-employed person

Prerequisites:

SS2102 Organisations, Networks and Work Community, 2 crs/3 ECTS crs

Objectives of the course: The student understands ways of acting and culture in different organisations as well as their community dynamics.

Contents of the course: perfecting a work community, organisation culture, networks. Integrated in the credit group dynamic.

Prerequisites:

SS2103 Organisations, Networks and Work Community - Literature, 1 crs/1,5 ECTS crs

Objectives of the course: The student follows up her knowledge of different working methods and cultures in various organisations and their work community dynamic through literature.

Contents of the course: Developing a work community, organisation cultures, networks, independent acquisition of information, literature, essays, reading circle. The literature will be announced later.

Prerequisites:

SS2104 Theory of Project Work, 1 crs/1,5 ECTS crs

Objectives of the course: The student understands the meaning of project work and the term learning organisation

Contents of the course: learning organisation, basics in project work, researching working attitude, multiprofessional work, networks

Prerequisites:

SS2105 Theory of Project Work - Literature, 1 crs/ 1,5 ECTS crs

Objectives of the course: The student follows up her understanding of project work and learning organisation via literature.

Contents of the course: learning organisation, basics of project work, researching working attitude, multiprofessional work, networks. Independent acquisition of information, literature, essays, reading circle. Literature will be announced later.

Prerequisites:

SS2106 Towards a Community Project, 2 crs/ 3 ECTS crs

Objectives of the course: The student gets familiar with the use of project work and communitive methods in the social welfare work in different working areas.

Contents of the course: civic activities, activities within organisations, community projects, participation and influencing. The credit will be integrated in "creative activities and community art".

Prerequisites:

SS2107 Cultural Identity, 1 crs/1,5 ECTS crs

Objectives of the course: The student is familiar with the term cultural identity and understands with the help of this term how groups and organisations work and what is their place in the society and its meaning in the field of social welfare work.

Contents of the course: Cultural and ethnic identity of individuals and groups. Sociopedagogical work in a multicultural community.

Prerequisites:

SS2108 Cultural Identity - Literature, 1 crs/ 1,5 ECTS crs

Objectives of the course: The student follows up from the literature her knowledge of cultural identity and how groups and communities work and what is their place in the society as well what is their meaning in the social welfare work.

Contents of the course: Cultural and ethnic identity of an individual and a group. Socio-pedagogical work in a multicultural community. Independent acquisition of information, literature, essays, reading circle. The literature will be announced later.

Prerequisites:

SS2109 Community Art, 1 crs/1,5 ECTS crs

Objectives of the course: The student understands the social and cultural significance of community art activities. The special meaning of community art in the social welfare work.

Contents of the course: Art and culture related to the community, democracy of art, sociocultural stimulation, cultural and social significance of community art, publishing, influence. How to arrange a community project (community art as the method).

Prerequisites:

SS2110 Community Art - Literature, 1 crs/ 1,5 ECTS crs

Objectives of the course: The student follows up his/her knowledge of community art, its social and cultural significance and speciality through literature.

Contents of the course: socio-cultural encouragement, cultural and social significance of community art. Independent acquisition of information, literature, essay, reading circle. Literature will be announced later.

Prerequisites:

SS2111 Creative Process - Advanced Studies, 1 crs/1,5 ECTS crs

Objectives of the course: The student follows up her skills and knowledge about the use of creative methods and art.

Contents of the course: The students produce a drama initiated from their own feelings and desire to express. This will be performed. The students reflect the performance in small groups. The process consists of direction, group meetings, performance, feedback and evaluation.

Prerequisites:

SS2112 Analysis of Professional Growth, 1 crs/1,5 ECTS crs

Objectives of the course: The student analyses the process of own professional growth.

Contents of the course: Analysis of the professional growth involving the entire study period based on the reflection diary and a portfolio.

Prerequisites:

SS2113 First Aid 1, 1 crs/1,5 ECTS crs

Objectives of the course: basic course of first aid

Contents of the course:

Prerequisites:

SS2114 Professional Growth 3, 1 crs/1,5 ECTS crs

Objectives of the course: The student puzzles over her place in the own group and in relation to different groups. The student becomes aware of her own values and attitudes, learns how to face dissimilarity and how to handle feelings this invokes. The student sees herself as a novice and puzzles about the relation between work with clients and herself.

Contents of the course: Participation in a group for professional growth, individual supervision, reflective diary.

Prerequisites:

SS2115 Basics in Professional Customer Service, 2 crs/3 ECTS crs

Objectives of the course: Participation in the group for professional growth, individual supervision, reflective diary.

Contents of the course: Professional interchange, dia-

logue, mapping of the customer's condition. Lectures, exercises and methods of creative expression.

Prerequisites:

SS2116 Guidance of Alteration Process, 3 crs/4,5 ECTS crs

Objectives of the course: To figure out theoretical aspects of process for change involved in the work with clients and their meaning in professional customer work.

Contents of the course: Subjecting and emancipating processes, building up a supervision process, different methods of supervision, service plan as a tool. Lectures, independent acquisition of information, experiential practical training (pedagogic drama).

Prerequisites:

SS2117 Disturbances and Support in Developmental Processes, 2,5 crs/3,75 ECTS crs

Objectives of the course: The student understands disorders as a social problem and learns to face dissimilarity and to support families and individuals.

Contents of the course: Problems with mental health and drug abuse, with growth and development, support for early interaction and challenging education in different stages of life. Practical training, independent acquisition of information, discourse. Seminar for critical information.

SS2118 Advanced Special Seminar for Customer Service, 1 crs/1,5 ECTS crs

Objectives of the course: The student evaluates what he/she has learned so far and deepens the understanding for the interaction between the client and the social welfare worker and for the client work process.

Contents of the course: Clientship, client work process. Me as a social welfare worker. The status of the client. Intensive seminar. Reflection of the own activities.

Prerequisites:

PRACTICAL TRAINING

SS4027 Customer Service Systems in Health Care and Social Welfare Work, Practical Training: Meeting the Field, 1 crs/1,5 ECTS crs

Objectives of the course: The student becomes familiar with service systems in the field of social welfare work and the work done in them. She gets acquainted with one unit in the field of health care and social welfare work and works out the targets for the practical training.

Social Welfare Work

Contents of the course: Literature, observation of the everyday life in the practice job and of the co-workers, interviews, the central issues of today's social welfare working field.

Prerequisites:

SS4028 Customer Service Systems in Health Care and Social Welfare Work, Practical Training, 3 crs/4,5 ECTS crs

Objectives of the course: The student becomes familiar with service systems in the field of health care and social welfare work and the job done in them: she evaluates the structure of the practice job, networks and situation in the service system. The student investigates the targets of the practice job, ethical principles and various job descriptions as well as possibilities to have influence.

Contents of the course: work in the field, supervision, experiences during the practical training, self-evaluation.

Prerequisites:

SS4029 Supervised Work 1, 1 crs/1,5 ECTS crs

Objectives of the course: The student will be prepared for the practical training on an individual client, begins with the work on smaller groups and learns the basics of supervision theory and its purpose. Additionally the student maps autonomously the individual client from the working life and meets him/her weekly during the next semester.

Contents of the course: Lectures, work in small groups, 2 meetings, literature and exercise. The student will receive an information sheet regarding individual client training.

Prerequisites:

SS4030 Customer Service - Practical Training, 6 crs/9 ECTS crs

Objectives of the course: The student becomes familiar with the customer service done in the field of social welfare work and understands the targets set to the work and methods used and their meaning.

Contents of the course: socio-pedagogical work in the field of social welfare work. The status of the client. Working methods. Professional interaction. Process supervision. Training and supervision, experience of work with clients, encounter of theory and practice. Reporting, self-evaluation. The practical training is integrated in the credits basic studies of professional work with clients, supervision of process for change, customer-ship and society as well as professional growth as a target for research. The student becomes acquainted with

her practice job for a week before the practical training will begin.

Prerequisites:

SS4031 Case Study 1, 1 crs/1,5 ECTS crs

Objectives of the course: The student reviews the targets set for the working relation with an individual customer, builds up a strategy including how to finish the customership.

Contents of the course: How to finish with the customership, evaluation.

Prerequisites:

SS4032 Supervised Work 2, 1 crs/1,5 ECTS crs

Objectives of the course: The student gets the impression of the meaning of the supervision as a process supporting the customer service.

Contents of the course: Work in small groups will be continued. The student writes a reflective diary about the process with her individual customer. The supervision is integrated in the credit work with an individual customer. All the opinions, feelings and phenomena

Prerequisites:

SS4033 Case Study 2, 1 crs/1,5 ECTS crs

Objectives of the course: The student gets an impression of building-up a professional connection to a customer and how to maintain it.

Contents of the course: The student begins a customer connection for an year, maps the targets for the job and works out a business plan. 30 meetings with the customer.

Prerequisites:

SS4034 Project Work 1 - Practical Training, 6 crs/9 ECTS crs

Objectives of the course: The student becomes familiar with the work in a working community and the situation of the community within the organisation. The student sees him/herself as a part of the working community and uses research methods to develop the job.

Contents of the course:

Prerequisites:

SS4035 Community Project / Student Exchange, 8 crs/12 ECTS crs

Objectives of the course: The student plans, realizes and evaluates a community project in a real operational environment together with other actors. She/he applies theories and methods of scientific work, community art and project work. The practical training takes place either in Finland or abroad.

Contents of the course: See above.

Prerequisites:

SS4036 Group Client, 1 crs/1,5 ECTS crs

Objectives of the course: The student learns how to build up a professional customer connection and how to maintain it.

Contents of the course: The student starts alone or pairwise in a one-year-process with a small customer group, setting the targets for the process and issuing a project plan as well as supervising the group activities. Report. 30 meetings with the group.

Prerequisites:

SS4037 Supervised Work 3, 1 crs/1,5 ECTS crs

Objectives of the course: The student learns of the importance of supervision as a supporting process in the customer work.

Contents of the course: Work with small customer groups will continue. The student writes a report of the own process with the group and a reflection of the supervision. The Supervision is integrated in the practical training with the group. The thoughts, feelings and phenomena in the work with the group are ventilated during the supervision.

Prerequisites:

DEGREE PROGRAMME IN MECHANICAL AND PRODUCTION ENGINEERING

General description and aims of the degree

The aim of the study programmes is to provide the necessary base for a position of responsibility in the appropriate sector of industry or management in technical planning, production, or trade and commerce, in domestic or international markets; and also to prepare students for setting up in business, continuously developing their own skills, and possibly going on to further education.

Basic studies

These provide the basis for understanding the application of engineering sciences and the professional studies. The basic studies (physics, chemistry, basics in computer technology, communications, Swedish, and a minimum of one other foreign language) 40 credits (60 ECTS credits) are the same for all students, except for production engineering students 35 credits (52,5 ECTS credits).

Professional studies

These provide the essential training for engineering work and a basis for the actual professional studies, 40 credits (60 ECTS credits), except production engineering 35 credits (52,5 ECTS credits). Within a branch of engineering, course specific studies are the same for everyone. The special professional studies for chosen expertise branch are 40 credits (60 ECTS credits), except production engineering 30 credits (45 ECTS credits). The student can choose professional studies from his own course programme. Options in combining allow for specialised or broad-based course models.

Optional courses 10 credits (15 ECTS credits)

These can be chosen from courses available in any polytechnic level educational institution.

Practical training can accrue before joining the courses or in periods between teaching terms. It familiarises the student with his future working environment, and develops the skills needed in the engineering profession. Apart from practical training in summer time, the second half of the spring term, from March onwards, in the third year of study is reserved for practical training and project work. Practical training of 20 (40 in production engineering) credits (30 or 60 ECTS credits) is required for the degree course, 1 weeks' work furnishing

one credit (1,5 ECTS credits). In special cases practical training in engineering acquired before joining the polytechnic is accredited on an individual basis, based on a written account of the work, up to a maximum of half the required amount of credits. Practical training in other countries is highly recommended since it also helps improve foreign language skills and understand cultural differences. International experience and language abilities is becoming increasingly important in engineering. Practical training abroad and a written account of it in the foreign language also accumulate an extra credit.

Mechanical engineering courses are based on the following areas: automation, mechanics planning, production engineering. The course programme's structure allows a wide choice within the professional subjects modules. Within the different same level modules some of the compulsory courses are the same, exempting students from repeating the same studies, and allowing other options to be taken in their place.

Automation engineers are trained for work in automated piece-work industry, and in production control systems. Broad-based skills are required in combining electronic, computer, and mechanical technology. Studies include the following courses: mecatronics, control systems and instrumentation, electrical measurements, engineering design, CAD, automation, control systems, applied systems, environmental technology, business economics, etc.

Mechanics planning engineer is specialized to design components, machines and systems especially for metal and electronic industry. For development tasks and projects an engineer needs special skills with modern computer aided design and calculation programmes and also special knowledge about materials, quality management as well as marketing and business economics.

A **production engineer** is responsible for industrial production and its technological development. For managerial positions an understanding of the complexity of the interactions in working life is required, as well as knowledge of manufacturing technology. Course matter includes CAD, CAM, production technology, quality engineering, control engineering, management, personnel management, logistics, and industrial investment planning.

Mechanical and Production Engineering

BASIC STUDIES	Code	1. year	2. year	3. year	4. year
	1				
Introduction to Engineering English	WK1711K	2	0	0	0
Communication and Customer Service	WK1712K	2	0	0	0
Engineering Communication	WK1713K	0	2	0	0
Business Communication Face-to-face	WK1714K	0	0	0	2
Physics I	WK1944	2	0	0	0
Physics II	WK1945	2	0	0	0
Physics III	WK1946	0	2	0	0
Physics IV	WK1947	0	2	0	0
Introduction to Polytechnical Studies	WK1705	1	0	0	0
Chemistry	WK1706	0	3	0	0
Mathematics I	WK1210	2	0	0	0
Mathematics II	WK1211	2	0	0	0
Mathematics III	WK1212	0	2	0	0
Mathematics IV	WK1213	0	2	0	0
Mathematics V	WK1214	0	0	0	2
Information Technology	WK1710	3	0	0	0
Working Life Swedish	WP1709	0	0	3	0
Communication I	WK1932	2	0	0	0
Communication II	WK1933	0	0	2	0
PROFESSIONAL STUDIES					
Degree Programme-specific Studies	W21				
Dynamics	WK2705	0	3	0	0
Hydraulics and Pneumatics	WK2709	0	3	0	0
Management and Personnel Administration	WK2711	0	0	0	2
Mechanics of Machines	WK2916A	0	2	0	0
Mechanics of Machines	WK2916B	0	0	3	0
Strength of Materials	WK2250A	2	0	0	0
Strength of Materials	WK2250B	0	2	0	0
Material Science	WK2723	0	4	0	0
Statics	WK2741	4	0	0	0
Electrical Engineering	WK2742	0	0	2	0
Technical Drawing	WK2944	3	0	0	0
Computer Aided Design	WK2746	2	0	0	0
Manufacturing Technology	WK2752	4	0	0	0
Business Economy	WK2753	0	4	0	0
STUDIES OF THE ORIENTATION OPTION		0	6	16	18
Compulsory Studies in Machine Automation					
Sensor Technology	WK2702	0	0	2	0
Open Control Systems	WK2402	0	0	0	2
Computer Aided Manufacturing	WK2812	0	0	0	3
Electronics	WK2706	0	2	0	0
Hydraulic Systems	WK2710	0	0	3	0
Special Tasks in Machine Automation	WK2254	0	0	0	3
Megatronics	WK2255	0	0	0	2
Control Technology I	WK2735	0	0	2	0
Control Technology II	WK2736	0	0	2	0
Programming Technology	WK2737	0	0	2	0
Servo Systems	WK2256	0	0	0	2
Simulation of Production	WK2253	0	0	0	2
Product Development I	WK2950	0	3	0	0

Mechanical and Production Engineering

Optional Studies in Machine Automation

3D Modelling I (Pro/Engineer)	WK2251	0	4	0	0
CAE/FEM (Computer Aided Engineering/ Finite Element Method)	WK2908	0	0	0	4
CAE/Simulation	WK2917	0	0	0	3
Machine and Energy Technology	WK2713	0	0	3	0
Quality Technology	WK2719	0	0	0	3
Logistics	WK2721	0	0	0	2
Strength of Materials II	WK2211	0	0	0	2
Measuring Technology	WM2726	0	0	0	2
Project Planning and Management	WP3706	0	0	2	0
Project Work	WK2797	0	0	1	0
Production Management	WK2747	0	0	0	2
Stafety technology 2 FINCR	WK2918	0	0	2	0

Compulsory Studies in Mechanical Design

3D Modelling I (Pro/Engineer)	WK2251	0	4	0	0
CAE/FEM (Computer Aided Engineering/ Finite Element Method)	WK2908	0	0	0	4
CAE/Simulation	WK2917	0	0	0	3
Machine Automation	WK2714	0	0	3	0
Strength of Materials II	WK2211	0	0	0	2
Mechanical Design/Special Task	WK2952	0	0	0	2
	HMXXXX	0	0	6	0
Product Development I	WK2950	0	3	0	0
Product Development II	WK2751	0	0	3	0

Optional Studies in Mechanical Design

3D-Sheetmetal (Pro/ENGINEER)	WK2257	0	2	0	0
CAD/CAM (Computer Aided Design/ Computer Aided Manufacturing)	WK2704	0	0	0	2
Welding Technology	WK2708	0	0	0	2
Hydraulic Systems	WK2710	0	0	3	0
Machine and Energy Technology	WK2713	0	0	3	0
Quality Technology	WK2719	0	0	0	3
Machining	WK2720	0	0	3	0
Logistics	WK2721	0	0	2	0
Measuring Technology	WM2726	0	0	0	2
Programming Technology	WK2737	0	0	2	0
Project Planning and Management	HP2620	0	0	2	0
Product Data Management	WK2344	0	0	0	2
Stafety technology 2 FINCR	WK2918	0	0	2	0
Plastics Engineering	WK2252	0	0	0	2
German I	WP1942	2	0	0	0
German II	WP1944	2	0	0	0
German III	WP1946	0	2	0	0
OPTIONAL STUDIES		0	0	5	5
PRACTICAL TRAINING		0	0	20	0
THESIS		0	0	0	10

Production engineering

BASIC STUDIES

	Code	1. year	2. year	3. year	4. year
Introduction to Engineering English	WK1711K	2	0	0	0
Communication and Customer Service	WK1712K	2	0	0	0
Engineering Communication	WK1713K	0	2	0	0
Business Communication Face-to-face	WK1714K	0	0	0	2
Physics I	WK1944	2	0	0	0
Physics II	WK1945	2	0	0	0
Physics III	WK1946	0	2	0	0
Introduction to Polytechnical Studies	WK1705	1	0	0	0
Chemistry	WK1905	0	2	0	0
Mathematics I	WK1210	2	0	0	0
Mathematics II	WK1211	2	0	0	0
Mathematics III	WK1212	0	2	0	0
Mathematics IV	WK1213	0	2	0	0
Information Technology	WK1710	3	0	0	0
Working Life Swedish	WP1709	0	0	3	0
Communication I	WK1932	2	0	0	0
Communication II	WK1933	0	0	2	0

PROFESSIONAL STUDIES

Degree Programme-specific Studies

Hydraulics and Pneumatics	WK2709	0	3	0	0
Management and Personnel Administration	WK2711	0	0	0	2
Machine Components	WK2817A	0	1	0	0
Machine Components	WK2817B	0	0	3	0
Strenght of Materials	WK2250A	2	0	0	0
Strenght of Materials	WK2250B	0	2	0	0
Material Science	WK2723	0	4	0	0
Statics	WK2941	3	0	0	0
Electrical Engineering	WK2742	0	0	2	0
Technical Drawing	WK2944	3	0	0	0
Computer Aided Design	WK2746	2	0	0	0
Manufacturing Technology	WK2752	4	0	0	0
Business Economy	WK2753	0	4	0	0

STUDIES OF THE ORIENTATION OPTION

Compulsory Studies in Production Engineering

Sensor Technology	WK2702	0	0	2	0
CAD/CAM (Computer Aided Design/Computer Aided Manufacturing)	WK2704	0	0	0	2
Computer Aided Manufacturing	WK2812	0	0	0	3
Quality Technology	WK2719	0	0	0	3
Machining	WK2720	0	0	3	0
Logistics	WK2721	0	0	2	0
NC Technology	WK2341	0	0	0	2
Control Technology I	WK2735	0	0	2	0
Basics of Robotics	WK2404	0	0	2	0
Production Management	WK2747	0	0	0	2
Basic of Product Development	WK2406	0	0	0	2
Elective studies		0	4	6	0
Welding Technology	WK2708	0	0	0	2

Mechanical and Production Engineering

Machine and Energy Technology	WK2713	0	0	3	0
Maintenance	WK2126	0	0	2	0
Measuring Technology	WM2726	0	0	0	2
Control Technology II	WK2736	0	0	2	0
Project Planning and Management	WP3706	0	0	2	0
Simulation of Production	WK2253	0	0	0	2
Stafety technology 2 FINCR	WK2918	0	0	2	0
OPTIONAL STUDIES		0	0	5	5
PRACTICAL TRAINING		0	20	20	0
THESIS		0	0	0	10

BASIC STUDIES

WK1210 Mathematics I, 2 crs/3 ECTS crs

Objectives of the course: This course covers the basic elements of supplementary algebra. The course provides students with understanding of the concepts, principles and mathematical methods of engineering mathematics.

Contents of the course: Polynomials, real functions. Basic calculations of geometry and trigonometry.

Prerequisites:

WK1211 Mathematics II, 2 crs/3 ECTS crs

Objectives of the course: The basics of vector calculation. The basics of analytic geometry.

Contents of the course: The equation of a line, circle, parabola, ellipse and hyperbola in standard and parametric form. Geometric spaces and transformations.

Prerequisites:

WK1212 Mathematics III, 2 crs/3 ECTS crs

Objectives of the course: As a result of learning this course students should be able to define instantaneous rates of change and total change of a function.

Contents of the course: Basics in differential and integral calculus. Rates of change and differentiations. Stationary points, maximum and minimum value. Indefinite and definite integrations. Applications to areas and volumes.

Prerequisites:

WK1213 Mathematics IV, 2 crs/3 ECTS crs

Objectives of the course: Basics of the classical logic and binary algebra.

Contents of the course: Operations of the different number systems and Boolean algebra. Combination circuits.

Prerequisites:

WK1214 Mathematics V, 2 crs/3 ECTS crs

Objectives of the course: This course provides students with an understanding of statistical principles and their use. Students learn how to collect data, examine data for patterns and relationships, and analyze data.

Contents of the course: Probability, probability distributions, processing of samples, testing hypotheses.

Prerequisites:

WK1705 Introduction to Polytechnical Studies, 1 crs/1,5 ECTS crs

Objectives of the course: General introduction to stu-

dy in a polytechnic, and how to use the institute's resources effectively in one's studies.

Contents of the course: Institute's teaching facilities and administration. The engineering profession and its demands. Facilities for study and study plan. Benefits of computer technology, and data retrieval.

Prerequisites:

WK1706 Chemistry, 3 crs/4,5 ECTS crs

Objectives of the course: Learning and understanding basic chemistry.

Contents of the course: Matter, chemical reactions, mole, gases, concentration, chemical equilibrium, acids and bases, pH, electrochemistry, basic organic chemistry.

Prerequisites:

WK1710 Information Technology, 3 crs/4,5 ECTS crs

Objectives of the course: Student is able to use computer and its common devices and operating systems with normal programs. Student will handle most common failures and change settings of operating system.

Contents of the course: Operating system and common office programs (word processing, spreadsheet, database), device drivers, printing, internet (explorers, information seek, email)

Prerequisites: none

WK1711K Introduction to Engineering English, 2 crs/3 ECTS crs

Objectives of the course: The students will be introduced to engineering English. They will review some grammar and learn professional terminology. The students learn to understand the job application process and to write application documents. The aim is also to practise using language learning aids.

Contents of the course: Social contacts, small talk, telling about yourself and of Finland, study terminology, nationalities, travelling, talking about work, job application and CV. Telephone terminology and professional engineering terminology.

Prerequisites: Matriculation or vocational examination.

WK1712K Communication and Customer Service, 2 crs/3 ECTS crs

Objectives of the course: The course concentrates on more difficult technical English texts and different forms of discourse. The aim is to learn to write basic documents in business correspondence (letters and email), as well as improve telephone language. The cour-

Mechanical and Production Engineering

se improves oral presentation skills.

Contents of the course: Themes are: effective communication through different media, Finnish industry and companies, business correspondence, email, telephone, product and company presentations some field-specific terminology.

Prerequisites: WK1711k

WK1713K Engineering Communication, 2 crs/ 3 ECTS crs

Objectives of the course: Students learn to communicate in professional spoken and written situations. They learn to use language learning aids as well as reading strategies with professional texts. The aim is also to focus on professional and academic writing, process descriptions and trade fair situations.

Contents of the course: Reading and writing technical and academic texts, reporting, process description, spoken presentations and trade fairs. self assessment. Grammar review if needed.

Prerequisites: WK1712k

WK1714K Business Communication Face-to-face, 2 crs/3 ECTS crs

Objectives of the course: Students improve their spoken language skills and practise more challenging professional language situations. The course concentrates on meetings and negotiations.

Contents of the course: Talking about work, practising meetings and negotiations and the related terminology. Speaking practise.

Prerequisites: WK1713k

WK1932 Communication I, 2 crs/3 ECTS crs

Objectives of the course: A student can write documents needed in the studying and working life. He/she knows the principles of communication and can make and perform speeches for different situations.

Contents of the course: Technical and scientific documents, speeches.

Prerequisites: Vocational school or high school

WK1933 Communication II, 2 crs/3 ECTS crs

Objectives of the course: A student knows how to make the documents needed in the studying and working life. A student knows the principles of team working, conferences and meetings and he/she can prepare speeches for different situations. A student knows the meaning of communication in organizations.

Contents of the course: Documents, reports, the know-how of meetings, conferences and speeches.

Prerequisites: Communication I

WK1944 Physics I, 2 crs/3 ECTS crs

Objectives of the course: Main objective is to learn those basic methods and principles of science which are applied in engineering. Both qualitative and quantitative thinking skills are emphasised. In addition to the theoretical studies, the course also includes laboratory work related to the topics.

Contents of the course: Contents include basic mechanics (kinematics and dynamics of particle).

Prerequisites:

WK1945 Physics II, 2 crs/3 ECTS crs

Objectives of the course: Main objective is to learn those basic methods and principles of science which are applied in engineering. Both qualitative and quantitative thinking skills are emphasised. In addition to the theoretical studies, the course also includes laboratory work related to the topics

Contents of the course: Contents include mechanics of simple rotational motion, mechanics of liquids and gases and basic thermodynamics.

Prerequisites: WK1944 Physics I

WK1946 Physics III, 2 crs/3 ECTS crs

Objectives of the course: Main objective is to learn those basic methods and principles of science which are applied in engineering. Both theoretical and experimental methods are included. Both qualitative and quantitative thinking skills are emphasised.

Contents of the course: Theory of vibrations and waves and theory of sound

Prerequisites:

WK1947 Physics IV, 2 crs/3 ECTS crs

Objectives of the course: Main objective is to learn those basic methods and principles of science which are applied in engineering. Both theoretical and experimental methods are included. Both qualitative and quantitative thinking skills are emphasised.

Contents of the course: Contents include basic geometrical and physical optics, photometry. Physics of radiation. Basic electro-magnetism: electrostatics, direct current circuits, basic magnetism.

Prerequisites:

WP1709 Working Life Swedish, 3 crs/4,5 ECTS crs

Objectives of the course: The student can use Swedish in oral and written working life situations, he understands professional literature, magazines and internet pages in Swedish.

Contents of the course: Engineering studies in Finland and Sweden, job application and interview for a

job, engineer as a host and a guest, company presentation, process/product description, using telephone and email, trade fairs, meetings, professional texts, cultural differences in working life

Prerequisites: matriculation or vocational examination

PROFESSIONAL STUDIES

WK2250A Strength of Materials, 2 crs/3 ECTS crs

Objectives of the course: To understand strength of materials as a part of product development.

Contents of the course: Axial state of tension, pulling and compression, cutting, surface quantities and bending.

Prerequisites: WK2741

WK2250B Strength of Materials, 2 crs/3 ECTS crs

Objectives of the course: To understand strength of materials as a part of product development.

Contents of the course: Buckling and twisting. Exercises.

Prerequisites: WK2741, WK2250A

WK2705 Dynamics, 3 crs/4,5 ECTS crs

Objectives of the course: Main objective is to learn those basic methods and principles of kinematics and kinetics are applied in mechanical engineering.

Contents of the course: Kinematics and kinetics of a rigid body: translation, rotation, general plane motion analysis.

Prerequisites: WK1920, WK1921

WK2709 Hydraulics and Pneumatics, 3 crs/4,5 ECTS crs

Objectives of the course: Basics of hydraulics and pneumatic systems, building up air pressure, pneumatic and hydraulic components, technical drawing symbols, design of pneumatic system and choice of components, design of hydraulic system and choice of components

Contents of the course:

Prerequisites:

WK2711 Management and Personnel Administration, 2 crs/3 ECTS crs

Objectives of the course: Basics in management and leadership, managing and training personnel

Contents of the course: Management and leadership, managing and training personnel. The way an organisation operates. Management and communications. Personnel policy. Direction and training. Inducements

Prerequisites: WK2753

WK2723 Material Science, 4 crs/6 ECTS crs

Objectives of the course: Basics of the metal technology and chemical structure of metallic materials. Thermal treatment of the metals and essential properties of the metallic materials. Students are able to compare the properties of the materials and select the materials.

Contents of the course: Following topics will be covered during the course. Metals, the structure of the metals, equilibrium drawings, thermal treatments, steels, cast irons. Basics of the plastic materials, the structure of the polymers, plastics, processing methods.

Prerequisites: Not Required

WK2741 Statics, 4 crs/6 ECTS crs

Objectives of the course:

Contents of the course: General principles, force vectors, equilibrium of a particle and rigid body, structural analysis, friction

Prerequisites:

WK2742 Electrical Engineering, 2 crs/3 ECTS crs

Objectives of the course: Basics in electrical engineering for planning machine automation systems.

Contents of the course: Electronic circuits, 3-phase systems, mechanics for electricity consumers, types of electric motors, short circuit motors, servo and repeater motors, electrical circuit plans (drawing symbols, mains and auxiliary circuits, various ways of representing circuits). Components and applications in intensive electronics. Frequency transformers, measurement of motors. Automation equipment and methods of control. Basic concepts in automation. Digital circuits. Basic structure and operation of computers. Process connectors. Basics in control.

Prerequisites:

WK2746 Computer Aided Design, 2 crs/3 ECTS crs

Objectives of the course: Students can draw by AutoCAD and CADMill Mechanic plastic and mechanical engineering workshop and assembly 2D drawings.

Contents of the course: -basics of CAD -AutoCAD and CADMill Mechanic programs -starting procedures -co-ordinates, geometry and text -modification -dimensions -plotting -standard parts and drawing symbols -assemblies

Prerequisites:

WK2752 Manufacturing Technology, 4 crs/6 ECTS crs

Objectives of the course: Testing matter, manufacturing techniques and systems in the metal and plastics industries.

Mechanical and Production Engineering

Contents of the course: Testing, metal processing, casting, metal machining, pressing, sheet metal processing, welding, special manufacturing methods, production systems

Prerequisites:

WK2753 Business Economy, 4 crs/6 ECTS crs

Objectives of the course: Introduction to student to operations in industry and its closely related bodies; to important regulations and statutes; to entrepreneurship and basic information to start own business.

Contents of the course: Basics in industrial economics. Planning and decision making. Calculations and their significance. Markets. Production. Labour legislation and labour relations. Risk management. Investments and financing.

Prerequisites:

WK2916A Mechanics of Machines, 2 crs/3 ECTS crs

Objectives of the course: Become more familiar with the range and function of common machine elements for general applications.

Contents of the course: Introduction to different joints and lubrication.

Prerequisites: WK2722

WK2916B Mechanics of Machines, 3 crs/4,5 ECTS crs

Objectives of the course: Become more familiar with the range and function of common machine elements for general applications.

Contents of the course: Introduction to the analysis and design of mechanical components such as shafts, bearings, gears, drive belts, brakes and clutches.

Prerequisites: WK2722, WK2916A

WK2944 Technical Drawing, 3 crs/4,5 ECTS crs

Objectives of the course: Drawing and measuring of parts according to mechanical engineering standards, taking of manufacturing technology in design, tolerances, surface symbols, diagrammatic drawings, basics of axonometry.

Contents of the course:

Prerequisites: no

HMXXXX , 6 crs/9 ECTS crs

Objectives of the course:

Contents of the course:

Prerequisites:

HP2620 Project Planning and Management, 2 crs/3 ECTS crs

Objectives of the course: Industrial project planning and management

Contents of the course: Project planning, segment planning, infrastructure systems, scheduling operations, segmenting the project, need of and burden placed on resources, cost planning, project budget, cost control, project management and supervision Note that most of the course is based on a case project with the main phases of project planning and management, carried out as practical work on a project management programme on a PC.

Prerequisites:

WK2211 Strength of Materials II, 2 crs/3 ECTS crs

Objectives of the course: This course is for supporting CAE/FEM course and is integrated to it

Contents of the course: State of tension, hyperstatic loads, fracture hypothesis

Prerequisites: WK722

WK2251 3D Modelling I (Pro/Engineer), 4 crs/6 ECTS crs

Objectives of the course: After course a student can use Pro/engineer cad program. He can create solid models, assemblies and drawings

Contents of the course: Using Pro/E 2001, basics in Pro/E solid modelling engineering features extrude and revolve protrusion assembly visualisation drawings o views o dimensions o surface finish symbols o tolerance o welding symbols o assembly drawings

Prerequisites: WK2008

WK2252 Plastics Engineering, 2 crs/3 ECTS crs

Objectives of the course: To familiarise the student with methods of manufacturing plastic products, and testing of plastic products and materials.

Contents of the course: Plastic materials, injection moulding, product and mould design, tests

Prerequisites:

WK2253 Simulation of Production, 2 crs/3 ECTS crs

Objectives of the course: A student can design production cells by using 3-D simulation model programmes

Contents of the course: 3D create-programme, practical design works

Prerequisites: WK2746

WK2254 Special Tasks in Machine Automation, 3 crs/4,5 ECTS crs

Objectives of the course:

Contents of the course: Practical work in electropneumatic system design and connecting together; logic control design and testing with micro computer programmes; application of micro computers in control equipment, with practice in programming and connecting system together.

Prerequisites:

WK2255 Megatronics, 2 crs/3 ECTS crs

Objectives of the course: Supplement to students other study programmes in the following areas: electrohydraulics, pneumatics and hydraulics, intelligent systems, proportional technology, servo technology, robot senses, peripheral equipment and its applications, logic and computer connections, MAP, CIM, and megatronic product design.

Contents of the course: Basics in megatronic product design, SA/SD, Prosa, real-time systems

Prerequisites: WK2735, WK2736

WK2256 Servo Systems, 2 crs/3 ECTS crs

Objectives of the course: Basics in servo-control, design and documentation

Contents of the course:

Prerequisites: WK2735, WK2736

WK2257 3D-Sheetmetal (Pro/ENGINEER), 2 crs/3 ECTS crs

Objectives of the course:

Contents of the course:

Prerequisites:

WK2344 Product Data Management, 2 crs/3 ECTS crs

Objectives of the course: Basics in PDM, especially applying to SME

Contents of the course: PDM in product delivery process

Prerequisites:

WK2402 Open Control Systems, 2 crs/3 ECTS crs

Objectives of the course: A student knows basic principles of open control systems, can design by PC using SoftPLC and Ethernet.

Contents of the course: Programming by TwinCat

Prerequisites:

WK2702 Sensor Technology, 2 crs/3 ECTS crs

Objectives of the course: Basics of sensor technology, design principles

Contents of the course: Basic concepts of using sensing equipment, basis for choice of sensors, proximity switches, pressure and temperature switches, identification systems (data acquisition system, bar codes, escort memory), machine vision, AD/DA converters, measuring position, measuring angle of movement and rotation, speed measurement, measuring force with strain gauges, connecting sensors to control equipment

Prerequisites: WK2746, WK2720

WK2704 CAD/CAM (Computer Aided Design/Computer Aided Manufacturing), 2 crs/3 ECTS crs

Objectives of the course: After course student can create and post process nc-programs with 3D cam-system (Pro/Engineer)

Contents of the course: - rough milling - drilling - profile milling - surface milling – documentation

Prerequisites: WK2720 WK2341

WK2706 Electronics, 2 crs/3 ECTS crs

Objectives of the course: Student knows the components of a microcomputer system, he/she can install and configure a processor-based system in card-level, he/she is able to implement inputs and outputs of an industrial computer.

Contents of the course: Structure and function of a microprocessor-based automation system. Process I/O: connecting sensors and actuators to computer. Serial and parallel buses. Automation networks.

Prerequisites: WK2742 Electrical Engineering

WK2708 Welding Technology, 2 crs/3 ECTS crs

Objectives of the course:

Contents of the course:

Prerequisites:

WK2710 Hydraulic Systems, 3 crs/4,5 ECTS crs

Objectives of the course: To increase student's basic knowledge of hydraulics, hydrostatic transmission, electrohydraulic systems, proportional technology, cart-ridge technology, system-design

Contents of the course:

Prerequisites:

WK2713 Machine and Energy Technology, 3 crs/4,5 ECTS crs

Objectives of the course: Principles of machine and powerplant operation in theory and praxis.

Contents of the course: Machine performance, effi-

Mechanical and Production Engineering

ciency and usability.

Prerequisites: WK1701-5 and WK1706

WK2714 Machine Automation, 3 crs/4,5 ECTS crs

Objectives of the course: Basics in machine automation

Contents of the course: Piecework equipment; organising flow of production, automation points, conveyor systems, adjustable equipment, industrial robots. Measurement technology: double measurement, connecting measuring equipment to control equipment, bar codes, procession memory, measurement of transfer and rotation angle

Prerequisites:

WK2719 Quality Technology, 3 crs/4,5 ECTS crs

Objectives of the course: Basic concepts of quality, methods of quality control, quality systems, basic ISO 9000, quality costs, methods of quality checking, quality planning, chains of operation, quality measurement, performance analysis, basic statistical methods, statistical process management, quality improvement, quality development scheme, checking quality results, organising quality operations, computer quality control

Contents of the course:

Prerequisites:

WK2720 Machining, 3 crs/4,5 ECTS crs

Objectives of the course: Basic concepts in machining, its development and costs

Contents of the course: Lathing, drilling, grinding, milling, high speed machining

Prerequisites: WK2752

WK2721 Logistics, 2 crs/3 ECTS crs

Objectives of the course: Basics in logistics

Contents of the course: Management of transport and storage systems, business economics, personnel management; structure, operation, and utilisation of transport equipment and systems; logistics of transport, business logistics.

Prerequisites: WK2753

WK2735 Control Technology I, 2 crs/3 ECTS crs

Objectives of the course:

Contents of the course: Basics in designing a control system, sequence control; structure and programming of programmable logic controller, programming and monitoring of PLC?s using PC, sequence control using shift registers, man-machine interfacing through process visualization programmes

Prerequisites: WK2709

WK2736 Control Technology II, 2 crs/3 ECTS crs

Objectives of the course:

Contents of the course: Basics in designing a control system, sequence control; structure and programming of programmable logic controller, programming and monitoring of PLC?s using PC, sequence control using shift registers, man-machine interfacing through process visualization programmes

Prerequisites: WK2735

WK2737 Programming Technology, 2 crs/3 ECTS crs

Objectives of the course: Making simple programmes in a given programming language

Contents of the course: Basics in programming, types of programs

Prerequisites: WP1714

WK2747 Production Management, 2 crs/3 ECTS crs

Objectives of the course: Basics of production control technics

Contents of the course: Rough planning of production, throughput time, loading, optimal timing of work phases, application of relational data bases to timing and loading procedures, calculating material requirements, economical storing, storage control, developing production control, computer based production data acquisition.

Prerequisites:

WK2751 Product Development II, 3 crs/4,5 ECTS crs

Objectives of the course: To widen knowledge of design and further abilities to control design from start to well produced product.

Contents of the course: Product development project, profitability of product, financial questions, research and product development, industrial design, risk analysis, special questions of product development

Prerequisites: WK2750

WK2797 Project Work, 1 crs/1,5 ECTS crs

Objectives of the course:

Contents of the course:

Prerequisites:

WK2812 Computer Aided Manufacturing, 3 crs/4,5 ECTS crs

Objectives of the course: Basics of CAM

Contents of the course: Organising production flow, principles of CAM (Computer Aided Manufacturing)

and Flexible Manufacturing, Work Cells and FMS; use, control and programming of robots

Prerequisites: WK2835, WK2802

WK2908 CAE/FEM (Computer Aided Engineering/Finite Element Method), 4 crs/6 ECTS crs
Objectives of the course:

Contents of the course:

Prerequisites:

WK2917 CAE/Simulation, 3 crs/4,5 ECTS crs

Objectives of the course: Simulation of different kind mechanisms using ProMECHANICA/Motion program.

Contents of the course: Personal exercises using Pro-MECHANICA/Motion program.

Prerequisites: WK2705

WK2918 Saftey technology 2 FINCR, 2 crs/3 ECTS crs

Objectives of the course: Knowledge of principles of design of safe machines and systems.

Contents of the course: Machine safety technology, safety analyses. Work safety in production automation. Operating and control equipment. Protective appliances. Ways of designing a safe machine. Safety in purchasing equipment. Labour protection.

Prerequisites:

WK2950 Product Development I, 3 crs/4,5 ECTS crs

Objectives of the course: Basic idea is to understand product development as a part of business process and realize its importance in relation to the profitability of enterprise. Main task is to learn systematic construction method according to VDI 2222.

Contents of the course: -Systematic construction method -Principles of CE-process -Innovation

Prerequisites: WK2744

WK2952 Mechanical Design/Special Task, 2 crs/3 ECTS crs

Objectives of the course: A student learns mechanical design process and can do a design project, tests and documentation by computer

Contents of the course: Practical works

Prerequisites:

WM2726 Measuring Technology, 2 crs/3 ECTS crs

Objectives of the course: After course student knows how to use most common hand measuring equipments

and coordinate measuring machine

Contents of the course: - length measuring - angle measuring - surface quality measuring - geometrical tolerance measuring with coordinate measuring machine

Prerequisites: WK2752

WP3706 Project Planning and Management, 2 crs/3 ECTS crs

Objectives of the course: Project technics and management

Contents of the course: Project planning, scheduling with Gantt and PERT charts, segmenting the project by Work Breakdown Structure, resource planning, cost planning, project budget, cost control, project management and supervision. Note that most of the course is based on a case project with the main phases of project planning and management, carried out as practical work on a project management programme on a PC.

Prerequisites:

Elective studies

WP1942 German I, 2 crs/3 ECTS crs

Objectives of the course: Mastery of basic language structures.

Contents of the course: Brief oral and written communication. Pronunciation drills. Reading comprehension of general German.

Prerequisites:

WP1944 German II, 2 crs/3 ECTS crs

Objectives of the course:

Contents of the course: Main structures and lexicon of technical German. Aural comprehension of German spoken at normal speed. Ability to cope with work situations in German.

Prerequisites: WP1942

WP1946 German III, 2 crs/3 ECTS crs

Objectives of the course: Aural comprehension of German spoken at normal speed, dealing with work situations in German, and a knowledge of German culture.

Contents of the course:

Prerequisites: WP1944

Mechanical and Production Engineering

Production engineering

BASIC STUDIES

WK1210 Mathematics I, 2 crs/3 ECTS crs

Objectives of the course: This course covers the basic elements of supplementary algebra. The course provides students with understanding of the concepts, principles and mathematical methods of engineering mathematics.

Contents of the course: Polynomials, real functions. Basic calculations of geometry and trigonometry.

Prerequisites:

WK1211 Mathematics II, 2 crs/3 ECTS crs

Objectives of the course: The basics of vector calculation. The basics of analytic geometry.

Contents of the course: The equation of a line, circle, parabola, ellipse and hyperbola in standard and parametric form. Geometric spaces and transformations.

Prerequisites:

WK1212 Mathematics III, 2 crs/3 ECTS crs

Objectives of the course: As a result of learning this course students should be able to define instantaneous rates of change and total change of a function.

Contents of the course: Basics in differential and integral calculus. Rates of change and differentiations. Stationary points, maximum and minimum value. Indefinite and definite integrations. Applications to areas and volumes.

Prerequisites:

WK1213 Mathematics IV, 2 crs/3 ECTS crs

Objectives of the course: Basics of the classical logic and binary algebra.

Contents of the course: Operations of the different number systems and Boolean algebra. Combination circuits.

Prerequisites:

WK1705 Introduction to Polytechnical Studies, 1 crs/1,5 ECTS crs

Objectives of the course: General introduction to studying in a polytechnic, and how to use the institute's resources effectively in one's studies.

Contents of the course: Institute's teaching facilities and administration. The engineering profession and its demands. Facilities for study and study plan. Benefits of computer technology, and data retrieval.

Prerequisites:

WK1710 Information Technology, 3 crs/4,5 ECTS crs

Objectives of the course: Student is able to use computer and its common devices and operating systems with normal programs. Student will handle most common failures and change settings of operating system.

Contents of the course: Operating system and common office programs (word processing, spreadsheet, database), device drivers, printing, internet (explorers, information seek, email)

Prerequisites: none

WK1711K Introduction to Engineering English, 2 crs/3 ECTS crs

Objectives of the course: Students will be introduced to engineering English. They will review some grammar and learn professional terminology. Students learn to understand the job application process and to write application documents. The aim is also to practise using language learning aids.

Contents of the course: Social contacts, small talk, telling about Finland, study terminology, nationalities, travelling, talking about work and jobs, applying for a job. In addition, telephone terminology and professional engineering terminology.

Prerequisites: matriculation exam or vocational degree

WK1712K Communication and Customer Service, 2 crs/3 ECTS crs

Objectives of the course: The course concentrates on more difficult technical English texts and different forms of discourse. The aim is to learn to write basic documents in business correspondence (letters and email), as well as improve telephone language. The course improves oral presentation skills.

Contents of the course: Themes are: effective communication through different media, Finnish industry and companies, business correspondence, email, telephone, product and company presentations some field-specific terminology.

Prerequisites: matriculation exam or vocational degree

WK1713K Engineering Communication, 2 crs/3 ECTS crs

Objectives of the course: Students learn to communicate in professional spoken and written situations. They learn to use language learning aids as well as reading strategies with professional texts. The aim is also to focus on professional and academic writing, process descriptions and trade fair situations.

Contents of the course: Reading and writing technical and academic texts, reporting, process description, spo-

ken presentations and trade fairs. self assessment. Grammar review if needed.

Prerequisites: WK1712k

WK1714K Business Communication Face-to-face, 2 crs/3 ECTS crs

Objectives of the course: Students improve their spoken language skills and practise more challenging professional language situations. The course concentrates on meetings and negotiations.

Contents of the course: Talking about work, practising meetings and negotiations and the related terminology. Speaking practise.

Prerequisites: wk1713k

WK1905 Chemistry, 2 crs/3 ECTS crs

Objectives of the course: Learning and understanding basic chemistry.

Contents of the course: Matter, chemical reactions, mole, gases, concentration, chemical equilibrium, acids and bases, pH, electrochemistry, basic organic chemistry.

Prerequisites:

WK1932 Communication I, 2 crs/3 ECTS crs

Objectives of the course: A student can write documents needed in the studying and working life. He/she knows the principles of communication and can make and perform speeches for different situations.

Contents of the course: Technical and scientific documents, speeches.

Prerequisites: Vocational school or high school

WK1933 Communication II, 2 crs/3 ECTS crs

Objectives of the course: A student knows how to make the documents needed in the studying and working life. A student knows the principles of team working, conferences and meetings and he/she can prepare speeches for different situations. A student knows the meaning of communication in organizations

Contents of the course: Documents, reports, the know-how of meetings, conferences and speeches.

Prerequisites: Communication I

WK1944 Physics I, 2 crs/3 ECTS crs

Objectives of the course: Main objective is to learn those basic methods and principles of science which are applied in engineering. Both qualitative and qualitative thinking skills are emphasised. In addition to the theoretical studies, the course also includes laboratory work related to the topics.

Contents of the course: Contents include basic

mechanics (kinematics and dynamics of particle).

Prerequisites:

WK1945 Physics II, 2 crs/3 ECTS crs

Objectives of the course: Main objective is to learn those basic methods and principles of science which are applied in engineering. Both qualitative and qualitative thinking skills are emphasised. In addition to the theoretical studies, the course also includes laboratory work related to the topics

Contents of the course: Contents include mechanics of simple rotational motion, mechanics of liquids and gases and basic thermodynamics.

Prerequisites: WK1944 Physics I

WK1946 Physics III, 2 crs/3 ECTS crs

Objectives of the course: Main objective is to learn those basic methods and principles of science which are applied in engineering. Both theoretical and experimental methods are included. Both qualitative and qualitative thinking skills are emphasised.

Contents of the course: Theory of vibrations and waves and theory of sound

Prerequisites:

WP1709 Working Life Swedish, 3 crs/4,5 ECTS crs

Objectives of the course: The student can use Swedish in oral and written working life situations, he understands professional literature, magazines and internet pages in Swedish.

Contents of the course: Engineering studies in Finland and Sweden, job application and interview for a job, engineer as a host and a guest, company presentation, process/product description, using telephone and email, trade fairs, meetings, professional texts, cultural differences in working life

Prerequisites: matriculation or vocational examination

PROFESSIONAL STUDIES

WK2250A Strength of Materials, 2 crs/3 ECTS crs

Objectives of the course: To understand strength of materials as a part of product development.

Contents of the course: Axial state of tension, pulling and compression, cutting, surface quantities and bending.

Prerequisites: WK2741

WK2250B Strength of Materials, 2 crs/3 ECTS crs

Objectives of the course: To understand strength of materials as a part of product development.

Contents of the course: Axial state of tension, pulling

Mechanical and Production Engineering

and compression, cutting, surface quantities and bending.

Prerequisites: WK2741

WK2709 Hydraulics and Pneumatics, 3 crs/4,5 ECTS crs

Objectives of the course: Basics of hydraulics and pneumatic systems, building up air pressure, pneumatic and hydraulic components, technical drawing symbols, design of pneumatic system and choice of components, design of hydraulic system and choice of components

Contents of the course:

Prerequisites:

WK2711 Management and Personnel Administration, 2 crs/3 ECTS crs

Objectives of the course: Basics in management and leadership, managing and training personnel

Contents of the course: Management and leadership, managing and training personnel. The way an organisation operates. Management and communications. Personnel policy. Direction and training. Inducements

Prerequisites: WK2753

WK2723 Material Science, 4 crs/6 ECTS crs

Objectives of the course: Basics of the metal technology and chemical structure of metallic materials. Thermal treatment of the metals and essential properties of the metallic materials. Students are able to compare the properties of the materials and select the materials.

Contents of the course: Following topics will be covered during the course. Metals, the structure of the metals, equilibrium drawings, thermal treatments, steels, cast irons. Basics of the plastic materials, the structure of the polymers, plastics, processing methods.

Prerequisites: Not Required

WK2742 Electrical Engineering, 2 crs/3 ECTS crs

Objectives of the course: Basics in electrical engineering for planning machine automation systems.

Contents of the course: Electronic circuits, 3-phase systems, mechanics for electricity consumers, types of electric motors, short circuit motors, servo and repeater motors, electrical circuit plans (drawing symbols, mains and auxiliary circuits, various ways of representing circuits). Components and applications in intensive electronics. Frequency transformers, measurement of motors. Automation equipment and methods of control. Basic concepts in automation. Digital circuits. Basic structure and operation of computers. Process connectors. Basics in control.

Prerequisites:

WK2746 Computer Aided Design, 2 crs/3 ECTS crs

Objectives of the course: Students can draw by AutoCAD and CADMill Mechanic plastic and mechanical engineering workshop and assembly 2D drawings.

Contents of the course: -basics of CAD -AutoCAD and CADMill Mechanic programs -starting procedures -co-ordinates, geometry and text -modification -dimensions -plotting -standard parts and drawing symbols – assemblies

Prerequisites:

WK2752 Manufacturing Technology, 4 crs/6 ECTS crs

Objectives of the course: Testing matter, manufacturing techniques and systems in the metal and plastics industries.

Contents of the course: Testing, metal processing, casting, metal machining, pressing, sheet metal processing, welding, special manufacturing methods, production systems

Prerequisites:

WK2753 Business Economy, 4 crs/6 ECTS crs

Objectives of the course: Introduction to student to operations in industry and its closely related bodies; to important regulations and statutes; to entrepreneurship and basic information to start own business.

Contents of the course: Basics in industrial economics. Planning and decision making. Calculations and their significance. Markets. Production. Labour legislation and labour relations. Risk management. Investments and financing.

Prerequisites:

WK2817A Machine Components, 1 crs/1,5 ECTS crs

Objectives of the course: Become more familiar with the range and function of common machine elements for general applications.

Contents of the course: Introduction to different joints. Lubrication.

Prerequisites: WK2722, WK2741

WK2817B Machine Components, 3 crs/4,5 ECTS crs

Objectives of the course: Become more familiar with the range and function of common machine elements for general applications.

Contents of the course: Bearings and transmission.

Prerequisites: WK2722, WK2741, WK2817A

WK2941 Statics, 3 crs/4,5 ECTS crs

Objectives of the course: Basics in statics for structural design

Contents of the course: General principles, force vectors, equilibrium of a particle and rigid body, structural analysis, friction

Prerequisites:

WK2944 Technical Drawing, 3 crs/4,5 ECTS crs

Objectives of the course: Drawing and measuring of parts according to mechanical engineering standards, taking of manufacturing technology in design, tolerances, surface symbols, diagrammatic drawings, basics of axonometry.

Contents of the course:

Prerequisites: no

WK2341 NC Technology, 2 crs/3 ECTS crs

Objectives of the course: CNC with machine tools, NC-programming

Contents of the course:

Prerequisites: WK2720

WK2404 Basics of Robotics, 2 crs/3 ECTS crs

Objectives of the course: Basics of robotics

Contents of the course: Industrial robots in production, principles of control and programming

Prerequisites: WK2735

WK2406 Basic of Product Development, 2 crs/3 ECTS crs

Objectives of the course: To understand product development as a part of business process and realize its importance in relation to the profitability of enterprise.

Contents of the course: Main task is to learn basic construction methods of product design.

Prerequisites: WK2744

WK2702 Sensor Technology, 2 crs/3 ECTS crs

Objectives of the course: Basics of sensor technology, design principles

Contents of the course: Basic concepts of using sensing equipment, basis for choice of sensors, proximity switches, pressure and temperature switches, identification systems (data acquisition system, bar codes, escort memory), machine vision, AD/DA converters, measuring position, measuring angle of movement and rotation, speed measurement, measuring force with strain gauges, connecting sensors to control equipment

Prerequisites: WK2746, WK2720

WK2704 CAD/CAM (Computer Aided Design/Computer Aided Manufacturing), 2 crs/3 ECTS crs

Objectives of the course: After course student can create and post process nc-programs with 3D cam-system (Pro/Engineer)

Contents of the course: - rough milling - drilling - profile milling - surface milling – documentation

Prerequisites: WK2720 WK2341

WK2719 Quality Technology, 3 crs/4,5 ECTS crs

Objectives of the course: Basic concepts of quality, methods of quality control, quality systems, basic ISO 9000, quality costs, methods of quality checking, quality planning, chains of operation, quality measurement, performance analysis, basic statistical methods, statistical process management, quality improvement, quality development scheme, checking quality results, organizing quality operations, computer quality control

Contents of the course:

Prerequisites:

WK2720 Machining, 3 crs/4,5 ECTS crs

Objectives of the course: Basic concepts in machining, its development and costs

Contents of the course: Lathing, drilling, grinding, milling, high speed machining

Prerequisites: WK2752

WK2721 Logistics, 2 crs/3 ECTS crs

Objectives of the course: Basics in logistics

Contents of the course: Management of transport and storage systems, business economics, personnel management; structure, operation, and utilisation of transport equipment and systems; logistics of transport, business logistics.

Prerequisites:

WK2735 Control Technology I, 2 crs/3 ECTS crs

Objectives of the course:

Contents of the course: Basics in designing a control system, sequence control; structure and programming of programmable logic controller, programming and monitoring of PLCs using PC, sequence control using shift registers, man-machine interfacing through process visualization programmes

Prerequisites: WK2709

WK2747 Production Management, 2 crs/3 ECTS crs

Objectives of the course: Basics of production control technics

Contents of the course: Rough planning of producti-

Mechanical and Production Engineering

on, throughput time, loading, optimal timing of work phases, application of relational data bases to timing and loading procedures, calculating material requirements, economical storing, storage control, developing production control, computer based production data acquisition.

Prerequisites:

WK2812 Computer Aided Manufacturing, 3 crs/4,5 ECTS crs

Objectives of the course: Basics of CAM

Contents of the course: Organising production flow, principles of CAM (Computer Aided Manufacturing) and Flexible Manufacturing, Work Cells and FMS; use, control and programming of robots

Prerequisites: WK2835, WK2802

Elective studies

WK2126 Maintenance, 2 crs/3 ECTS crs

Objectives of the course: This course introduces students to the basics and practises of maintenance in industry.

Contents of the course: Maintenance management system elements, types of maintenance tasks, condition based maintenance, reliability, traditional maintenance programs.

Prerequisites:

WK2253 Simulation of Production, 2 crs/3 ECTS crs

Objectives of the course: A student can design production cells by using 3-D simulation model programs

Contents of the course: 3D Create-programme, practical design works

Prerequisites: WK2746

WK2708 Welding Technology, 2 crs/3 ECTS crs

Objectives of the course: Knowledge of welding methods, demands and possibilities

Contents of the course: Welding methods, tests, welding metallurgy

Prerequisites: WK2752

WK2713 Machine and Energy Technology, 3 crs/4,5 ECTS crs

Objectives of the course: Principles of machine and powerplant operation in theory and praxis.

Contents of the course: Machine performance, efficiency and usability.

Prerequisites: WK1701-5 and WK1706

WK2736 Control Technology II, 2 crs/3 ECTS crs

Objectives of the course:

Contents of the course: Basics in designing a control system, sequence control; structure and programming of programmable logic controller, programming and monitoring of PLCs using PC, sequence control using shift registers, man-machine interfacing through process visualization programmes

Prerequisites: WK2735

WK2918 Safety technology 2 FINCR, 2 crs/3 ECTS crs

Objectives of the course: Knowledge of principles of design of safe machines and systems.

Contents of the course: Machine safety technology, safety analyses. Work safety in production automation. Operating and control equipment. Protective appliances. Ways of designing a safe machine. Safety in purchasing equipment. Labour protection.

Prerequisites:

WM2726 Measuring Technology, 2 crs/3 ECTS crs

Objectives of the course: After course student knows how to use most common hand measuring equipments and coordinate measuring machine

Contents of the course: - length measuring - angle measuring - surface quality measuring - geometrical tolerance measuring with coordinate measuring machine

Prerequisites: WK2752

WP3706 Project Planning and Management, 2 crs/3 ECTS crs

Objectives of the course: Project technics and management

Contents of the course: Project planning, scheduling with Gantt and PERT charts, segmenting the project by Work Breakdown Structure, resource planning, cost planning, project budget, cost control, project management and supervision. Note that most of the course is based on a case project with the main phases of project planning and management, carried out as practical work on a project management programme on a PC.

Prerequisites:

DEGREE PROGRAMME IN PLASTICS ENGINEERING

General description and objectives of the degree

The objective of the degree programme is to train the students to be professionals in the field of plastics and mould technology, being able to meet the changing needs in both national and international labour market. In addition, the aim is to provide the student with versatile knowledge in designing and manufacturing plastic products as well as in mould design. The training will develop the students' team-working skills and create facilities for continuous learning and for developing both the students themselves and the work community. The studies in the degree programme also provide the students with the basics of entrepreneurship. Additionally, the students interested in entrepreneurship are provided with advanced studies in entrepreneurship and an opportunity to practice own entrepreneurship with the help of a pre-incubation system. The graduated engineers are working with designing plastic products and moulds and manufacturing plastic products as well as in purchasing, selling and expert tasks in enterprises in the plastic field or in enterprises serving them. An important employer is also the industry using plastic parts in its production.

The studies of plastics engineering have been planned in cooperation with the industry of the field. Subsequently, cooperation with the plastic industry is close in implementing these studies. Different forms of cooperation include cases, theses and projects as well as participation of the industry personnel in teaching. The aim of the degree programme is to quickly and flexibly meet the demand for experts in developing business life. The degree programme supports and develops local business life in close cooperation with enterprises and other cooperative quarters.

Structure and syllabus of the studies

Construction of the studies and teaching

The extent of the studies is 160 credits (crs) and they are planned to be taken in four years. The student takes approximately 40 credits (crs) a year.

Basic studies

The objective of basic studies is to create a basis for applying engineering and for professional studies. Basic

studies (introduction to studying at the polytechnic, physics, chemistry, mathematics, information technology, communication, Swedish and one or more foreign languages) are equal to every student.

Professional studies

Professional studies consist of degree programme-specific studies (40 crs) and specialised professional studies (40 crs). Degree programme-specific studies equip the students with basic abilities in working as an engineer and they create a basis for the actual professional studies. These degree programme-specific studies are equal to everyone in the degree programme.

Specialised professional studies

In professional studies of plastics engineering, the students can specialise either in product and mould design or in production engineering. Specialised professional studies include approximately 30 credits of compulsory and 10 credits of optional studies, altogether 40 credits. Compulsory professional studies in plastics engineering are partly equal to everyone. Specialisation is continued through optional professional studies. Of all the optional study units, only the ones with enough students willing to participate are carried out. The specialisation option is selected at the end of the second academic year. In the specialised professional studies, cases and theses made for the plastic industry, as well as cooperation projects with enterprises within the plastic industry, are an essential part of the learning. An important form of cooperation with enterprises is also the use of industrial experts in teaching specialised professional studies.

Optional studies

The students may participate in optional studies (10 crs) that are offered either by their own degree programme or by another degree programme at North Karelia Polytechnic. Additionally, optional studies may be taken from the optional courses at the polytechnic or from any institution of higher education either in Finland or abroad.

Practical training

The purpose of practical training is to lead the students into working life and make them acquainted especially with the practical work tasks essential to their field of

Plastics Engineering

study, as well as to create an opportunity for the students for applying their acquired knowledge into working life. The work tasks should serve the objectives of the degree programme. During the practical training, the students participate in versatile work tasks within the work community and learn to be responsible, committed, capable of cooperation and flexible. The practical training is carried out in particular periods during the studies. The extent of the practical training is 20 credits. The training should be guided and it should include a contract

Specialisation options

In the degree programme in plastics engineering, it is possible to specialise either in product and mould design or in production engineering.

Product and mould design

The students graduating from the specialisation option of product and mould design work as planners for injection moulded plastic products and the moulds needed in manufacturing them. The design is carried out as projects in small teams and they require knowledge in plastic technology and in demanding planning software.

Production engineering

The students graduating from the specialisation option of production engineering are production engineers, working in development and management tasks in injection mould production. Besides plastic technology, production automation and leadership skills are emphasised in production engineering.

BASIC STUDIES	Code	1. year	2. year	3. year	4. year
Introduction to Engineering English	WK1711K	2	0	0	0
Communication and Customer Service	WK1712K	2	0	0	0
Engineering Communication	WK1713K	0	0	2	0
Business Communication Face-to-face	WK1714K	0	0	0	2
Physics I	WK1944	2	0	0	0
Physics II	WK1945	2	0	0	0
Physics III	WK1946	0	2	0	0
Physics IV	WK1947	0	2	0	0
Introduction to Polytechnical Studies	WK1705	1	0	0	0
Chemistry	WK1706	0	3	0	0
Mathematics I	WK1210	2	0	0	0
Mathematics II	WK1211	2	0	0	0
Mathematics III	WK1212	0	2	0	0
Mathematics IV	WK1213	0	2	0	0
Mathematics V	WK1214	0	0	0	2
Information Technology	WK1710	3	0	0	0
Working Life Swedish	WP1709	0	0	3	0
Communication I	WK1932	0	2	0	0
Communication II	WK1933	0	0	2	0
PROFESSIONAL STUDIES					
Degree Programme-specific Studies					
Dynamics	WK2855	0	2	0	0
Hydraulics and Pneumatics	WK2709	0	3	0	0
Management and Personnel Administration	WK2711	0	0	0	2
Machine Components	WK2817	0	4	0	0
Machine Components	WK2817A	0	1	0	0
Machine Components	WK2817B	0	0	3	0
Strenght of Materials	WK2250	4	0	0	0
Strenght of Materials	WK2250A	2	0	0	0
Strenght of Materials	WK2250B	0	2	0	0
Material Science	WM2823	0	3	0	0
Plastics Engineering	WM2259	3	0	0	0
Statics	WK2741	4	0	0	0
Electrical Engineering	WK2742	0	0	2	0
Technical Drawing	WK2944	3	0	0	0
Computer Aided Design	WK2746	2	0	0	0
Manufacturing Technology	WK2752	4	0	0	0
Business Economy	WK2753	0	4	0	0
STUDIES OF THE ORIENTATION OPTION		0	6	12	14
Compulsory Studies in Production Engineering					
Sensor Technology	WK2702	0	0	2	0
Quality Technology	WK2719	0	0	0	3
Measuring Technology	WM2726	0	0	0	2
Mould Making	WM2227	0	0	0	2
Mould Design I	WM2930	0	0	2	0
Plastics Laborations	WM2730	0	0	2	0
Plastics Materials	WM2731	0	3	0	0
Design of Plastic Product	WM2734	0	0	3	0
Manufacture of Plastic Products	WM2758A	0	1	0	0
Manufacture of Plastic Products	WM2758B	0	0	2	0
Control Technology I	WK2735	0	0	2	0

Plastics Engineering

Rheology	WM2838	0	0	0	3
Injection Moulding	WM2739	0	0	0	2
Optional Studies in Production Engineering					
3D Modelling I (Pro/Engineer)	WK2251	0	4	0	0
Computer Aided Manufacturing	WK2812	0	0	0	3
Electronics	WK2706	0	0	2	0
Hydraulic Systems	WK2710	0	0	3	0
Machine and Energy Technology	WK2713	0	0	3	0
Logistics	WK2721	0	0	0	2
Plastics Composites	WM2310	0	0	0	2
Special Tasks in Plastics Engineering	WM2733	0	0	0	2
Sheet Metal Technology	WM2257	0	0	0	2
Project Planning and Management	WP3706	0	0	2	0
Production Management	WK2747	0	0	0	2
Compulsory Studies in Product- and Mould Design					
3D Modelling I (Pro/Engineer)	WK2251	0	4	0	0
Machine Automation	WK2714	0	0	3	0
Measuring Technology	WM2726	0	0	0	2
Mould Design I	WM2930	0	0	2	0
Mould Design II	WM2258	0	0	0	3
Plastics Laborations	WM2730	0	0	2	0
Plastics Materials	WM2731	0	3	0	0
Mould Making	WM2227	0	0	0	2
Design of Plastic Product	WM2734	0	0	3	0
Rheology	WM2838	0	0	0	3
Injection Moulding	WM2739	0	0	0	2
Manufacture of Plastic Products	WM2758A	0	1	0	0
Manufacture of Plastic Products	WM2758B	0	0	2	0
Optional Studies in Product- and Mould Design					
CAD/CAM (Computer Aided Design/Computer					
Aided Manufacturing)	WK2704	0	0	0	2
Electronics	WK2706	0	0	2	0
Quality Technology	WK2719	0	0	0	3
Machining	WK2720	0	0	3	0
Plastics Composites	WM2310	0	0	0	2
Special Tasks in Plastics Engineering	WM2733	0	0	0	2
Sheet Metal Technology	WM2257	0	0	0	2
Project Planning and Management	WP3706	0	0	2	0
Product Development I	WK2950	0	3	0	0
German I	WP1942	2	0	0	0
German II	WP1944	2	0	0	0
German III	WP1946	0	2	0	0
OPTIONAL STUDIES		0	0	5	5
PRACTICAL TRAINING		0	0	20	0
THESIS		0	0	0	10

BASIC STUDIES

WK1210 Mathematics I, 2 crs/3 ECTS crs

Objectives of the course: This course covers the basic elements of supplementary algebra. The course provides students with understanding of the concepts, principles and mathematical methods of engineering mathematics.

Contents of the course: Polynomials, real functions. Basic calculations of geometry and trigonometry.

Prerequisites:

WK1211 Mathematics II, 2 crs/3 ECTS crs

Objectives of the course: The basics of vector calculation. The basics of analytic geometry.

Contents of the course: The equation of a line, circle, parabola, ellipse and hyperbola in standard and parametric form. Geometric spaces and transformations.

Prerequisites:

WK1212 Mathematics III, 2 crs/3 ECTS crs

Objectives of the course: As a result of learning this course students should be able to define instantaneous rates of change and total change of a function.

Contents of the course: Basics in differential and integral calculus. Rates of change and differentiations. Stationary points, maximum and minimum value. Indefinite and definite integrations. Applications to areas and volumes.

Prerequisites:

WK1213 Mathematics IV, 2 crs/3 ECTS crs

Objectives of the course: Basics of the classical logic and binary algebra.

Contents of the course: Operations of the different number systems and Boolean algebra. Combination circuits.

Prerequisites:

WK1214 Mathematics V, 2 crs/3 ECTS crs

Objectives of the course: This course provides students with an understanding of statistical principles and their use. Students learn how to collect data, examine data for patterns and relationships, and analyze data.

Contents of the course: Probability, probability distributions, processing of samples, testing hypotheses.

Prerequisites:

WK1705 Introduction to Polytechnical Studies, 1 crs/1,5 ECTS crs

Objectives of the course: General introduction to studying in a polytechnic or institute of technology, and

how to use the institute's resources effectively in one's studies.

Contents of the course: Institute's teaching facilities and administration. The engineering profession and its demands. Facilities for study and study plan. Benefits of computer technology, and data retrieval.

Prerequisites:

WK1706 Chemistry, 3 crs/4,5 ECTS crs

Objectives of the course: Learning and understanding basic chemistry.

Contents of the course: Matter, chemical reactions, mole, gases, concentration, chemical equilibrium, acids and bases, pH, electrochemistry, basic organic chemistry.

Prerequisites:

WK1710 Information Technology, 3 crs/4,5 ECTS crs

Objectives of the course: Student is able to use computer and its common devices and operating systems with normal programs. Student will handle most common failures and change settings of operating system.

Contents of the course: Operating system and common office programs (word processing, spreadsheet, database), device drivers, printing, internet (explorers, information seek, email)

Prerequisites: none

WK1711K Introduction to Engineering English, 2 crs/3 ECTS crs

Objectives of the course: Students will be introduced to engineering English. They will review some grammar and learn professional terminology. Students learn to understand the job application process and to write application documents. The aim is also to practise using language learning aids.

Contents of the course: Social contacts, small talk, telling about Finland, study terminology, nationalities, travelling, talking about work and jobs, applying for a job. In addition, telephone terminology and professional engineering terminology.

Prerequisites: matriculation exam or vocational degree

WK1712K Communication and Customer Service, 2 crs/3 ECTS crs

Objectives of the course: The course concentrates on more difficult technical English texts and different forms of discourse. The aim is to learn to write basic documents in business correspondence (letters and email), as well as improve telephone language. The course improves oral presentation skills.

Plastics Engineering

Contents of the course: Themes are: effective communication through different media, Finnish industry and companies, business correspondence, email, telephone, product and company presentations some field-specific terminology.

Prerequisites: matriculation exam or vocational degree

WK1713K Engineering Communication, 2 crs/ 3 ECTS crs

Objectives of the course: Students learn to communicate in professional spoken and written situations. They learn to use language learning aids as well as reading strategies with professional texts. The aim is also to focus on professional and academic writing, process descriptions and trade fair situations.

Contents of the course: Reading and writing technical and academic texts, reporting, process description, spoken presentations and trade fairs. self assessment. Grammar review if needed.

Prerequisites: WK1712k

WK1714K Business Communication Face-to-face, 2 crs/3 ECTS crs

Objectives of the course: Students improve their spoken language skills and practise more challenging professional language situations. The course concentrates on meetings and negotiations.

Contents of the course: Talking about work, practising meetings and negotiations and the related terminology. Speaking practise.

Prerequisites: WK1713k

WK1932 Communication I, 2 crs/3 ECTS crs

Objectives of the course: A student can write documents needed in the studying and working life. He/she knows the principles of communication and can make and perform speeches for different situations.

Contents of the course: Technical and scientific documents, speeches.

Prerequisites: Vocational school or high school

WK1933 Communication II, 2 crs/3 ECTS crs

Objectives of the course: A student knows how to make the documents needed in the studying and working life. A student knows the principles of team working, conferences and meetings and he/she can prepare speeches for different situations. A student knows the meaning of communication in organizations

Contents of the course: Documents, reports, the know-how of meetings, conferences and speeches.

Prerequisites: Communication I

WK1944 Physics I, 2 crs/3 ECTS crs

Objectives of the course: Main objective is to learn those basic methods and principles of science which are applied in engineering. Both qualitative and quantitative thinking skills are emphasised. In addition to the theoretical studies, the course also includes laboratory work related to the topics.

Contents of the course: Contents include basic mechanics (kinematics and dynamics of particle).

Prerequisites:

WK1945 Physics II, 2 crs/3 ECTS crs

Objectives of the course: Main objective is to learn those basic methods and principles of science which are applied in engineering. Both qualitative and quantitative thinking skills are emphasised. In addition to the theoretical studies, the course also includes laboratory work related to the topics

Contents of the course: Contents include mechanics of simple rotational motion, mechanics of liquids and gases and basic thermodynamics.

Prerequisites: WK1944 Physics I

WK1946 Physics III, 2 crs/3 ECTS crs

Objectives of the course: Main objective is to learn those basic methods and principles of science which are applied in engineering. Both theoretical and experimental methods are included. Both qualitative and quantitative thinking skills are emphasised.

Contents of the course: Theory of vibrations and waves and theory of sound

Prerequisites:

WK1947 Physics IV, 2 crs/3 ECTS crs

Objectives of the course: Main objective is to learn those basic methods and principles of science which are applied in engineering. Both theoretical and experimental methods are included. Both qualitative and quantitative thinking skills are emphasised.

Contents of the course: Contents include basic geometrical and physical optics, photometry. Physics of radiation. Basic electro-magnetism: electrostatics, direct current circuits, basic magnetism.

Prerequisites:

WP1709 Working Life Swedish, 3 crs/4,5 ECTS crs

Objectives of the course: The student can use Swedish in oral and written working life situations, he understands professional literature, magazines and internet pages in Swedish.

Contents of the course: Engineering studies in Finland and Sweden, job application and interview for a

job, engineer as a host and a guest, company presentation, process/product description, using telephone and email, trade fairs, meetings, professional texts, cultural differences in working life

Prerequisites: matriculation or vocational examination

PROFESSIONAL STUDIES

WK2250 Strength of Materials, 4 crs/6 ECTS crs

Objectives of the course: To understand strength of materials as a part of product development.

Contents of the course: Axial state of tension, pulling and compression, cutting, surface quantities and bending.

Prerequisites: WK2741

WK2250A Strength of Materials, 2 crs/3 ECTS crs

Objectives of the course: To understand strength of materials as a part of product development.

Contents of the course: Buckling and twisting. Exercises.

Prerequisites: WK2741, WK2250A

WK2250B Strength of Materials, 2 crs/3 ECTS crs

Objectives of the course: To understand strength of materials as a part of product development.

Contents of the course: Axial state of tension, pulling and compression, cutting, surface quantities and bending.

Prerequisites: WK2741

WK2709 Hydraulics and Pneumatics, 3 crs/4,5 ECTS crs

Objectives of the course: Basics of hydraulics and pneumatic systems, building up air pressure, pneumatic and hydraulic components, technical drawing symbols, design of pneumatic system and choice of components, design of hydraulic system and choice of components

Contents of the course:

Prerequisites:

WK2711 Management and Personnel Administration, 2 crs/3 ECTS crs

Objectives of the course: Basics in management and leadership, managing and training personnel

Contents of the course: Management and leadership, managing and training personnel. The way an organisation operates. Management and communications. Personnel policy. Direction and training. Inducements

Prerequisites: WK2753

WK2741 Statics, 4 crs/6 ECTS crs

Objectives of the course:

Contents of the course: STATICS WK2741 4 6 Language code Fin Objectives and Contents general principles, force vectors, equilibrium of a particle and rigid body, structural analysis, friction Learning methods and assessment lectures, practical work, and homework assessment of practical work and homework. 3 course tests or an examination Period programme specific studies, 1st year

Prerequisites:

WK2742 Electrical Engineering, 2 crs/3 ECTS crs

Objectives of the course:

Contents of the course:

Prerequisites:

WK2746 Computer Aided Design, 2 crs/3 ECTS crs

Objectives of the course: Students can draw by AutoCAD and CADMill Mechanic plastic and mechanical engineering workshop and assembly 2D drawings.

Contents of the course: -basics of CAD -AutoCAD and CADMill Mechanic programs -starting procedures -co-ordinates, geometry and text -modification -dimensions -plotting -standard parts and drawing symbols – assemblies

Prerequisites:

WK2752 Manufacturing Technology, 4 crs/6 ECTS crs

Objectives of the course: Testing matter, manufacturing techniques and systems in the metal and plastics industries.

Contents of the course: Testing, metal processing, casting, metal machining, pressing, sheet metal processing, welding, special manufacturing methods, production systems

Prerequisites:

WK2753 Business Economy, 4 crs/6 ECTS crs

Objectives of the course: Introduction to student operations in industry and its closely related bodies; to important regulations and statutes; to entrepreneurship and basic information to start own business.

Contents of the course: Basics in industrial economics. Planning and decision making. Calculations and their significance. Markets. Production. Labour legislation and labour relations. Risk management. Investments and financing.

Prerequisites:

Plastics Engineering

WK2817 Machine Components, 4 crs/6 ECTS crs

Objectives of the course: Basics of machine elements for general applications. Using standard machine elements and components.

Contents of the course: Introduction to different joints. Lubrication, bearings and gears.

Prerequisites: WK2722, WK2741

WK2817A Machine Components, 1 crs/1,5 ECTS crs

Objectives of the course: Become more familiar with the range and function of common machine elements for general applications.

Contents of the course: Introduction to different joints. Lubrication.

Prerequisites: WK2722, WK2741

WK2817B Machine Components, 3 crs/4,5 ECTS crs

Objectives of the course: Become more familiar with the range and function of common machine elements for general applications.

Contents of the course: Bearings and transmission.

Prerequisites: WK2722, WK2741, WK2817A

WK2855 Dynamics, 2 crs/3 ECTS crs

Objectives of the course: Basic kinetics and kinematics

Contents of the course: Kinematics and kinetics of rigid body in two dimensions. Work, energy and power.

Prerequisites:

WK2944 Technical Drawing, 3 crs/4,5 ECTS crs

Objectives of the course: Drawing and measuring of parts according to mechanical engineering standards, taking of manufacturing technology in design, tolerances, surface symbols, diagrammatic drawings, basics of axonometry.

Contents of the course:

Prerequisites: no

WM2259 Plastics Engineering, 3 crs/4,5 ECTS crs

Objectives of the course: Students will get basics knowledges about plastics materials, injection moulding, mould making and design and product design

Contents of the course:

Prerequisites:

WM2823 Material Science, 3 crs/4,5 ECTS crs

Objectives of the course: Basics of the metal technology and chemical structure of metallic materials. Thermal treatment of the metals and essential properties of

the metallic materials. Students are able to compare the properties of the materials and select the materials.

Contents of the course: Following topics will be covered during the course. Metals, the structure of the metals, equilibrium drawings, thermal treatments, steels, cast irons. Basics of the plastic materials, the structure of the polymers, plastics, processing methods.

Prerequisites: -

WK2251 3D Modelling I (Pro/Engineer), 4 crs/6 ECTS crs

Objectives of the course: After course can use pro/engineer cad program. He can create solid models, assemblies and drawings

Contents of the course: ? solid modelling o engineering features o extrude and revolve protrusion ? assembly o visualisation ? drawings o views o dimensions o surface finish symbols o tolerance o welding symbols o assembly drawings

Prerequisites: WK2944

WK2702 Sensor Technology, 2 crs/3 ECTS crs

Objectives of the course: Basics of sensor technology, design principles

Contents of the course: Basic concepts of using sensing equipment, basis for choice of sensors, proximity switches, pressure and temperature switches, identification systems (data acquisition system, bar codes, escort memory), machine vision, AD/DA converters, measuring position, measuring angle of movement and rotation, speed measurement, measuring force with strain gauges, connecting sensors to control equipment

Prerequisites: WK2746, WK2720

WK2704 CAD/CAM (Computer Aided Design/Computer Aided Manufacturing), 2 crs/3 ECTS crs

Objectives of the course: After course student can create and post process nc-programs with 3D cam-system (Pro/Engineer)

Contents of the course: - rough milling - drilling - profile milling - surface milling – documentation

Prerequisites: WK2720 WK2341

WK2706 Electronics, 2 crs/3 ECTS crs

Objectives of the course: Student knows the components of a microcomputer system, he/she can install and configure a processor-based system in card-level, he/she is able to implement inputs and outputs of an industrial computer.

Contents of the course: Structure and function of a microprocessor-based automation system. Process I/O: connecting sensors and actuators to computer. Serial

and parallel buses. Automation networks.

Prerequisites: WK2742 Electrical Engineering

WK2710 Hydraulic Systems, 3 crs/4,5 ECTS crs

Objectives of the course: To increase student's basic knowledge of hydraulics, hydrostatic transmission, electrohydraulic systems, proportional technology, cartridge technology, system-design

Contents of the course:

Prerequisites: WK2709

WK2713 Machine and Energy Technology, 3 crs/4,5 ECTS crs

Objectives of the course: Principles of machine and powerplant operation in theory and praxis.

Contents of the course: Machine performance, efficiency and usability.

Prerequisites: WK 1701-5 and WK1706

WK2714 Machine Automation, 3 crs/4,5 ECTS crs

Objectives of the course:

Contents of the course:

Prerequisites:

WK2719 Quality Technology, 3 crs/4,5 ECTS crs

Objectives of the course: Basic concepts of quality, methods of quality control, quality systems, basic ISO 9000, quality costs, methods of quality checking, quality planning, chains of operation, quality measurement, performance analysis, basic statistical methods, statistical process management, quality improvement, quality development scheme, checking quality results, organising quality operations, computer quality control

Contents of the course:

Prerequisites:

WK2720 Machining, 3 crs/4,5 ECTS crs

Objectives of the course: Basic concepts in machining, its development and costs

Contents of the course: Lathing, drilling, grinding, milling, high speed machining

Prerequisites: WK2752

WK2721 Logistics, 2 crs/3 ECTS crs

Objectives of the course: Basics in logistics

Contents of the course: Management of transport and storage systems, business economics, personnel management; structure, operation, and utilisation of transport equipment and systems; logistics of transport, business logistics.

Prerequisites: WK2753

WK2735 Control Technology I, 2 crs/3 ECTS crs

Objectives of the course:

Contents of the course: Basics in designing a control system, sequence control; structure and programming of programmable logic controller, programming and monitoring of PLC's using PC, sequence control using shift registers, man-machine interfacing through process visualization programmes

Prerequisites: WK2709

WK2747 Production Management, 2 crs/3 ECTS crs

Objectives of the course: Basics of production control technics

Contents of the course: Rough planning of production, throughput time, loading, optimal timing of work phases, application of relational data bases to timing and loading procedures, calculating material requirements, economical storing, storage control, developing production control, computer based production data acquisition.

Prerequisites:

WK2812 Computer Aided Manufacturing, 3 crs/4,5 ECTS crs

Objectives of the course: Basics of CAM

Contents of the course: Organising production flow, principles of CAM (Computer Aided Manufacturing) and Flexible Manufacturing, Work Cells and FMS; use, control and programming of robots

Prerequisites: WK2835, WK2802

WK2950 Product Development I, 3 crs/4,5 ECTS crs

Objectives of the course: Basic idea is to understand product development as a part of business process and realize its importance in relation to the profitability of enterprise. Main task is to learn systematic construction method according to VDI 2222.

Contents of the course: -Systematic construction method -Principles of CE-process -Innovation

Prerequisites: WK 2744

WM2227 Mould Making, 2 crs/3 ECTS crs

Objectives of the course: After course student knows basic manufacturing methods of injection mold manufacturing

Contents of the course: - Drilling - Machining and turning - Electrical Discharge Machining - High speed machining - Grinding - Polishing

Prerequisites:

Plastics Engineering

WM2257 Sheet Metal Technology, 2 crs/3 ECTS crs

Objectives of the course:

Contents of the course:

Prerequisites:

WM2258 Mould Design II, 3 crs/4,5 ECTS crs

Objectives of the course: After course student manage injection mold design with modern 3D cad system (Pro/Engineer)

Contents of the course: - Inspection of plastic part - Parting surface design - Workpiece splitting - Ejection design - Cooling design - Documentation

Prerequisites: WM2390

WM2310 Plastics Composites, 2 crs/3 ECTS crs

Objectives of the course:

Contents of the course:

Prerequisites:

WM2726 Measuring Technology, 2 crs/3 ECTS crs

Objectives of the course: After course student knows how to use most common hand measuring equipments and coordinate measuring machine

Contents of the course: - length measuring - angle measuring - surface quality measuring - geometrical tolerance measuring with coordinate measuring machine

Prerequisites: WK2752

WM2730 Plastics Laborations, 2 crs/3 ECTS crs

Objectives of the course: Students will make themselves familiar with manufacture processes of plastic products and behaviour and testing of plastic materials.

Contents of the course:

Prerequisites: WM2259 Plastics Engineering, WM2731 Plastics Materials

WM2731 Plastics Materials, 3 crs/4,5 ECTS crs

Objectives of the course: Students will make themselves familiar with internal structure, additives, properties, testing and applications of plastics materials and selecting of plastics materials for applications.

Contents of the course:

Prerequisites: WM2259 Plastics Engineering

WM2733 Special Tasks in Plastics Engineering, 2 crs/3 ECTS crs

Objectives of the course: Experimental research of a object connected to plastics engineering which trains a student for independent working and critical handling of results.

Contents of the course:

Prerequisites: WM2730 Plastics Laborations

WM2734 Design of Plastic Product, 3 crs/4,5 ECTS crs

Objectives of the course: The students familiarise themselves with plastic part design principles. Focus is mainly in injection moulded part design.

Contents of the course: General design rules, tolerances, dimensioning principles. How the mould manufacturing and injection moulding process affect part design.

Prerequisites: Plastics technology WM2259

WM2739 Injection Moulding, 2 crs/3 ECTS crs

Objectives of the course: The students will familiarise themselves with quality factors for injection moulding process as well as process optimisation and troubleshooting. They will also get to know ramp up - process and special injection moulding techniques.

Contents of the course: Injection moulding process, process equipment, troubleshooting, special techniques, ramp up, design for manufacturing

Prerequisites: WM2803 Manufacture of Plastic Products, WM2730 Plastics Laborations

WM2758A Manufacture of Plastic Products, 1 crs/1,5 ECTS crs

Objectives of the course: Students will make themselves familiar with injection moulding and extrusion. The course is continued in autumn (part 2).

Contents of the course:

Prerequisites: WM2259 Plastics Engineering

WM2758B Manufacture of Plastic Products, 2 crs/3 ECTS crs

Objectives of the course: Students will make themselves familiar with extrusion, blow moulding, after treatment processes, prototyping and plastics composites. The course follows the course of Manufacture of Plastic Products, part 1.

Contents of the course:

Prerequisites: WM2259 Plastics Engineering

WM2838 Rheology, 3 crs/4,5 ECTS crs

Objectives of the course: Students will make themselves familiar with flow behaviour of plastic melt. Further students are able to utilize injection moulding simulation software in product and mould design and in troubleshooting of injection moulding.

Contents of the course:

Prerequisites: WM2730 Plastics Laborations

WM2930 Mould Design I, 2 crs/3 ECTS crs

Objectives of the course: After course student knows basic principles of injection mold design

Contents of the course: - Mold layout design - Runner design - Ejection design - Cooling design

Prerequisites: WMN2259

WP3706 Project Planning and Management, 2 crs/3 ECTS crs

Objectives of the course: Project technics and management

Contents of the course: Project planning, scheduling with Gantt and PERT charts, segmenting the project by Work Breakdown Structure, resource planning, cost planning, project budget, cost control, project management and supervision Note that most of the course is based on a case project with the main phases of project planning and management, carried out as practical work on a project management programme on a PC.

Prerequisites:

Elective studies

WP1942 German I, 2 crs/3 ECTS crs

Objectives of the course:

Contents of the course:

Prerequisites:

WP1944 German II, 2 crs/3 ECTS crs

Objectives of the course:

Contents of the course:

Prerequisites:

WP1946 German III, 2 crs/3 ECTS crs

Objectives of the course:

Contents of the course:

Prerequisites:

DEGREE PROGRAMME IN WOOD TECHNOLOGY

General Description and Objectives of the Degree

General Objective of the Degree Programme

The general objective of the degree programme is to provide the students with versatile knowledge and skills in wood product engineering for being able to work in different fields of it. An objective is also to prepare the students for working in several kinds of tasks either as an employee or as an entrepreneur in production, planning and in commercial tasks. The possible titles include production manager, production engineer, shift foreman, model or production planner and sales engineer, for example.

Construction of studies and teaching

The studies consist of basic studies, professional studies, optional studies, practical training and thesis. The “professional core” of the studies consist of the following, compulsory study units:

- Wood as Raw Material 4 crs
- Timber Manufacture I 4 crs
- Sawing Machines 4 crs
- Timber Manufacture II 4 crs
- Machining Technique 4 crs
- Reprocessing 4 crs
- Surface Application and Glueing 4 crs
- Wood Boards and Composites 4 crs
- Carpentry Engineering 4 crs
- Timber Construction 4 crs
- Production Planning 4 crs
- Planning an Industrial Enterprise 6 crs
- Total 50 crs

After taking these study units, the student has a thorough, process-based understanding of the technical operations within wood product engineering. The above-mentioned study units are realised in a way that each eight-week study period includes at least one larger, 2 to 4-credit study unit, for which approximately 2 to 2,5 days a week are reserved. The remaining time is reserved for other studies so that each eight-week study period includes approximately 8 credits. Scheduled contact teaching will be held approximately 20 to 30 hours a week.

The learning method mostly used is so called problem-based learning (PBL), in which the responsibility of

learning falls on the student more than on the teacher.

In the beginning of studies, the student takes study units on orientation into polytechnic studies, Finnish and communication and other languages, the future working environment, and mathematics and sciences. Studies on Finnish and communication and information technology have been integrated into other study units, thus they cannot be seen in the curriculum as such.

In mathematics and sciences and in language studies, more contact teaching is held for one credit than in other study units. These studies form a basis for the future studies and, therefore, they are not integrated into other subjects in the beginning of studies.

Study units on entrepreneurship, management and marketing are placed at the end of studies, when they can be better integrated into the professional core. These studies are mostly common with the studies in Degree Programme in Forest Products Marketing.

The objective of basic and professional studies is that the student:

- gets a perspective on the future working environment and its interest groups
- gets knowledge and skills for being able to carry out practical training
- gets learning results for being able to take other degree programme-specific studies and professional studies
- has a sufficient and consistent educational basis for different types of further studies at different levels of education
- is able to work as an individual and as a member of a group
- is able to plan his/her future studies

The objective of professional studies is that the student:

- knows how to independently and responsibly apply his/her occupational knowledge to different situations in working life

- aims for independent self-development within each field
- can recognise problems appearing in working life and knows how to resolve them
- is able to work as an individual and as a member of a group both in Finland and abroad

The purpose of practical training is to make the student widely acquainted with the working environment of his/her future field of profession, to provide the student with an opportunity to get personal experience in working life and to apply the learned facts to practise. The practical training is carried out during summers. One working week equals one credit. Work of the field done before the start of the studies may be accepted as practical training after case-specific consideration. Monthly reports of the training are sent to the polytechnic, and a practical training booklet is compiled for at least one training place as well as a study assignment for the management study unit. There are separate instructions for the practical training of forestry and its supervision.

The purpose of thesis is that the student learns to independently acquire and specify information from different sources and to apply it to his/her own needs. In addition, the student becomes able to either independently or in a group handle information and to determine its value. A purpose is also to make the student able to present the acquired data and to make critical and grammatically correct conclusions of it, and to be able to work as a leader in different occasions.

Thesis is usually an independently compiled literal work. Special, wider theses are also possible to be compiled in groups. There are special instructions for the thesis and special study units preparing for it. Topics of theses concerning the planning and development of the technical and educational development of the wood product industry are favored.

Optional studies, 10 crs

There are no separate optional studies in the curriculum and, therefore, they are selected from other course supply. Depending on the student's interest, the most natural choices are the degree programmes in Forest Products Marketing, Civil Engineering, Design, and Mechanical Engineering.

Credits for optional studies can be taken by, for example, attending projects of the Wood Technology Centre (Puugia).

Optional studies can also be taken in other degree programmes of the polytechnic and in other polytechnics and universities.

Wood Technology

BASIC STUDIES	Code	1. year	2. year	3. year	4. year
Compulsory Basic Studies	M01				
Thesis Training	MP1013	1			
Thesis training: part 1	MP1013A1	0	0	0.5	0
Thesis training: part 2	MP1013A2	0	0	0	0.5
Learning and Communication Skills	MP1017				
Learning and Communication Skills, Basic Computing	MP1017B	1	0	0	0
Learning and Communication skills: Oral Communication	MP1017D	1	0	0	0
Learning and Communication skills Information Technology, Office Software	MP1017E	1	0	0	0
Information Technology, Office Software	MP1081		0	0	0
Information Technology, Office Software 1	MP1081A	1	0	0	0
Information Technology, Office Software 2	MP1081B	1	0	0	0
Industrial Safety	MT1017	2	0	0	0
Forest Cluster	MP1116				
Forest Cluster, Portfolio	MP1116A	2.5	0	0	0
Forest Cluster, Excursions	MP1116C	1	0	0	0
Forest Cluster, Data Collection	MP1116B	0.5	0	0	0
Swedish Language	M03				
Swedish, Social Contacts and Orientation to Forestry	MP1031	0	0	1	0
Swedish, Wood Processing Terminology	MT1032	0	0	1	0
English Language	M04				
English, Social Contacts	MP1041	1	0	0	0
English, Orientation to Forestry	MP1042	1	0	0	0
English, International Forestry and Wood Industry	MP1043	0	1	0	0
English, Wood Processing Terminology	MT1044	0	2	0	0
English, Business Communication and Wood Products Marketing	MT1045	0	0	0	2
Mathematics and Science	M07				
Physics I	MT1074	3	0	0	0
Trigonometry and Geometry	MT1073	2	0	0	0
Linear Programming	MT1072	0	2	0	0
Statistics 1	MT1071	0	0	2	0
Physics II	MT1075	0	3	0	0
Wood Technology	M09				
Wood as Raw Material	MP1097	0	0	0	0
Wood as Raw Material, Structure of Wood	MP1097A	2	0	0	0
Wood as Raw Material, Properties of Wood	MP1097B	1.5	0	0	0
Wood as Raw Material, Strength of Wood	MP1097C	0.5	0	0	0
PROFESSIONAL STUDIES					
Mechanical Engineering	M51				
Strength of Materials	MT2504	1	0	0	0
Technical Drawing and Standardisation	MT2511	2	0	0	0
Operating Techniques	MT2516	0	4	0	0
Industrial Automation	MT2526	0	0	4	0
Manufacture of Sawn Timber	M71				
Manufacture of Sawn Timber	MT2535	4	0	0	0
Sawmill Machines	MT2536	0	4	0	0
Manufacture of Sawn Timber II	MT2537	0	4	0	0
Machining Techniques	MT2556	0	4	0	0

Secondary Processing Techniques	M56				
Further Processing	MT2567	0	4	0	0
Surface Treatment and Gluing	MT2568	0	0	4	0
Wood-based Panels and Composites	MT2813	0	0	0	0
Wood-Based Panels and Composites, Manufacturing Techniques of Panels	MT2813A	0	0	2	0
Wood-based Panels and Composites, Cost Structures of Board Industry	MT2813B	0	0	1	0
Wood-based Panels and Composites, Production Planning of Board Industry	MT2813C	0	0	1	0
Joinery Techniques	MP2803	0	0	0	0
Joinery Techniques, products	MP2803A	0	0	1	0
Joinery Techniques, manufacturing	MP2803D	0	0	1	0
Joinery Techniques,	MP2803E	0	0	1	0
Joinery Techniques, CNC-techniques	MP2803F	0	0	1	0
Timber Construction	MT57				
Timber Construction	MT2572	0	0	0	4
Planning in Wood Production Field	M72				
Production Planning	MT2585	0	0	0	0
	MT2585A	0	0	0	3
Production Planning,	MT2585B	0	0	0	1
Planning of Industrial Enterprise	MT2597	0	0	0	6
Entrepreneurship	M12				
Basics of Entrepreneurship	MP2125	0	0	3	0
Human Resources and Enterprise as an Organisation	MK2161	0	0	0	0
Human Resources and Enterprise as an Organisation, Labour Legislation and Personnel Management	MK2161A	0	0	2	0
Human Resources and Enterprise as an Organisation, Operations of and Communication of Organisations	MK2161B	0	0	2	0
Jurisprudence	MK2162	0	0	0	0
Leadership and Supervisory Duties	MK2165	0	0	0	
Leadership and Supervisory Duties, Human Resources Management	MK2165A	0	0	0	2
Leadership and Supervisory Duties, Meeting and Negotiation Skills	MK2165B	0	0	0	1
Marketing	M13				
Job Description of Marketer	MK2143	0	0	3	0
Marketing Communication	MK2155	0	0	0	0
Product Development and Quality	MT2734	0	0	0	3
Elective studies		2	1	0	0
OPTIONAL STUDIES		2	3	3	2
PRACTICAL TRAINING		0	10	10	0
THESIS		0	0	0	10

BASIC STUDIES

MP1013 Thesis Training, 1 crs/1,5 ECTS crs

Objectives of the course:

Contents of the course:

Prerequisites:

**MP1013A1 Thesis training: part 1, 0,5 crs/
0,75 ECTS crs**

Objectives of the course: The student learns to understand the aim of thesis as a part of expert tasks in working life.

Contents of the course: aim of thesis research methods reporting

Prerequisites:

**MP1013A2 Thesis training: part 2, 0,5 crs/
0,75 ECTS crs**

Objectives of the course: The student learns to understand the aim of the thesis as a part of expert tasks in working life.

Contents of the course: aims of thesis research methods reporting

Prerequisites:

**MP1017 Learning and Communication skills,
00 crs/00 ECTS crs**

Objectives of the course:

Contents of the course:

Prerequisites:

MP1017B Learning and Communication Skills, Basic Computing, 1 crs/1,5 ECTS crs

Objectives of the course: To learn to use computer software independently
Contents of the course: Prerequisites: None
Assessment scale: 1 -5
Basis for assessment: Exam Examinations:

Contents of the course: Polytechnic's information system, basic hardware, Windows basics.

Prerequisites: None

MP1017D Learning and Communication skills: Oral Communication, 1 crs/1,5 ECTS crs

Objectives of the course: The student is able to take part in different communicational situations and to develop her/his own skills in group work.

Contents of the course: PBL(Problem based learning: basic communication skills, practices, presentation

Prerequisites: none

**MP1017E Learning and Communication skills,
1 crs/1,5 ECTS crs**

Objectives of the course: The student has good skills in written language. She/he is able to formulate different documents, essays and reports.

Contents of the course: writing exercises, standards, different official documents, essays

Prerequisites:

MP1031 Swedish, Social Contacts and Orientation to Forestry, 1 crs/1,5 ECTS crs

Objectives of the course: To learn to use Swedish in social situations.

Contents of the course: Communicational exercises. Themes: studies, hobbies, small talk, telephone Swedish, oral presentations, welcome and thank-you speeches, essay and listening comprehension tasks.

Prerequisites:

**MP1041 English, Social Contacts, 1 crs/
1,5 ECTS crs**

Objectives of the course: To learn to use English in social situations.

Contents of the course: Communicational exercises. Themes: introductions, small talk, travelling, restaurant English, hobbies, studies.

Prerequisites:

**MP1042 English, Orientation to Forestry, 1 crs/
1,5 ECTS crs**

Objectives of the course: To learn the basic professional vocabulary of forestry.

Contents of the course: Texts related to forestry: forest cycle, tree species, overview of Finnish forestry.

Prerequisites: MP1041

MP1043 English, International Forestry and Wood Industry, 1 crs/1,5 ECTS crs

Objectives of the course: To get acquainted with international forestry and to learn to understand and use professional forestry terminology.

Contents of the course: Portfolio or report on the forestry of an English speaking country. Oral presentation based on the written report.

Prerequisites:

**MP1081 Information Technology, Office Software,
00 crs/00 ECTS crs**

Objectives of the course: After the course a student has the basic information about PC -computers, Windows, Office software, E-mail and information systems.

Contents of the course: PC -computers, Windows,

Office software, E-mail and information systems.

Prerequisites:

MP1081A Information Technology, Office Software 1, 1 crs/1,5 ECTS crs

Objectives of the course: To learn to use office applications independently

Contents of the course: Word, Excel, Powerpoint basics

Prerequisites:

MP1081B Information Technology, Office Software 2, 1 crs/1,5 ECTS crs

Objectives of the course: To learn basics of graphics software and voice editing. Principles of relational databases and information management

Contents of the course: Multimedia project, MsAccess basics

Prerequisites: Office software 1

MP1097 Wood as Raw Material, 00 crs/00 ECTS crs

Objectives of the course:

Contents of the course:

Prerequisites:

MP1097A Wood as Raw Material, Structure of Wood, 2 crs/3 ECTS crs

Objectives of the course: The students knows the anatomic structure of wood. The students can identify the most important tree species.

Contents of the course: Structure of coniferous and deciduous trees, structure of a single cell, chemical structure of wood, structure of bark, roots and branches, modification reactions.

Prerequisites: None

MP1097B Wood as Raw Material, Properties of Wood, 1,5 crs/2,25 ECTS crs

Objectives of the course: After the course the student is able to see the connection between the structure and properties of wood and to find out possibilities to use wood in different conditions.

Contents of the course: moisture, measuring, destruction, drying, density, and thermal properties of wood.

Prerequisites:

MP1097C Wood as Raw Material, Strength of Wood, 0,5 crs/0,75 ECTS crs

Objectives of the course: To make the student familiar with wood properties in practice: Wood compression as function of moisture, bending as function of density of wood

Contents of the course: Laboratory practicals and lectures

Prerequisites: MP1097A ja 1097B

MP1116 Forest Cluster, 00 crs/00 ECTS crs

Objectives of the course:

Contents of the course:

Prerequisites:

MP1116A Forest Cluster, Portfolio, 2,5 crs/3,75 ECTS crs

Objectives of the course: The student is able to collect essential information and to write a portfolio of Forest Cluster

Contents of the course: portfolio

Prerequisites: None

MP1116B Forest Cluster, Data Collection, 0,5 crs/0,75 ECTS crs

Objectives of the course: To make the student familiar with methods of data collection in problem solutions.

Contents of the course: Libraries, archives, data bases, search engines.

Prerequisites:

MP1116C Forest Cluster, Excursions, 1 crs/1,5 ECTS crs

Objectives of the course: The student gets familiar with industrial and other institutions in forest cluster

Contents of the course: Industrial plants in mechanical and chemical industry. Extension, research, etc. organizations. Expert lectures.

Prerequisites:

MT1017 Industrial Safety, 2 crs/3 ECTS crs

Objectives of the course: The student knows the most important regulations of industrial safety and is able to take into consideration the safety requirements and can safely use the wood working machinery of Utra laboratories.

Contents of the course: The bases of industrial safety, legislation, responsibilities, ergonomics, getting to know the wood working machinery of Utra laboratories and their safe use.

Prerequisites: none

MT1032 Swedish, Wood Processing Terminology, 1 crs/1,5 ECTS crs

Objectives of the course: To learn the basic terminology of wood processing industry.

Contents of the course: The main tree species in Finland, mechanical wood processing industry (mainly saw-

mill and plywood industry).

Prerequisites: Social contacts 1.5 ECTS crs

MT1044 English, Wood Processing Terminology, 2 crs/3 ECTS crs

Objectives of the course: To learn the basic terminology of wood processing industry.

Contents of the course: Mechanical wood processing industry (mainly sawmill and plywood industry)

Prerequisites:

MT1045 English, Business Communication and Wood Products Marketing, 2 crs/3 ECTS crs

Objectives of the course: To learn the basic English business communication skills and meeting and negotiation phrases and practises. To get acquainted with international wood products marketing.

Contents of the course: English business communication, wood products marketing, language of meetings and negotiations.

Prerequisites: MT1043

MT1071 Statistics 1, 2 crs/3 ECTS crs

Objectives of the course: The course concentrates on descriptive methods of elementary statistics.

Contents of the course: Variables and matrices. Tabulation of data. Diagrams. Measures of central tendency. Dispersion statistics. Correlation. Regression analysis. Least squares method. Multiple regression.

Prerequisites:

MT1072 Linear Programming, 2 crs/3 ECTS crs

Objectives of the course: The course gives basics of linear programming. The focus is on the geometrical point of view and on the knowledge how to formulate problems of real life into optimization form.

Contents of the course: Matrices. Geometrical presentation. Simplex-method. Duality. Transportation problems.

Prerequisites:

MT1073 Trigonometry and Geometry, 2 crs/3 ECTS crs

Objectives of the course: The course gives modern tools for analysing functions. Basics of two and three-dimensional geometry are also studied.

Contents of the course: Different kind of functions. Continuity. Derivate. Integral and definite integral. Volumes of 3D-pieces. Basics of two and three-dimensional geometry.

Prerequisites: Basics of Mathematics.

MT1074 Physics I, 3 crs/4,5 ECTS crs

Objectives of the course: Main objective is to learn those basic methods and principles of science (physics) which are applied in engineering.

Contents of the course: The course includes basics of mechanics: kinematics, dynamics and rotational motion, and heat, humidity, gases and vapours.

Prerequisites:

MT1075 Physics II, 3 crs/4,5 ECTS crs

Objectives of the course: Main objective is to learn those basic methods and principles of physics which are applied in engineering.

Contents of the course: The course includes basic electricity: currents, electric field and electric charge, and oscillation, wave motion and waves, mirrors and lenses.

Prerequisites: MT1075 Physics I

PROFESSIONAL STUDIES

MK2143 Job Description of Marketer, 3 crs/4,5 ECTS crs

Objectives of the course: The student is able to describe the essential concepts and models of modern marketing. He or she can describe the contents of a marketer's job.

Contents of the course: The importance of marketing as a driving factor of society and organisations, the basic concepts and models of marketing, marketer's job description.

Prerequisites: None

MK2155 Marketing Communication, 00 crs/00 ECTS crs

Objectives of the course:

Contents of the course:

Prerequisites:

MK2161 Human Resources and Enterprise as an Organisation, 00 crs/00 ECTS crs

Objectives of the course:

Contents of the course:

Prerequisites:

MK2161A Human Resources and Enterprise as an Organisation, Labour Legislation and Personnel Management, 2 crs/3 ECTS crs

Objectives of the course: The student knows the essential contents of labour legislation. The student knows the aim of personnel strategy and organizational management. The student knows the contents of per-

sonnel strategy and can analyse and solve problems of personnel management.

Contents of the course: Personnel strategy: personnel planning, personnel recruitment, personnel induction training, personnel development Labour legislation.

Prerequisites: None

MK2161B Human Resources and Enterprise as an Organisation, Operations of and Communication of Organisations, 2 crs/3 ECTS crs

Objectives of the course: The student can define the organization and knows the functions of organization from a managerial and administrative aspect. The student knows the main theories of organization and their different structures. The student knows the goals, properties and modes of learning organization. The student can make an overall picture of the features influencing the organization structure and internal operations of organization.

Contents of the course: Defining an organization and working environment, development of organization theories and structures, learning organization, internal operations of organization: structure, organizational culture and behavior. Internal and external communication, internal marketing

Prerequisites: None

MK2162 Jurisprudence, 00 crs/00 ECTS crs

Objectives of the course: To learn the essential legislation on business activities.

Contents of the course: The structures of justice, business activity, business contracts, real estate trade.

Prerequisites: No

MK2165 Leadership and Supervisory Duties, 00 crs/00 ECTS crs

Objectives of the course:

Contents of the course:

Prerequisites:

MK2165A Leadership and Supervisory Duties, Human Resources Management, 2 crs/3 ECTS crs

Objectives of the course: The student can make an overall picture of leadership skills. The student knows what is the purpose of developing self-knowledge and how to develop it. The student knows the qualifications of leadership behavior. The student knows the goals and practise of development discussions and knows how to give feedback. The student knows the goals of teamwork and how to lead teams. The student can analyze and solve different problems in working place.

Contents of the course: Self-knowledge and leadership skills, self-management, leadership behavior, work motivation, development discussions and feedback, team management, leadership skills in problem situations.

Prerequisites: Human Resources Management and Organizations

MK2165B Leadership and Supervisory Duties, Meeting and Negotiation Skills, 1 crs/1,5 ECTS crs

Objectives of the course: A student is able to participate in meetings and knows how to act as a chairman. He/she knows the principles of different meetings and negotiations.

Contents of the course: principles and techniques of meetings and negotiations

Prerequisites:

MP2125 Basics of Entrepreneurship, 3 crs/4,5 ECTS crs

Objectives of the course: The aim of the course is to give the student an overview of companies and their operations, regulations and operational environment. In addition, the objective is to provide the student with information of the different stages of establishing a company

Contents of the course: 1. General information about companies 2. Establishing a company 3. Financing 4. Planning of economy - profitability – investments

Prerequisites:

MP2803 Joinery Techniques, 00 crs/00 ECTS crs

Objectives of the course: To understand * what is joinery industry * typical products of joinery industry * typical machines of joinery industry * how to count the cost of product * production planning of joinery industry

Contents of the course: Typical products of joinery industry, machines of joinery industry, planning of new joinery industry product, production planning of joinery industry

Prerequisites:

MP2803A Joinery Techniques, products, 1 crs/1,5 ECTS crs

Objectives of the course: To understand * what is joinery industry? * typical products of joinery industry * glues using in joinery industry

Contents of the course: Typical products of joinery industry.

Prerequisites:

Wood Technology

MP2803D Joinery Techniques, manufacturing, 1 crs/1,5 ECTS crs

Objectives of the course:

Contents of the course:

Prerequisites:

MP2803E Joinery Techniques,, 1 crs/1,5 ECTS crs

Objectives of the course:

Contents of the course:

Prerequisites:

MP2803F Joinery Techniques, CNC-techniques, 1 crs/1,5 ECTS crs

Objectives of the course:

Contents of the course:

Prerequisites:

MT2504 Strength of Materials, 1 crs/1,5 ECTS crs

Objectives of the course: To make the student familiar with the basics of strength of materials and the behaviour of different materials in different situations

Contents of the course: Stress-strain diagram, compression strength, torsion, bending stress, safety coefficients, fatigue, combined stress etc.

Prerequisites: MT1074 Physics I

MT2511 Technical Drawing and Standardisation, 2 crs/3 ECTS crs

Objectives of the course: To make the student familiar with standardisation and principles of technical drawing using CAD

Contents of the course: Standardisation Technical drawing (lines, texts, projects, dimensioning, tolerances etc.) Practices with AutoCad

Prerequisites: None

MT2516 Operating Techniques, 4 crs/6 ECTS crs

Objectives of the course: The course consists of two parts: 1:Mechanical Engineering 2:Maintenance 1:Mechanical Engineering To make the student familiar with principles of mechanical engineering

Contents of the course: Welding, connections, screws, axles, bearings, seals, lubrication, clutches, gears, chain belts, belt gears etc.

Prerequisites: MT2511 Teknillinen piirustus ja standardisointi, MT2501 Mekaniikka ja lujuusoppi

MT2526 Industrial Automation, 4 crs/6 ECTS crs

Objectives of the course: To acquaint the students with modern hydraulics and pneumatics used in wood industry. To make students familiar with basics of electronics and modern control systems The basics are later

deepened in courses dealing with sawmill machines and joinery

Contents of the course: Hydraulics: Basics of hydrostatics and hydrodynamics, hydraulic and pneumatic components, hydraulic systems, basics of servo and proportional systems Pneumatics: Properties, compressors, pressure tank, the after-treatment of pressurised air, maintenance, safety and laws. Laboratories Electronics, control systems

Prerequisites: Physics I (MT1074)

MT2535 Manufacture of Sawn Timber, 4 crs/6 ECTS crs

Objectives of the course: After this course the student knows the departments of a sawmill, i.e. debarking, sawing, drying and trimming. The student also knows drying conditions of wood and attends sawing practicals.

Contents of the course: Debarking and sawing are studied by stages. Drying is seen as a physical phenomenon. The knots determining the quality of timber are studied thoroughly. The planning is instructed as a logical chain. The student learns it by sawing a log at the end of the course.

Prerequisites:

MT2536 Sawmill Machines, 4 crs/6 ECTS crs

Objectives of the course:

Contents of the course:

Prerequisites:

MT2537 Manufacture of Sawn Timber II, 4 crs/6 ECTS crs

Objectives of the course:

Contents of the course:

Prerequisites:

MT2556 Machining Techniques, 4 crs/6 ECTS crs

Objectives of the course:

Contents of the course:

Prerequisites:

MT2567 Further Processing, 4 crs/6 ECTS crs

Objectives of the course:

Contents of the course:

Prerequisites:

MT2568 Surface Treatment and Gluing, 4 crs/6 ECTS crs

Objectives of the course: Learning and understanding basic chemistry. Main goal is to learn typical surface treatments and bonding agents.

Contents of the course: Matter, chemical reactions, mole, concentration, acids and bases, pH, corrosion, basic organic chemistry, adhesive chemistry, surface treatments.

Prerequisites:

MT2572 Timber Construction, 4 crs/6 ECTS crs

Objectives of the course:

Contents of the course:

Prerequisites:

MT2585 Production Planning, 00 crs/00 ECTS crs

Objectives of the course:

Contents of the course:

Prerequisites:

MT2585A , 3 crs/4,5 ECTS crs

Objectives of the course:

Contents of the course:

Prerequisites:

MT2585B Production Planning,, 1 crs/1,5 ECTS crs

Objectives of the course:

Contents of the course:

Prerequisites:

MT2597 Planning of Industrial Enterprise, 6 crs/9 ECTS crs

Objectives of the course: Utilisation of operative accounting in business management. Producing and understanding the information of profitability and financing. Project management. Principles of corporate planning and logistics.

Contents of the course: Business economy: -terms and calculations -financial instruments in decision making -price determination -investments -planning and running business -budgeting -economical analyses. Planning of a production plant (exercise): -lay-out -processes -infrastructure -economics -logistics etc...

Prerequisites:

MT2734 Product Development and Quality, 3 crs/4,5 ECTS crs

Objectives of the course: The study module consists of 2 parts: 1: Product development 2: Quality 1: Product development The processes and methods of product development

Contents of the course: 2: Quality 2: Quality- the idea of The isms of quality Quality systems Quality organisations Quality awards Total Quality Management Six Sigma

Prerequisites: None

MT2813 Wood-based Panels and Composites, 00 crs/00 ECTS crs

Objectives of the course:

Contents of the course:

Prerequisites:

MT2813A Wood-Based Panels and Composites, Manufacturing Techniques of Panels, 2 crs/3 ECTS crs

Objectives of the course: After the course a student knows the wood-based panels and composites and their manufacturing techniques.

Contents of the course: Wood-based panels and composites and their manufacturing techniques. Plywood, chipboard, fibreboard, ...

Prerequisites:

MT2813B Wood-based Panels and Composites, Cost Structures of Board Industry, 1 crs/1,5 ECTS crs

Objectives of the course: The student will understand the factors influencing cost structures of wood-based panels.

Contents of the course: Cost of wood-based panels is counted by using Excel spreadsheet.

Prerequisites:

MT2813C Wood-based Panels and Composites, Production Planning of Board Industry, 1 crs/1,5 ECTS crs

Objectives of the course: To understand * production planning of wood-based panels

Contents of the course: Production planning of wood-based panels, comparing production planning of plywood industry and other board industries by using Excel spreadsheet

Prerequisites:

DEGREE PROGRAMME IN CIVIL ENGINEERING

General description and aims of the degree

The general objective of the degree programme is to provide the students with versatile knowledge in their specialisation alternative for being able to work in different professions or as an entrepreneur within building trade. The work tasks can consist of expert tasks in selling, production, planning, research, training and product development, for example, both in Finland and abroad.

House construction engineers can work for planning offices and building firms as well as the building materials industry and trade within the private sector, and for the technical offices and engineering departments of real estate administration and municipalities within the public administration. Teaching and research are also available for house construction engineers.

Natural stone engineers are competent in working in enterprises manufacturing hard building stones and in enterprises refining soapstone. Work places can also include building firms that are customers of natural stone enterprises, and municipal and state construction organisations. The work tasks within stone industry often relate to international knowledge and business.

Production-based house construction engineers will work with practical work tasks for construction sites and building materials industry. These assignments include, for example, working as supervisors, project managers in supervising and planning production, and as sales people for construction materials. In the production-based house construction degree, the student can concentrate either on repair construction or maintenance of real estates.

The international tasks of a civil engineer often relate to project export of building firms, construction materials industry and planning offices. After some years of experience, a civil engineer can also advance to an entrepreneur in his/her own planning-, contracting- or industrial enterprise.

Structure and syllabus of the studies

The extent of the degree in civil engineering is 160 credits, which usually equals to four years of full-time stu-

dying when the student takes approximately 40 credits a year. Due to practical training carried out partly in the summer time, the student has, however, a chance to take more credits during the second and third study year. In this case, the student will be able to concentrate on his/her thesis during the last study year.

Basic Studies

The objective of basic studies is to create a basis for applying engineering and to form a basis for professional studies. Basic studies (Introduction to Studying at the Polytechnic, Physics, Chemistry, Mathematics, Communication, Swedish and foreign languages) are equal to every student.

Professional Studies

Professional studies consist of degree programme-specific studies which are common to all specialisation options and of option-specific professional studies. Degree programme-specific studies equip the students with basic abilities in different tasks of construction and stone industry, and they create a basis for the actual professional studies. These studies are equal to everyone in the degree programme. In the engineering degree, 50 credits of option-specific professional studies must be taken, while the amount of credits is 40 in the production-based engineering degree. These amounts consist of both compulsory and optional professional studies of the specialisation option.

Optional Studies

Optional studies may be taken from any institution of higher education and they are recommended to be taken from the second study year on.

Practical Training

The extent of practical training is 20 credits in the engineering degree and 40 credits in the production-based engineering degree.

The first part of practical training includes guided working life practice carried out during the periods between academic years. The purpose of this part of practical training is to make the student acquainted with the working environment of his/her future field of profession.

The second part of practical training includes professional work practice, where the student is being prepared for the profession of an engineer. Work of the field completed before the commencement of studies will be accepted as practical training only in exceptional cases, and not more than a half of the training can be accredited. In this case, a written report of the work must be presented. The practical training period includes writing periodical reports, having a development discussion and writing a final report. Each trainee will be allocated an instructor within the degree programme during the first training period. In addition to the summer period, the fourth period of the third study year, beginning in April, is reserved for practical training. Practical training abroad is highly recommendable, since it creates a strong basis for language skills and helps to understand cultural differences. The student him-/herself is mainly responsible for obtaining a placement for practical training, although the degree programme director, a training engineer and the recruiting services of the polytechnic may arrange placements.

Thesis

An essential part of the degree requirements for a polytechnic engineer is the thesis (degree regulation 13§). The purpose of the thesis is to act as a bridge between theoretical studying and practical working life and to facilitate the student's transition from the polytechnic to working in expert tasks in, for example, planning offices and building firms. The topic and advisor of the thesis are confirmed by the director of the degree programme or a teacher deputed by him/her.

Specialisation Options

- House Construction Engineering
- Natural Stone Engineering
- Production-based Construction Engineering

The student chooses his/her specialisation option in the spring of the second study year. From the third study year on, the student follows the curriculum of his/her specialisation option. The student complements his/her curriculum with optional studies.

Civil Engineering

BASIC STUDIES	Code	1. year	2. year	3. year	4. year
Languages					
Introduction to Engineering English	WP1922K	2.5	0	0	0
Communication and Customer Service	WP1924K	2	0	0	0
Engineering Communication	WP1926K	0	0	2	0
Business Communication Face-to-face	WP1957K	0	0	0	1
Working Life Swedish	WP1951	0	3	0	0
German I (First Foreign Language)	WP1923	2	0	0	0
German II (First Foreign Language)	WP1925	2	0	0	0
German III (First Foreign Language)	WP1927	0	2	0	0
Communication I	WP1930	1	0	0	0
Communication II	WP1931	0	0	2	0
Mathematics					
Mathematics I	WR1936	2	0	0	0
Mathematics II	WR1937	2	0	0	0
Mathematics III	WR1938	2	0	0	0
Mathematics IV	WR1939	2	0	0	0
Applied Mathematics I	WR1940	0	3	0	0
Applied Mathematics II	WR1941	0	2	0	0
Information Technology					
Basics of Computer Studies I	WR1914	2	0	0	0
Basics of Computer Studies II	WR1915	0	2	0	0
Physics I	WR1901	2	0	0	0
Physics II	WR1902	2	0	0	0
Physics III	WR1903	0	2	0	0
Physics IV	WR1904	0	2	0	0
Chemistry	WR1905	0	2	0	0
PROFESSIONAL STUDIES					
Degree Programme-Specific Studies					
Introduction to Engineering Studies	WR2001	1	0	0	0
Basics of Concrete Structures	WR2013A	2	0	0	0
Concrete Technology	WR2011	3	0	0	0
Geotechnics	WR2040	3	0	0	0
Natural Stone in Building	WR2034	0	3	0	0
Equipment in Building	WR2008	0	2	0	0
Basics of Elasticity Theory	WR2022	2	0	0	0
Surveying	WR2006	0	2	0	0
Foundation Engineering 1	WR2043	0	2	0	0
Basics of Timber Structures	WR2104	0	2	0	0
Building Materials	WR2032	1	0	0	0
Drawing of Buildings	WR2033	1	0	0	0
Basics of Structural design	WR2012	1	0	0	0
Basics of Structural Mechanics	WR2021	2	0	0	0
Construction Economics I	WR2004	0	2	0	0
Basics of House Construction	WR2031	1	0	0	0
Knowledge on Working Life	WR2002	1	0	0	0
STUDIES OF THE ORIENTATION OPTION					
Use of Concrete at Site	WR2105	0	2	0	0
Reinforced Concrete Structures I	WR2103	0	3	0	0
Planning	WR2116	0	0	2	0
Stone technique I	WR2612	0	0	2	0

Stone technique II	WR2613	0	0	1	0
Basics of rock blasting	WR2178A	0	0	2	0
Construction Physics	WR2407	0	0	2	0
Material technology of natural stones I	WR2169	0	0	2	0
Material technology of natural stones II	WR2170	0	0	2	0
Construction Economics II	WR2110	0	0	2	0
Structural Mechanics II	WR2101	0	3	0	0
House Construction II	WR2102	0	0	4	0
Dimension stone quarrying	WR2184	0	0	1	0
Management Studies	WR2212A	0	0	2	0
CAD-Design	WR2180	0	0	2	0
CAD for stone engineering	WR2181	0	0	2	0
Structural design of natural stone facades	WR2273	0	0	2	0
Stone facade project costs and schedule	WR2276	0	0	0	2
Design for Stone Interiors	WR2274	0	0	1.5	0
Building Services	WR2119A	0	0	2	0
Structural Failures and Renovation of Stone Structures	WR2277	0	0	0	1
Environmental Stone Structures	WR2275	0	0	1	0
Soap Stone Technology	WR2319	0	0	0	1
Soap Stone Technology	WR2280	0	0	0	1
Export and international operations	WR2620	0	0	0	2
Special features of marketing in export	WR2621	0	0	0	2
Business Economics	WR2306	0	0	2	0
Planning and guidance of a project	WR2634	0	0	2	0
Use of Concrete at Site	WR2105	0	2	0	0
Reinforced Concrete Structures I	WR2103	0	3	0	0
Reinforced Concrete Structures II	WR2203A	0	0	4	0
Planning	WR2116	0	0	2	0
Masonry Structures	WR2206	0	0	0	0.5
Timber Structures I	WR2204	0	0	0	2
Construction Physics	WR2407	0	0	2	0
Construction Design	WR2202	0	0	0	3
Construction Economics II	WR2110	0	0	2	0
Structural Mechanics II	WR2101	0	3	0	0
Structural Mechanics III	WR2201A	0	0	0	3
House Construction II	WR2102	0	0	4	0
Steel Structures I	WR2205	0	0	0	1.5
Management Studies	WR2212A	0	0	2	0
Reinforced Concrete Structures III	WR2302	0	0	0	2
Repair methods and Condition of Concrete Structures	WR2411	0	0	0	2
Ecological Construction	WR2417	0	0	2	0
Basics of accessible building planning for disabled people	WR2416	0	0	1	0
Activities in house management and housing association	WR2408	0	0	2	0
Renovation of Buildings	WR2307	0	0	2	0
Quality Systems	WR2323	0	0	2	0
Building Services	WR2119A	0	0	2	0
Massive Wood Building Technology in Europe	WR2418	0	0	1	0
Pile Foundations	WR2322	0	0	0	2
Fire protection at building and renovation work	WR2414	0	0	2	0
Project know-how	WR2374	0	0	2	0
Project work of wooden structures	WR2510	0	0	0	1

Civil Engineering

Timber Structures II	WR2320	0	0	0	2
Special Course in Wood Technology	WR2324	0	0	0	1
Condition Investigations of Buildings	WR2413	0	0	0	2
Thermography and Moisture Measuring of Buildings	WR2611	0	0	0	2
Estimating the Condition of Buildings and Writing a Maintenance Manual	WR2325	0	0	1	0
Structural Mechanics IV	WR2301	0	0	0	2
Contract Agreement in Building Projects	WR2321	0	0	2	0
Special features of the Russian building stock	WR2420	0	0	2	0
House Construction III	WR2303	0	0	0	2
Design Economics	WR2317	0	0	0	1
Steel Structures II	WR2314	0	0	1	0
Computers in Construction	WR2308	0	0	0	2
Site Technology	WR2312	0	0	2	0
Business Economics	WR2306	0	0	2	0
Elective studies		4	4	4	4
OPTIONAL STUDIES		0	3	3	4
PRACTICAL TRAINING		0	0	20	0
THESIS		0	0	0	10

BASIC STUDIES**WP1922K Introduction to Engineering English, 2,5 crs/3,75 ECTS crs**

Objectives of the course: Students will be introduced to engineering English. Review of some grammar and studying professional terminology. Students learn the job application process and they learn to write application documents. The aim is also to practise using language learning aids in reading and writing texts. Students practise spoken situations.

Contents of the course: social contacts, small talk, telling about yourself and Finland, study terminology, nationalities, travelling, talking about work, applying for a job. Telephone terminology and professional terminology.

Prerequisites: matriculation exam or vocational degree

WP1923 German I (First Foreign Language), 2 crs/3 ECTS crs

Objectives of the course:

Contents of the course:

Prerequisites:

WP1924K Communication and Customer Service, 2 crs/3 ECTS crs

Objectives of the course: The course concentrates on more difficult technical English texts and different forms of discourse. Focussing on Finnish industry as well as company correspondence. The course improves oral presentation skills.

Contents of the course: Themes are: effective communication through different media, discourse, Finnish industry, business correspondence, email, telephone, customer service situations, product and company presentations. Some field-specific terminology.

Prerequisites: WP1922k

WP1925 German II (First Foreign Language), 2 crs/3 ECTS crs

Objectives of the course:

Contents of the course:

Prerequisites:

WP1926K Engineering Communication, 2 crs/3 ECTS crs

Objectives of the course: Students learn to communicate in professional spoken and written situations. They learn to use language learning aids as well as professional texts. The aim is also to focus on professional and academic writing, process descriptions and trade fair situations.

Contents of the course: Reading and writing technical and academic texts, reporting, process description, spoken presentations and trade fair situations. Self assessment. Grammar review, if needed.

Prerequisites: WP1924k

WP1927 German III (First Foreign Language), 2 crs/3 ECTS crs

Objectives of the course:

Contents of the course:

Prerequisites:

WP1930 Communication I, 1 crs/1,5 ECTS crs

Objectives of the course: A student can write documents needed in the studying and working life. He/she knows the principles of communication and can make and perform speeches for different situations.

Contents of the course: Technical and scientific documents, speeches.

Prerequisites: Vocational school or high school.

WP1931 Communication II, 2 crs/3 ECTS crs

Objectives of the course: A student knows how to make the documents needed in the studying and working life. A student knows the principles of team working, conferences and meetings and he/she can prepare speeches for different situations. A student knows the meaning of communication in organizations

Contents of the course: Documents, reports, the know-how of meetings, conferences and speeches.

Prerequisites: Communication I

WP1951 Working Life Swedish, 3 crs/4,5 ECTS crs

Objectives of the course: The student can use Swedish in oral and written working life situations, he understands professional literature, magazines and internet pages in Swedish.

Contents of the course: Engineering studies in Finland and Sweden, job application and an interview for a job, an engineer as a host and a guest, company presentation, process/product description, using telephone and email, trade fairs, meetings, using professional texts, cultural differences in working life

Prerequisites: Matriculation or vocational examination

WP1957K Business Communication Face-to-face, 1 crs/1,5 ECTS crs

Objectives of the course: The student improves oral skills and is able to cope in more demanding spoken situations. He is able to follow the life and events in the target country. The course concentrates on meetings and negotiations.

Civil Engineering

Contents of the course: Describing one's work, meeting and negotiation skills and the related terminology. Discussions with a native teacher and in groups.

Prerequisites: WP1926K

WR1901 Physics I, 2 crs/3 ECTS crs

Objectives of the course: The aim is to learn scientific thinking and methods applied in technology.

Contents of the course: The course includes basics of mechanics, e.g. linear motion, uniformly accelerating motion, diagonal trajectory, general principles of dynamics, friction and resistance of medium, work, energy and power, impulse and linear momentum of force, rotational motion, rigid body motion and moment of momentum.

Prerequisites: -

WR1902 Physics II, 2 crs/3 ECTS crs

Objectives of the course: The aim is to learn scientific thinking and methods applied in technology.

Contents of the course: The course includes thermophysics and basics of solid state physics, fluid and gas physics, electricity and magnetism.

Prerequisites: Physics I

WR1903 Physics III, 2 crs/3 ECTS crs

Objectives of the course: The aim is to learn scientific thinking and methods applied in technology.

Contents of the course: The course includes oscillating motion, basics of optics, wave motion, photometry and radiation physics.

Prerequisites: Physics I, II

WR1904 Physics IV, 2 crs/3 ECTS crs

Objectives of the course: Students acquaint different phenomenon of physics by doing laboratory exercises and by analysing and reporting results.

Contents of the course: Laboratory exercises in different field of physics

Prerequisites: Physics I, II, III

WR1905 Chemistry, 2 crs/3 ECTS crs

Objectives of the course: Learning and understanding basic chemistry.

Contents of the course: Matter, chemical reactions, mole, gases, concentration, chemical equilibrium, acids and bases, pH, electrochemistry, basic organic chemistry.

Prerequisites:

WR1914 Basics of Computer Studies I, 2 crs/3 ECTS crs

Objectives of the course: The student familiarize with Microsoft-Office programs (Word 2003, Excel 2003, PowerPoint, Internet Explorer and E-mail)

Contents of the course: Introduction to basic concepts in computer technology. Practice in using programmes required early on in studies. Introduction to word processing and graphic design.

Prerequisites:

WR1915 Basics of Computer Studies II, 2 crs/3 ECTS crs

Objectives of the course: building skills with CAD programme and equipment, for application in technical drawing.

Contents of the course: Autocad, Ark9, Rak5

Prerequisites: WR1914

WR1936 Mathematics I, 2 crs/3 ECTS crs

Objectives of the course: The aim of this course is to develop skills of mathematic text understanding. In addition of this students will learn mathematical basic methods and apply mathematic to their profession.

Contents of the course: Expressions processing, square root, cube root, square equation, polynomial factorization, linear system of equations.

Prerequisites:

WR1937 Mathematics II, 2 crs/3 ECTS crs

Objectives of the course: The aim of this course is to develop 2- and 3- dimensional geometry and vectors. After this course student have to be able to solve triangles. In addition of this similarity transformation should be known

Contents of the course: Basic geometry, right triangle, 2- and 3- dimensions vectors, solution of triangle, similarity transformation, attribute of circle.

Prerequisites:

WR1938 Mathematics III, 2 crs/3 ECTS crs

Objectives of the course: The aim of this course is to develop skills of mathematic text and 3- dimensional space understanding. In addition of this, students will learn mathematical methods of computer- aided drawing.

Contents of the course: Projektion of topograph, projektion of Monge, axonometry and learn of perspective.

Prerequisites: WR1937

WR1939 Mathematics IV, 2 crs/3 ECTS crs

Objectives of the course: The aim of this course is to develop skills of mathematical text understanding. In addition of this, students will learn mathematical basic methods and apply mathematics to their profession.

Contents of the course: Real function, graph of function, basic of analytic geometry

Prerequisites: WR1936

WR1940 Applied Mathematics I, 3 crs/4,5 ECTS crs

Objectives of the course:

Contents of the course:

Prerequisites:

WR1941 Applied Mathematics II, 2 crs/3 ECTS crs

Objectives of the course:

Contents of the course:

Prerequisites:

PROFESSIONAL STUDIES

WR2001 Introduction to Engineering Studies, 1 crs/1,5 ECTS crs

Objectives of the course: General introduction to studying in a polytechnic or institute of technology, and how to use the institute's resources effectively in one's studies. Institute's teaching facilities and administration. The engineering profession and its demands. Facilities for study and study plan. Benefits of computer technology, and data retrieval.

Contents of the course: To familiarize study plans at degree programme of civil engineering and to make personal study plan (HOPS). To familiarize building trade, occupational organization and information services at the polytechnic.

Prerequisites: None

WR2002 Knowledge on Working Life, 1 crs/1,5 ECTS crs

Objectives of the course: The student gets familiar to the basic concepts of construction economics and into the basic laws of building production industry.

Contents of the course: Construction in society, different partners of construction project, basic forms of contracting, economical basic concepts, introduction to quality and management principles, trends, productivity, future of construction.

Prerequisites:

WR2004 Construction Economics I, 2 crs/3 ECTS crs

Objectives of the course: To understand the costs du-

ring different phases of a building project

Contents of the course: Cost planning and quantity surveying. Tender estimates. Design economics. Coding systems. Production data files.

Prerequisites: WR2002

WR2006 Surveying, 2 crs/3 ECTS crs

Objectives of the course: Principles and methods of surveying

Contents of the course: Will be given later

Prerequisites:

WR2008 Equipment in Building, 2 crs/3 ECTS crs

Objectives of the course: To get familiar with machinery and equipment used on the building sites. Work safety matters.

Contents of the course: Planning and design of machinery and equipment used on the sites. Main principles. Work safety and regulation of machinery.

Prerequisites:

WR2011 Concrete Technology, 3 crs/4,5 ECTS crs

Objectives of the course: The student familiarize with concrete and its raw materials (rock material, cement and water)

Contents of the course: Modern manufacture of concrete and concrete structures, properties of concrete and its raw materials, quality control and manufacturing technology. Testing concrete and its component materials.

Prerequisites:

WR2012 Basics of Structural design, 1 crs/1,5 ECTS crs

Objectives of the course: To form understanding of different frame structures and especially how to estimate and calculate the loadings and their distribution.

Contents of the course: The basics of structural design, frame systems, loads and calculations, limit states of structures, coefficients of security.

Prerequisites:

WR2013A Basics of Concrete Structures, 2 crs/3 ECTS crs

Objectives of the course: The student learns how to design and analyze the common reinforced concrete structures

Contents of the course: Properties of concrete and reinforcement. Various concrete structures. How concrete structures work, their design principles, and design of a flexural section under bending.

Prerequisites: WR2012

Civil Engineering

WR2021 Basics of Structural Mechanics, 2 crs/ 3 ECTS crs

Objectives of the course: The student learns the concept of force and moment in structures and is able to solve statically determined structures.

Contents of the course: Basic laws of statics, equilibrium equations, supports, centre of gravity, normal force, shear force and bending moment diagrams.

Prerequisites:

WR2022 Basics of Elasticity Theory, 2 crs/ 3 ECTS crs

Objectives of the course: The student knows the basics of elasticity theory, specially the relation of stress and strain.

Contents of the course: Axial state of tension, bending and shear. Forces and deflections. Buckling of slender beams.

Prerequisites:

WR2031 Basics of House Construction, 1 crs/ 1,5 ECTS crs

Objectives of the course: The student familiarize with structure of different kind of buildings, building materials and organisations of construction industry

Contents of the course: Organisations in the construction industry, construction project, permits, construction parts and their names, sources and standards in construction

Prerequisites:

WR2032 Building Materials, 1 crs/1,5 ECTS crs

Objectives of the course: The students familiarize with typical building materials.

Contents of the course: Building materials, their properties, and places for using them. Construction physics: heat insulation, dampproofing, and fire regulations

Prerequisites: WR2031, Basics of House Construction

WR2033 Drawing of Buildings, 1 crs/1,5 ECTS crs

Objectives of the course:

Contents of the course: Symbols used in drawings, dimensions, kinds of drawings.

Prerequisites:

WR2034 Natural Stone in Building, 3 crs/ 4,5 ECTS crs

Objectives of the course: Overview how to use natural stone as a building material

Contents of the course: Basics of geology and physical properties of natural stone. The use of natural stone within facades, indoor and outdoor. Testing methods at

the laboratory. Workshop to cut and grind natural stone. Processing methods from quarry to finished products.

Prerequisites:

WR2040 Geotechnics, 3 crs/4,5 ECTS crs

Objectives of the course: The basics of geotechnics.

Contents of the course: The geotechnical properties of Finnish earthtypes.

Prerequisites:

WR2043 Foundation Engineering 1, 2 crs/ 3 ECTS crs

Objectives of the course: The basics of foundation methods.

Contents of the course: The methods of foundation for different earth types.

Prerequisites:

WR2104 Basics of Timber Structures, 2 crs/ 3 ECTS crs

Objectives of the course: To learn to design the basic timber structures

Contents of the course: Wood products, wood properties, design of beams, columns, nailed joints. Wooden concrete form.

Prerequisites: WR 2022

WR2101 Structural Mechanics II, 3 crs/ 4,5 ECTS crs

Objectives of the course: Statical defined structures

Contents of the course: Statical defined continuous hinged beams, frames, arches. Calculations are made by hand and computer aided

Prerequisites: WR2021

WR2102 House Construction II, 4 crs/6 ECTS crs

Objectives of the course: The student can solve the common problems appearing in the House Construction. Is able to do the Main- and Workplans of a Familyhouse and work as a part of the Planning-group.

Contents of the course: The student familiarize constructions of the wooden one-family-house from the basement to the sealing. The exercise number one (familyhouse of 2 flats) follows the lecture. The other construction-systems and materials follow on the second part of the course

Prerequisites: Basics of the House Construction

WR2103 Reinforced Concrete Structures I, 3 crs/ 4,5 ECTS crs

Objectives of the course: Students learn to design beam structures.

Contents of the course: Structural design of reinforced concrete: flexural and shear design. Design of reinforcement: bond, lapping. Deflection of a beam.

Prerequisites: WR2013 Betonirakenteiden perusteet

WR2105 Use of Concrete at Site, 2 crs/3 ECTS crs

Objectives of the course: Working methods of using concrete at building sites and in precast concrete plants.

Contents of the course: Mixing technique of concrete, scaffolding, reinforcement, planning of pouring concrete, winter concreting, concrete pavements, fixing of concrete structures, special methods for concreting

Prerequisites:

WR2110 Construction Economics II, 2 crs/3 ECTS crs

Objectives of the course: To understand the concept or production planning, and on the other hand of life cycle costs in building

Contents of the course: Construction production planning, time scheduling, resource allocation, production files, method alternatives, network analysis. Investment appraisal, life cycle analysis of building components.

Prerequisites: WR2004 Construction Economics I

WR2116 Planning, 2 crs/3 ECTS crs

Objectives of the course:

Contents of the course:

Prerequisites:

WR2119A Building Services, 2 crs/3 ECTS crs

Objectives of the course:

Contents of the course:

Prerequisites:

WR2169 Material technology of natural stones I, 2 crs/3 ECTS crs

Objectives of the course: To learn the physical and other properties of Finnish natural stone

Contents of the course:

Prerequisites: WR2034 Natural Stone in Building

WR2170 Material technology of natural stones II, 2 crs/3 ECTS crs

Objectives of the course: Deepen knowledge after-course WR2169

Contents of the course: Will be given later

Prerequisites: WR2169 Material technology of natural stones I

WR2178A Basics of rock blasting, 2 crs/3 ECTS crs

Objectives of the course: To learn basics of rock blasting to produce blocks for processing industry

Contents of the course:

Prerequisites: WR2034 Natural Stone in Building

WR2180 CAD-Design, 2 crs/3 ECTS crs

Objectives of the course: Construction drawing using Acad.

Contents of the course: Construction drawing using Acad and 3D-model.

Prerequisites:

WR2181 CAD for stone engineering, 2 crs/3 ECTS crs

Objectives of the course:

Contents of the course:

Prerequisites:

WR2184 Dimension stone quarrying, 1 crs/1,5 ECTS crs

Objectives of the course: To familiarize raw block industry: technique and business

Contents of the course: Will be given later

Prerequisites: WR2034 Natural Stone in Building

WR2201A Structural Mechanics III, 3 crs/4,5 ECTS crs

Objectives of the course: To understand the behaviour of elastic statically undefined structures: deformations, stresses and strains. To solve such structures

Contents of the course: Solving statically undefined frames and continuous girders by hand and computer aided. Bending, torsion and movements of supports.

Prerequisites: WR2101

WR2202 Construction Design, 3 crs/4,5 ECTS crs

Objectives of the course: Dwelling-, bureau- and commercial buildings: planning and design.

Contents of the course: Planning and dimensioning the bomb shelter in reinforced concrete. Planning the shared utility spaces and parking spaces. Site planning and playground design. Exercise: Planning and design of a multistorey residential building with bureaus and shops. Drawings for building permit.

Prerequisites: WR2102

WR2203A Reinforced Concrete Structures II, 4 crs/6 ECTS crs

Objectives of the course: Structural design of cast in situ reinforced concrete structures

Contents of the course: 2 dimensional bearing slabs,

Civil Engineering

continuous girders, load bearing walls supported by columns, consoles, beams strained by torsion. Making drawings.

Prerequisites: WR2103

WR2204 Timber Structures I, 2 crs/3 ECTS crs

Objectives of the course: To learn to design the most usual load bearing timber structures

Contents of the course: Single and double tapered beams, trusses, continuous beams, slabs and shear walls. Thin webbed beams.

Prerequisites: WR2104 Basics of Timber Structures

WR2205 Steel Structures I, 1,5 crs/2,25 ECTS crs

Objectives of the course:

Contents of the course: manufacture and properties of steel structures, basics in design, dimensions of parts, joints in steel structures, applications in joints, and stiffening steel frame.

Prerequisites: Introduction to mechanics (WR2021)

WR2206 Masonry Structures, 0,5 crs/0,75 ECTS crs

Objectives of the course:

Contents of the course: materials and their properties in brickwork structures. Dimensions of such structures.

Prerequisites: Introduction to construction design

WR2212A Management Studies, 2 crs/3 ECTS crs

Objectives of the course:

Contents of the course:

Prerequisites:

WR2273 Structural design of natural stone facades, 2 crs/3 ECTS crs

Objectives of the course:

Contents of the course:

Prerequisites:

WR2274 Design for Stone Interiors, 1,5 crs/2,25 ECTS crs

Objectives of the course:

Contents of the course:

Prerequisites:

WR2275 Environmental Stone Structures, 1 crs/1,5 ECTS crs

Objectives of the course:

Contents of the course:

Prerequisites:

WR2276 Stone facade project costs and schedule, 2 crs/3 ECTS crs

Objectives of the course:

Contents of the course:

Prerequisites:

WR2277 Structural Failures and Renovation of Stone Structures, 1 crs/1,5 ECTS crs

Objectives of the course:

Contents of the course:

Prerequisites:

WR2280 Soap Stone Technology, 1 crs/1,5 ECTS crs

Objectives of the course: Deepen knowledge after WR2319 Soap Stone Technology

Contents of the course: Will be given later

Prerequisites: WR2319

WR2301 Structural Mechanics IV, 2 crs/3 ECTS crs

Objectives of the course:

Contents of the course:

Prerequisites:

WR2302 Reinforced Concrete Structures III, 2 crs/3 ECTS crs

Objectives of the course:

Contents of the course: applying earlier knowledge of concrete technology to construction of prefabricated elements and element technology expertise. Calculating dimensions of various types of elements and their joints, ways of stiffening the frame, and related documents, drawings, and installation instructions.

Prerequisites: Concrete structures I and II.

WR2303 House Construction III, 2 crs/3 ECTS crs

Objectives of the course: Dwelling-, bureau- and commercial buildings: planning and design of construction documents. Specification of structural-, fire- and soundisolationissues by planning.

Contents of the course: Planning and constructing the structure of the bomb shelter in reinforced concrete. Planning the construction of the shared utility spaces and parking spaces. Detailed site planning and playground design. Exercise: Planning and design the construction documents of an multistorey residential building with bureaus and shops.

Prerequisites:

WR2306 Business Economics, 2 crs/3 ECTS crs

Objectives of the course: To learn comprehensive overview of Business economics

Contents of the course: Features of building material

industry: organisations, basics of management accounting, VAT. Purchasing and selling, bids. Product development.

Prerequisites:

**WR2307 Renovation of Buildings, 2 crs/
3 ECTS crs**

Objectives of the course:

Contents of the course:

Prerequisites:

**WR2308 Computers in Construction, 2 crs/
3 ECTS crs**

Objectives of the course: The student learns how to make project and cost plans of a construction project by using as an aid modern computer applications.

Contents of the course: Cost calculation at production stage of construction project. Methods and applied programmes used in production planning. Cost estimation, tender calculation, and target evaluation. Project planning involving network scheduling, resource planning and supervision of costs and productivity.

Prerequisites: WR2004 Construction Economics I, WR2110 Construction Economics II

WR2312 Site Technology, 2 crs/3 ECTS crs

Objectives of the course: To familiarize with function of construction site, most common technique

Contents of the course: Will be given later

Prerequisites:

WR2314 Steel Structures II, 1 crs/1,5 ECTS crs

Objectives of the course:

Contents of the course: complements course I in relation to dimensions and calculating joints, eg. in crosspieces and terrain structures. Measuring fire resistance, surface treatment, manufacture in machine shop, transport and installation.

Prerequisites: Steel structures I

WR2317 Design Economics, 1 crs/1,5 ECTS crs

Objectives of the course: The student gets familiar with cost appraisal from the point of view of the employer and the designer

Contents of the course: Cost planning and control in design-stage of new construction or renovation projects using modern application software. Importance of cost control for lifespan of building. Costs in-use. Budget targets based on building space programme, and normal price calculation based on building component estimation (cost engineering).

Prerequisites: WR2004 Construction Economics I, WR2110 Construction Economics II

WR2319 Soap Stone Technology, 1 crs/1,5 ECTS crs

Objectives of the course:

Contents of the course: Soap stone fire places, soap stone as building material.

Prerequisites: WR2034 Natural Stone in Building

WR2320 Timber Structures II, 2 crs/3 ECTS crs

Objectives of the course:

Contents of the course: Wooden special structures, frame systems and stability of the frame. Holes and notches. Fire security in wood design. EC building code in timber design.

Prerequisites: WR2104

WR2321 Contract Agreement in Building Projects, 2 crs/3 ECTS crs

Objectives of the course: To learn the general conditions of contracting, their interpretation and to learn to make contracting documents.

Contents of the course: General conditions of contracting (YSE) and design (KSE), different forms of contracting and management of building projects. Hiring of machinery. Agreement of material supply.

Prerequisites:

WR2323 Quality Systems, 2 crs/3 ECTS crs

Objectives of the course: To familiarize students how to make good quality and what are the factors of quality

Contents of the course: Idea and importance of quality, costs of quality, quality systems (among others ISO 9000, quality prize models, RALA), Certification of persons and organisations

Prerequisites:

**WR2324 Special Course in Wood Technology, 1 crs/
1,5 ECTS crs**

Objectives of the course:

Contents of the course: Topics among wood technology from construction point of view. Moisture transfer in external panelling. Mechanical properties of wood. New wood products in construction.

Prerequisites: WR2104

WR2325 Estimating the Condition of Buildings and Writing a Maintenance Manual, 1 crs/1,5 ECTS crs

Objectives of the course: The students familiarize with different kinds of method of construction and estimate the condition of building structures.

Civil Engineering

Contents of the course:

Prerequisites:

WR2374 Project know-how, 2 crs/3 ECTS crs

Objectives of the course: During the course students will familiarize how they can create projects based by ideas. They will know different kind of projects and how to plan and control projects.

Contents of the course: Bases of projects and public fundings.

Prerequisites:

WR2407 Construction Physics, 2 crs/3 ECTS crs

Objectives of the course: To learn to understand the most important transfer phenomena and their causes in building physics

Contents of the course: Heat and moisture transfer in constructions. Thermal resistance. Moisture diffusion and capillarity. Drying and ventilation. Air convection and flow in construction. Sound insulation.

Prerequisites: WR2031, WR1901-1904

WR2408 Activities in house management and housing association, 2 crs/3 ECTS crs

Objectives of the course: Management of housing corporation

Contents of the course: Will be given later

Prerequisites:

WR2411 Repair methods and Condition of Concrete Structures, 2 crs/3 ECTS crs

Objectives of the course: The student familiarize with methods of repairing. Long-term durability of concrete structures. Main research material is concrete.

Contents of the course: Repairplanning and structural planning. Teamwork

Prerequisites: WR2413, Condition Investigations of Buildings

WR2413 Condition Investigations of Buildings, 2 crs/3 ECTS crs

Objectives of the course: The student familiarize with methods of Condition Investigations and measuring methods. Research material is concrete.

Contents of the course: Introduction to principles of concrete structures condition investigations (compressive strength, corrosion, carbonation, tensile strength and measuring of concrete cover)

Prerequisites:

WR2414 Fire protection at building and renovation work, 2 crs/3 ECTS crs

Objectives of the course: To familiarize the Finnish and EU orders of fire protection.

Contents of the course: The most important orders of fire protection, taking account the orders in design: fire resistance of building materials, fire compartments of a building, Risky working methods. Special features in renovation.

Prerequisites:

WR2416 Basics of accessible building planning for disabled people, 1 crs/1,5 ECTS crs

Objectives of the course: Taking account disabled people in construction design

Contents of the course:

Prerequisites:

WR2417 Ecological Construction, 2 crs/3 ECTS crs

Objectives of the course:

Contents of the course:

Prerequisites:

WR2418 Massive Wood Building Technology in Europe, 1 crs/1,5 ECTS crs

Objectives of the course: Students learn how they use massive wood in European buildings.

Contents of the course: The course will introduce students to different massive wood buildings and technology in Europe.

Prerequisites:

WR2420 Special features of the Russian building stock, 2 crs/3 ECTS crs

Objectives of the course: To familiarize with Russian building stock and need for renovation in Karelia

Contents of the course: Different constructions and damage of buildings in Russian Karelia.

Prerequisites:

WR2510 Project work of wooden structures, 1 crs/1,5 ECTS crs

Objectives of the course: Will be defined with coming projects.

Contents of the course: Will be defined later.

Prerequisites:

WR2611 Thermography and Moisture Measuring of Buildings, 2 crs/3 ECTS crs

Objectives of the course: The student familiarize with measuring methods of building physics and measuring equipments

Contents of the course: Subject matters are thermographic survey, damp measuring and analysing skills of research

Prerequisites:

WR2612 Stone technique I, 2 crs/3 ECTS crs

Objectives of the course: The unit gives basic readiness to work in the workshops with work safety rules.

Contents of the course: Working machines, equipment and their maintenance, right working techniques and methods, professional vocabulary and concepts. Working stone. After the course, the student gets The Model Workshop passport which gives one the right to work alone in the workshop.

Prerequisites: Not Required

WR2613 Stone technique II, 1 crs/1,5 ECTS crs

Objectives of the course: The goal of this course is to expand the student's knowledge of building models. Experiments with materials, combinations of materials, proper working methods and safety.

Contents of the course: Manufacturing a product, designed and visualised during the Basics of design Skill.

Prerequisites: Stone technique 1

WR2620 Export and international operations, 2 crs/3 ECTS crs

Objectives of the course: To familiarize exports of dimensional stone industry

Contents of the course: Will be given later

Prerequisites:

WR2621 Special features of marketing in export, 2 crs/3 ECTS crs

Objectives of the course: To familiarize the special features of exports of dimensional stone at different market area

Contents of the course: Will be given later

Prerequisites:

WR2634 Planning and guidance of a project, 2 crs/3 ECTS crs

Objectives of the course: Student will learn how to work in projects in practise.

Contents of the course: Student will work in real project.

Prerequisites:

DEGREE PROGRAMME IN ELECTRICAL ENGINEERING

General description and aims of the degree

Education in electrical engineering has been provided in Joensuu already since the beginning of the 80s by Wäertsilä Institute of Technology. In 1996, electrical engineering was combined with the training in information technology at North Karelia Polytechnic, where electricity was a specialisation alternative. In 2003, electrical engineering became an independent degree programme, with a close bond to the Degree Programme in Information Technology. With this move, the Degree Programmes can guarantee sufficient advanced professional studies of high quality and extensive optionality in professional studies. The training leads to a polytechnic degree in engineering, which contains 160 credits. In the studies, working life-orientation is emphasised, which is guaranteed by a 40 credit project- and practical training period completed in cooperation with the working life. The general objective of the degree is to train the students to be professionals in supervisor- and expert tasks in the field of electrical engineering, who will be able to meet the changing needs in both national and international labour market. The graduated engineers work in planning and selling, in production management, in supervisor- and expert tasks, or as sole traders in industry, business life and public administration. According to labour market researches, in practice everyone with a degree in electrical engineering has a job corresponding the studies. Cooperation partners include Pohjois-Karjalan Sähkö Oy and Enerke Oy.

Structure and syllabus of the studies

The studies consist of entities shown in the scale below. The student must always do his own personal study plan, which should fill the construction of the studies mentioned below. The optionality of the studies is fulfilled through selecting courses from professional and elective studies.

Basic studies 40 crs

Degree programme-specific studies 24 crs

Professional studies, a part of which are optional 36 crs

Practical training 40 crs

Thesis 10 crs

Optional studies 10 crs

Altogether 160 crs

The duration of the studies is usually four years of full-time studying, when the student takes approximately 40 credits a year.

Basic studies

The objective of basic studies is to create a basis for applying engineering and for professional studies. Basic studies (introduction to studying at the Polytechnic, physics, chemistry, mathematics, information technology, communication, Swedish and one or more foreign languages) are equal for everyone and they are implemented in cooperation with the Degree Programme in Information Technology.

Professional studies

Professional studies consist of degree programme-specific studies and option-specific professional studies. Degree programme-specific studies equip the students with basic abilities in engineering work and they create a basis for the actual professional studies. These studies are equal for everyone in the Degree Programme. The student must take 36 credits of professional studies. A part of professional studies is implemented together with the Degree Programme in Information Technology. The studies have been divided into study modules for grouping the studies. In order to facilitate choosing the studies, the study modules are called basic professional studies, professional postgraduate studies and professional specialisation studies.

Optional studies

The student may participate in optional studies that are offered either by their own Degree Programme or some other Degree Programme at North Karelia Polytechnic. Additionally, optional studies may be taken at any institution of higher education either in Finland or abroad. There is most time for optional studies in the third and fourth study year.

Practical training

The latter half of the spring semester, from the beginning of April till the end of the summer, in the second and third study year is reserved for practical training. The degree includes 40 credits of practical training, of which 32 credits are completed in companies and 8 cre-

dits are accomplished as project and laboratory work. In practical training, one week of supervised training equals one credit. An agreement with the employer, including definitions of the objectives and contents of the practical training, is always made of supervised practical training.

Thesis

The thesis includes 10 credits. In the thesis, the student independently applies his earlier studies and acquires new information in development projects, for example, for companies.

Orientation options / Elective studies

The degree contains approximately 10 credits of professional optional studies.

BASIC STUDIES

	Code	1. year	2. year	3. year	4. year
	PO01				
Introduction to Engineering English	WP1922K	2	0	0	0
Communication and Customer Service	WP1924K	0	2	0	0
Engineering Communication	WP1926K	0	0	2	0
Business Communication Face-to-face	WP1957K	0	0	1	0
Physics I	WI1920	2.5	0	0	0
Physics II	WI1921	3	0	0	0
Physics III	WI1922	0	2.5	0	0
Chemistry	WI1905	2	0	0	0
Mathematics I	WI1923	2	0	0	0
Mathematics II	WI1924	2	0	0	0
Mathematics III	WI1925	2	0	0	0
Mathematics IV	WI1926	2	0	0	0
Applied Mathematics I	WI1927	0	2	0	0
Applied Mathematics II	WI1928	0	1.5	0	0
Applied Mathematics III	WI1929	0	1.5	0	0
Methodological Studies in Engineering	WI1917	0	2	0	0
Working Life Swedish	WP1951	0	0	3	0
Communication I	WP1930	1	0	0	0
Communication II	WP1931	0	0	2	0
Information Technology in Business	WI1916	2	0	0	0

PROFESSIONAL STUDIES

	Code	1. year	2. year	3. year	4. year
	KO1				
Introduction to Automation Engineering	WI2019	2	0	0	0
Digital Electronics	WI2021	2	0	0	0
Introduction to Electronics	WI2020	2	0	0	0
Introduction to Engineering Studies	WI2016	1	0	0	0
Management and Personnel Administration	WI2004	0	0	0	2
Basic Laboratory Measurements	WI2018	1	0	0	0
Electrostatics and Magnetism	WS2050	2	0	0	0
Direct Current Circuits	WS2051	2	0	0	0
Alternating Current Circuits	WS2052	2	0	0	0
Electrical Transient	WS2053	0	2	0	0
Introduction to Industrial Economics	WI2002	0	0	3	0
Business Economics	WI2003	0	0	0	2
Business Game	WI2361	0	0	0	1

Electrical Engineering

STUDIES OF THE ORIENTATION OPTION		0	12	12	0
	SP1				
Introduction to Electrical Engineering	WS2250	0	2	0	0
Three phase power systems	WI2416	0	2	0	0
Computer Aided Design of Electrical Applications 1	WI2413	0	2	0	0
Distribution Networks in Buildings 1	WS2251	0	2	0	0
Distribution Networks in Buildings 2	WS2252	0	2	0	0
Electric Machines	WI2423	0	2	0	0
	SP2				
Power-Distribution Network Technology	WI2424	0	0	2	0
Power Electronics and Electrical Drives	WI2421	0	0	2	0
Computer Aided Design of Electrical Applications 2	WI2425	0	0	2	0
Safety Aspects of Electrical Engineering	WI2017	0	0	1	0
High Voltage Engineering	WI2442	0	0	2	0
Electrical Systems of Industrial Processes	WI2443	0	0	2	0
Security Systems	WS2253	0	0	1	0
	SP3				
Electrical Engineering, Lab Work I	WI2415	0	4	0	0
Electrical Engineering, Lab Work 2	WI2422	0	0	4	0
Elective studies		0	0	0	12
OPTIONAL STUDIES		0	0	0	10
PRACTICAL TRAINING		0	20	20	0
THESIS		0	0	0	10

BASIC STUDIES**WI1905 Chemistry, 2 crs/3 ECTS crs**

Objectives of the course: Learning and understanding basic chemistry.

Contents of the course: Matter, chemical reactions, mole, gases, concentration, chemical equilibrium, acids and bases, electrochemistry, basic organic chemistry.

Prerequisites:

WI1916 Information Technology in Business, 2 crs/3 ECTS crs

Objectives of the course: Student knows the basics of computing and is capable to produce quality documents and presentations.

Contents of the course: Computer basic terms and technique. Most common office programs: MS Word, MS Excel, MS PowerPoint (or equivalent) and Internet.

Prerequisites: none

WI1917 Methodological Studies in Engineering, 2 crs/3 ECTS crs

Objectives of the course: To develop symbolic thinking and problem solving skills. To give students meta-cognitive skills usefull in studies and engineering professions.

Contents of the course: Self-management and organizing work. Methods in product development, experiment design, and creative problem solving. Effective teamwork.

Prerequisites:

WI1920 Physics I, 2,5 crs/3,75 ECTS crs

Objectives of the course: The aim is to learn scientific thinking and methods applied in technology.

Contents of the course: The course includes kinematics, dynamics and basics of electricity. In addition to the theoretical studies, the course also includes laboratory work related to the topics. The course lays an emphasis on the particular degree program.

Prerequisites: -

WI1921 Physics II, 3 crs/4,5 ECTS crs

Objectives of the course: The aim is to learn scientific thinking and methods applied in technology.

Contents of the course: The course includes electricity, magnetism, thermophysics, and basics of solid state physics, fluid and gas mechanics. In addition to the theoretical studies, the course also includes laboratory work related to the topics. The course lays an emphasis on the particular degree program.

Prerequisites: WI1920 Physics I

WI1922 Physics III, 2,5 crs/3,75 ECTS crs

Objectives of the course: The aim is to learn scientific thinking and methods applied in technology.

Contents of the course: The course includes oscillating motion and basics of optics, wave motion, photometrics and radiation physics. The course also includes obligatory laboratory work. The course aims at laying an emphasis on the particular degree program.

Prerequisites: WI1921 Physics II

WI1923 Mathematics I, 2 crs/3 ECTS crs

Objectives of the course: The aim is to learn mathematical thinking and methods applied to technology

Contents of the course: Arithmetic, algebra and trigonometry

Prerequisites:

WI1924 Mathematics II, 2 crs/3 ECTS crs

Objectives of the course: The aim is to learn mathematical thinking and methods applied to technology

Contents of the course: Geometry, vector algebra, matrix algebra and analytic geometry

Prerequisites:

WI1925 Mathematics III, 2 crs/3 ECTS crs

Objectives of the course: The aim is to learn mathematical thinking and methods applied to technology

Contents of the course: Differential Calculus of one variable

Prerequisites:

WI1926 Mathematics IV, 2 crs/3 ECTS crs

Objectives of the course: The aim is to learn mathematical thinking and methods applied to technology

Contents of the course: Integral calculus of one variable

Prerequisites:

WI1927 Applied Mathematics I, 2 crs/3 ECTS crs

Objectives of the course: The aim is to learn mathematical thinking and methods applied to technology

Contents of the course: Ordinary differential equations. Sequences and series.

Prerequisites:

WI1928 Applied Mathematics II, 1,5 crs/2,25 ECTS crs

Objectives of the course: The aim is to learn mathematical thinking and methods applied to technology

Contents of the course: Transforms of functions. Laplace Transforms and Z-transforms.

Prerequisites:

Electrical Engineering

**WI1929 Applied Mathematics III, 1,5 crs/
2,25 ECTS crs**

Objectives of the course: The aim is to learn mathematical thinking and methods applied to technology

Contents of the course: Probability and Statistics

Prerequisites:

**WP1922K Introduction to Engineering English,
2 crs/3 ECTS crs**

Objectives of the course: The course revises grammatical structures of English and offers practise in everyday communication situations; Telling about yourself and your studies; Travelling; Applying for a job in English; Self assessment and study methods.

Contents of the course: Studies, telling about yourself, grammar revision, speaking strategies and small talk, nationalities and cultural differences, writing a job application letter and a CV, job interview, basic telephone situations, oral presentation, summarising a text.

Prerequisites: matriculation exam or vocational degree

**WP1924K Communication and Customer Service,
2 crs/3 ECTS crs**

Objectives of the course: The course concentrates on more difficult technical English texts and different forms of discourse. Focussing on Finnish industry as well as company correspondence. The course improves oral presentation skills.

Contents of the course: Themes are: effective communication through different media, discourse, studies, Finnish industry, business correspondence, email, telephone, product and company presentations. Some field-specific terminology.

Prerequisites: WP1922k

**WP1926K Engineering Communication, 2 crs/
3 ECTS crs**

Objectives of the course: Students learn to communicate in professional spoken and written situations. They learn to use language learning aids as well as professional texts. The aim is also to focus on professional and academic writing, process descriptions and trade fair situations.

Contents of the course: Reading and writing technical and academic texts, reporting, process description, spoken presentations and trade fair situations. Self assessment. Grammar review, if needed.

Prerequisites: WP1924k

WP1930 Communication I, 1 crs/1,5 ECTS crs

Objectives of the course: A student can make the documents needed in the studying and working life. A student knows the principles of communication and can

plan and carry on speeches for different situations.

Contents of the course: Technical and scientific documents, speeches.

Prerequisites: Vocational school or high school

WP1931 Communication II, 2 crs/3 ECTS crs

Objectives of the course: Objectives of the course: A student knows how to make the documents needed in the studying and working life. A student knows the principles of team working, conferences and meetings and he/she can prepare speeches for different situations. A student knows the meaning of communication in organizations.

Contents of the course: Documents, reports, the know-how of meetings, conferences and speeches.

Prerequisites: Communication I

WP1951 Working Life Swedish, 3 crs/4,5 ECTS crs

Objectives of the course: The student can use Swedish in oral and written working life situations, he understands professional literature, magazines and internet pages in Swedish.

Contents of the course: Engineering studies in Finland and Sweden, job application and an interview for a job, an engineer as a host and a guest, company presentation, process/product description, using telephone and email, trade fairs, meetings, using professional texts, cultural differences in working life

Prerequisites: Matriculation or vocational examination

WP1957K Business Communication Face-to-face, 1 crs/1,5 ECTS crs

Objectives of the course: The student improves oral skills and is able to cope in more demanding spoken situations. He is able to follow the life and events in the target country.

Contents of the course: Describing one's work, meeting and negotiation skills and central terminology. English newspaper articles, news and documentaries. Discussions with native teacher.

Prerequisites: WP1926K

PROFESSIONAL STUDIES

WI2002 Introduction to Industrial Economics, 3 crs/4,5 ECTS crs

Objectives of the course: Students know the founding of enterprise and basic information of functions of enterprise and industrial economics.

Contents of the course: -national economy -enterprise -founding of enterprise -organizing and management - production

Prerequisites:

WI2003 Business Economics, 2 crs/3 ECTS crs

Objectives of the course: Students can apply knowledge of business economics when he is enterpriser or in responsible job.

Contents of the course: -introduction of course -financial Accounting -concepts of costs -optimization of profitability and costs -cost accounting -pricing -optimization of product range -productional investment -management accounting -principles of business accounting -analysis of the financial statements

Prerequisites: WI2002 Introduction of Industrial Economics

WI2004 Management and Personnel Administration, 2 crs/3 ECTS crs

Objectives of the course: Basics in management and leadership, managing and training personnel

Contents of the course: Management and leadership, managing and training personnel. The way an organisation operates. Management and communication. Personnel policy. Direction and training. Inducements.

Prerequisites:

WI2016 Introduction to Engineering Studies, 1 crs/1,5 ECTS crs

Objectives of the course: Student will understand the structure of studies.

Contents of the course: Structure of studies. Study resources. Premises, Engineering requirements. Study plans. Information services. Learning methods. Student will complete the following practices: Personal Study Plan (HOPS), finnish and english job application, feedback via OPALA and grouping in Patvisuo

Prerequisites: none

WI2018 Basic Laboratory Measurements, 1 crs/1,5 ECTS crs

Objectives of the course: Mastering basic measurement devices.

Contents of the course: Basic measurements and measuring methods in laboratories. Electrical safety precautions in laboratories.

Prerequisites: -

WI2019 Introduction to Automation Engineering, 2 crs/3 ECTS crs

Objectives of the course: Introduction to automation.

Contents of the course: History of automation. Automation devices. Hardware, functions and programming of automation systems. Sensors and actuators. Introduction to continuous control.

Prerequisites:

WI2020 Introduction to Electronics, 2 crs/3 ECTS crs

Objectives of the course: Overview on electronics, terminology of electronics.

Contents of the course: Fundamental concepts of analogue and digital electronics, microprocessors, and manufacturing technology of electronic devices and components.

Prerequisites: -

WI2021 Digital Electronics, 2 crs/3 ECTS crs

Objectives of the course: Main objective is to learn those basic methods and principles of digital electronics which are applied in electrical engineering.

Contents of the course: Number systems, boolean algebra, combinational logic and sequential logic. In addition to the theoretical studies, the course also includes laboratory work related to the topics.

Prerequisites: WI2020 Elektronikaan perusteet

WI2361 Business Game, 1 crs/1,5 ECTS crs

Objectives of the course: This course provides an overall view of the management of a manufacturing company through a simulation model.

Contents of the course: The course is carried out by playing a business simulation game. Students form groups of 3-5 students, who compete with each other. These groups make decisions concerning manufacturing, financing and marketing, taking into consideration information given by the particular line of business. The game continues through many accounting periods and the winning team is the one that has the largest profit at the end of the game. Students will analyze their decisions and make a final report.

Prerequisites:

WS2050 Electrostatics and Magnetism, 2 crs/3 ECTS crs

Objectives of the course: Electromagnetic theory in terms of modern mathematics.

Contents of the course: Basics of electromagnetism, electromagnetic fields, induction and introduction to circuit theory.

Prerequisites:

WS2051 Direct Current Circuits, 2 crs/3 ECTS crs

Objectives of the course: Basics of direct current circuits.

Contents of the course: Basic components and laws of direct current circuits, current and power calculation and simulation.

Prerequisites:

Electrical Engineering

WS2052 Alternating Current Circuits, 2 crs/ 3 ECTS crs

Objectives of the course: Basics laws of alternating current circuits.

Contents of the course: Basics laws of alternating current circuits, calculation and simulation of single phase systems and introduction to three phase systems.

Prerequisites:

WS2053 Electrical Transient, 2 crs/3 ECTS crs

Objectives of the course: The aim is to learn the terms and reasons for the transient and its effects to circuits.

Contents of the course: DC circuits, alternating current circuits, voltage calculations, energy transition, Laplace conversion.

Prerequisites: WS2050, WS2051, WS2052

WI2017 Safety Aspects of Electrical Engineering, 1 crs/1,5 ECTS crs

Objectives of the course: The aim is to learn accident risks caused by electric equipments, how to avoid accidents, regulations of safety and sources of information for electrical safety regulations.

Contents of the course: Electrical safety regulations, accident avoidance, actions in accidents.

Prerequisites:

WI2413 Computer Aided Design of Electrical Applications 1, 2 crs/3 ECTS crs

Objectives of the course: The aim is to learn to use CAD application which uses database to save the material information. In addition the aim is to learn documentation procedures used in electric systems design.

Contents of the course: Basics of CAD application, user interface, use of symbols, drawing objects, managing layers, etc.

Prerequisites:

WI2415 Electrical Engineering, Lab Work I, 4 crs/ 6 ECTS crs

Objectives of the course: Introduction to measurements of electrical circuits and safety regulations in laboratory.

Contents of the course: Introduction to measurements of electrical circuits, characteristics of power distribution system components, transformers, power distribution networks and basics of power electronics.

WI2416 Three phase power systems, 2 crs/ 3 ECTS crs

Objectives of the course: The aim is to learn three phase power systems in normal use and in malfunction.

Contents of the course: Symmetric three phase power systems.

Prerequisites: WS2052

WI2421 Power Electronics and Electrical Drives, 2 crs/3 ECTS crs

Objectives of the course: The aim is to learn the selection of electric motors, the basics of power electronics, principles of operation and dimensioning basics.

Contents of the course: Components of power electronics, wiring, dimensioning.

Prerequisites: WI2412, WI2416

WI2422 Electrical Engineering, Lab Work 2, 4 crs/ 6 ECTS crs

Objectives of the course: The aim is to apply the skills learned in theoretical studies.

Contents of the course: Distribution network, switching equipments, electric motors, low tension networks, control systems.

Prerequisites: WI2415

WI2423 Electric Machines, 2 crs/3 ECTS crs

Objectives of the course: The aim is to give a general view of the structure of electric machines, operational principles, usage and maintenance.

Contents of the course: Electric machines, synchronous machines, asynchronous machine, DC motors, servo motors.

Prerequisites: WI2412, WI2416

WI2424 Power-Distribution Network Technology, 2 crs/3 ECTS crs

Objectives of the course: The aim is to learn the technology used in generation of electrical energy and in distribution.

Contents of the course: The structure of distribution network, equipments, operation, usage and protection. The malfunction of the distribution network and recovery. Costs of the generation of electric energy and the distribution.

Prerequisites: WI2250

WI2425 Computer Aided Design of Electrical Applications 2, 2 crs/3 ECTS crs

Objectives of the course: The aim is to learn to use CAD application in planning and dimensioning distribution network used in buildings. In addition the target is to learn documentation principles and calculations used in planning process.

Contents of the course:

Prerequisites: WI2412, WI2414

WI2442 High Voltage Engineering, 2 crs/ 3 ECTS crs

Objectives of the course: The aim is to learn the technology used in high tension current, safety regulations and standards.

Contents of the course: Properties of wires, isolation attributes, overvoltage protection, voltage stress

Prerequisites: WI2424

WI2443 Electrical Systems of Industrial Processes, 2 crs/3 ECTS crs

Objectives of the course: The aim is to learn electric dimensioning, documentation and safety regulations used in process industry.

Contents of the course: Wiring, electric motor dimensioning, grounding and safety regulations.

Prerequisites: WI2421, WI2423

WS2250 Introduction to Electrical Engineering, 2 crs/3 ECTS crs

Objectives of the course: The basic aim is to get student to be familiar with basic concept of electrical circuits, components, power and connections.

Contents of the course: Basics of electrical circuits, components, power and connections, basic laws to calculate circuits current, voltage and power, resonance, power transmission.

Prerequisites:

WS2251 Distribution Networks in Buildings 1, 2 crs/3 ECTS crs

Objectives of the course: The aim is to learn basics of distribution of electricity in building, electrical equipments and desing basics.

Contents of the course: The principles of distribution of electricity, equipments, network design, grounding, safety aspects of electricity and planning standars.

Prerequisites:

WS2252 Distribution Networks in Buildings 2, 2 crs/3 ECTS crs

Objectives of the course: The aim is to learn the procedures used in planning electric distribution networks in buildings.

Contents of the course: Planning procedures, contracting, standards

Prerequisites: WI2412, WI2416, WS2251

WS2253 Security Systems, 1 crs/1,5 ECTS crs

Objectives of the course: The aim is to learn basic skills to plan and implement alarm and control systems used in buildings.

Contents of the course: The course includes locking systems, access control systems, work time monitoring, burglar alarms, fire alarms and camera surveillance systems.

Prerequisites:

DEGREE PROGRAMME IN INFORMATION TECHNOLOGY

General description and aims of the degree

Students view

The objective of the degree programme is to train the students to be professionals in the field of information technology, who will be able to meet the changing needs in both national and international labor market. Also, the aim is to provide the student with versatile knowledge of telecommunications, programming, industrial automation and electronics. The objective of the degree programme is to develop the student's team-working skills and create facility for continuous learning and for development of both himself/herself and the work community. The studies of the degree programme also equip students for practicing own entrepreneurship.

View of the working life

The objective of the degree programme is to produce experts of high level in information technology, who can control computers and the interdependency between industrial, economical and administrative processes around them. Also, the aim of the degree programme is to quickly and flexibly meet the demand for experts in developing business life. The degree programme supports and develops local business life in close cooperation with companies and other cooperative quarters.

Structure and syllabus of the studies

The set duration of the studies is four years of full-time studying. Then the student receives approximately 40 credits a year. However, due to practical training, which is partly carried out in the summer time, the student has a chance to receive even more credits in his/her second and third study year. Then the student has more time to go deeply into his/her thesis in the last study year.

Basic studies

The objective of basic studies is to create a basis for applying engineering and for professional studies. Basic studies (introduction to studying at the polytechnic, physics, chemistry, mathematics, information technology, communication, Swedish and one or more foreign languages) are equal for everyone.

Professional studies

Professional studies consist of degree programme-specific studies and specialization option-specific profes-

sional studies. Degree programme-specific studies equip the students with basic skills to engineering work and they create a basis for the actual professional studies. The studies are equal for everyone in the degree programme, except the students of electrical engineering who have courses WI2010 ... WI2014 as optional studies. The student must take 48 credits of professional studies. At least 24 of these credits must be taken from the same specialization option. The studies are divided into study modules of 12 credits, which divide the studies into periods. The student is recommended to take 12 credits from his/her specialization option in the second study year, 12 credits in the third and 12 credits in the last year. In the third year, the student should also take 12 credits of professional studies from some other module of professional subjects. In order to facilitate the guidance of choosing the studies, the study modules are called basic professional studies, professional post-graduate studies and professional specialization studies.

Optional studies

Student may participate in optional studies that are offered in either their own degree programme or other degree programme at North Karelia Polytechnic. Additionally, optional studies may be taken at any institution of higher education either in Finland or abroad. There is most time for optional studies in the third and fourth study year.

Practical training

The latter half of the spring semester, from the beginning of April, in the second and third study year is reserved for practical training. The exam includes 20 credits of instructed practical training. In the product-orientated option the practical training consist of 40 credits, of which 32 credits are carried out in companies and 8 credits are accomplished as laboratory work at the institution of higher education.

Orientation options / Elective studies

Specialization options

- Automation engineering
- Electronics
- Telecommunication
- Software engineering

Automation Engineering

Automation engineers are placed at various duties in almost every branch of industry and economic life. In industry, an automation engineer often works with planning, implementing and applying automation systems. Other duties are, among other things, product development, marketing and purchasing as well as project conduction. The market for the departments that produce automation systems is often world-wide, so the branch gives opportunities also for international duties. The student who has automation as his/her specialization option will in particular get into planning and applying process- and building automation.

Electronics

Students of electronics get acquainted into planning and preparing electronic equipment. In the specialization option of electronics, both analogical and digital electronics as well as microcomputer technology and microelectronics will be studied. Practical studying is supported by an own line for preparing circuit boards and a clean-space laboratory of microelectronics.

Telecommunication

Students of telecommunication are equipped with know-

wledge of systems and technology of data transmission. In a telecommunications laboratory in Tiedepuisto (Science Park) the students have excellent opportunities to get acquainted with planning and maintaining wide mesh networks.

Software engineering

The specialization option of software engineering equips the students for different fields of software engineering in requirement specification, design, programming and testing as well as in quality control and management and software maintenance. In addition to programming-, project- and design skills, also team-work and communication skills in many languages are emphasized in particular.

Electrical engineering

Students of electrical engineering get good facilities to get qualification in electricians. Controlling wide electro-technical entities offers interesting and challenging opportunities in planning, marketing, contracting and applying assignments. In this specialization option, some degree programme-specific studies have been replaced by instructed practical training in working life and in an electrical laboratory.

BASIC STUDIES

Common Basic Studies

Introduction to Engineering English
 Communication and Customer Service
 Engineering Communication
 Business Communication Face-to-face
 Physics I
 Physics II
 Physics III
 Chemistry
 Mathematics I
 Mathematics II
 Mathematics III
 Mathematics IV
 Applied Mathematics I
 Applied Mathematics II
 Applied Mathematics III
 Methodological Studies in Engineering
 Working Life Swedish
 Communication I
 Communication II
 Information Technology in Business

Code	1. year	2. year	3. year	4. year
P01				
WP1922K	2	0	0	0
WP1924K	0	2	0	0
WP1926K	0	0	2	0
WP1957K	0	0	0	1
WI1920	2.5	0	0	0
WI1921	3	0	0	0
WI1922	0	2.5	0	0
WI1905	0	2	0	0
WI1923	2	0	0	0
WI1924	2	0	0	0
WI1925	2	0	0	0
WI1926	2	0	0	0
WI1927	0	2	0	0
WI1928	0	1.5	0	0
WI1929	0	1.5	0	0
WI1917	0	2	0	0
WP1951	0	0	3	0
WP1930	1	0	0	0
WP1931	0	0	2	0
WI1916	2	0	0	0

Information Techonology

PROFESSIONAL STUDIES

Common Professional Studies

K01

Introduction to Automation Engineering	WI2019	2	0	0	0
Digital Electronics	WI2021	2	0	0	0
Introduction to Electronics	WI2020	2	0	0	0
Introduction to Engineering Studies	WI2016	1	0	0	0
Management and Personnel Administration	WI2004	0	0	0	2
Linear Systems	WI2006	0	2	0	0
Basic Laboratory Measurements	WI2018	1	0	0	0
Programming	WI2014	2	0	0	0
Introduction to Industrial Economics	WI2002	0	0	3	0
Computer Systems	WI2010	2	0	0	0
Introduction to Data Communications	WI2023	2	0	0	0
Business Economics	WI2003	0	0	0	2
Business Game	WI2361	0	0	0	1

STUDIES OF THE ORIENTATION OPTION

0 14 14 14

Automation Engineering

Basic Studies in Automation Engineering

A01

Sensors and Transducers	WI2102	0	2	0	0
PC -Based Control Systems	WI2101	0	2	0	0
Basics of Electrical Power	WI2412	0	2	0	0
Basics of Control Engineering	WI2103	0	2	0	0
Industrial Automation I	WI2100	0	4	0	0
Technical Documentation	WI2015	0	2	0	0

Advanced Studies in Automation Engineering

A02

Automation Project Management	WI2120	0	0	2	0
Measurement Technology	WI2123	0	0	2	0
Local Area Networks	WI2013	0	0	2	0
Process Engineering	WI2122	0	0	2	0
Control Engineering	WI2124	0	0	2	0
Industrial Automation, Lab Work	WI2121	0	0	2	0
Project Work in Industrial Automation	WI2140	0	0	2	0

Special Studies in Automation Engineering

A03

Obligatory Courses

A031

Distributed Control Systems	WI2141	0	0	0	2
-----------------------------	--------	---	---	---	---

Electronics

Basic Studies in Electronics

E01

Analogue Electronics	WI2022	0	2	0	0
Computer Aided Design of Electronics	WI2204	0	2	0	0
Introduction to Electrical Engineering	WI2205	0	2	0	0
Micro Computers	WI2202	0	4	0	0
Electronic Circuits	WI2201	0	4	0	0

Advanced Studies in Electronics

E02

Digital Equipment Design	WI2203	0	0	2	0
Electronics II	WI2225	0	0	3	0
Project Work in Electronics	WI2227	0	0	2	0
Production Methods in Electronics	WI2223	0	0	2	0
Management of Electronics Development Project	WI2224	0	0	2	0
Embedded Systems	WI2220	0	0	3	0

Special Studies in Electronics	E03				
	E031				
Special Studies in Production Methods in Electronics	WI2226	0	0	0	2
Amplifier Design	WI2362	0	0	0	2
Design of Microelectronic Circuits	WI2256	0	0	0	2
Software Technology					
Basic Studies in Software Technology	O01				
C-Programming	WI2307	0	3	0	0
Human-Computer Interaction	WI2306	0	2	0	0
Software Engineering	WI2310	0	2	0	0
Object Oriented Programming in Java	WI2308	0	3	0	0
Relational Data Bases	WI2326	0	2	0	0
Unix Operating System	WI2303	0	2	0	0
Advanced Studies in Software Technology	O02				
Operating Systems	WI2011	0	0	2	0
Software Project Management	WI2320	0	0	2	0
Object Oriented Programming in C++	WI2322	0	0	2	0
Design Methods of Object Oriented Programmes	WI2321	0	0	2	0
Design of Testing	WI2325	0	0	2	0
Data Structures	WI2304	0	0	2	0
Special Studies in Software Technology	O03				
	O031				
Project Work in Software Engineering	WI2341	0	0	0	4
Software Process Improvement	WI2376	0	0	0	2
Data Communications					
Basic Studies in Data Communications	T01				
Local Area Networks	WI2013	0	2	0	0
Introduction to Radio Communications Engineering	WI2505	0	2	0	0
Telecommunication Networks	WI2509	0	2	0	0
OSI-Model in Communications	WI2508	0	3	0	0
Data Communications Laboratory	WI2507	0	3	0	0
WINDOWS/UNIX Networks	WI2506	0	2	0	0
Advanced Studies in Data Communications	T02				
Digital Transmission Systems	WI2534	0	0	3	0
Fixed Radio Link Systems	WI2537	0	0	2	0
Switching and Routing in Local and Wide Area Networks	WI2533	0	0	4	0
Mobile Communication Networks	WI2536	0	0	3	0
Network Security	WI2527	0	0	2	0
Special Studies in Data Communications	T03				
Advanced Features of IP Routing	WI2531	0	0	0	4
Data Communications Project	WI2526	0	0	0	3
New Networking Technologies	WI2532	0	0	0	3
Elective studies		0	0	14	0
OPTIONAL STUDIES		0	4	0	6
PRACTICAL TRAINING		0	15	5	0
THESIS		0	0	0	10

Information Technology

BASIC STUDIES

WI1905 Chemistry, 2 crs/3 ECTS crs

Objectives of the course: Learning and understanding basic chemistry.

Contents of the course: Matter, chemical reactions, mole, gases, concentration, chemical equilibrium, acids and bases, electrochemistry, basic organic chemistry.

Prerequisites:

WI1916 Information Technology in Business, 2 crs/3 ECTS crs

Objectives of the course: Student knows the basics of computing and is capable to produce quality documents and presentations.

Contents of the course: Computer basic terms and technique. Most common office programs: MS Word, MS Excel, MS PowerPoint (or equivalent) and Internet.

Prerequisites: none

WI1917 Methodological Studies in Engineering, 2 crs/3 ECTS crs

Objectives of the course: To develop symbolic thinking and problem solving skills. To give students meta-cognitive skills usefull in studies and engineering professions.

Contents of the course: Self-management and organizing work. Methods in product development, experiment design, and creative problem solving. Effective teamwork.

Prerequisites:

WI1920 Physics I, 2,5 crs/3,75 ECTS crs

Objectives of the course: The aim is to learn scientific thinking and methods applied in technology.

Contents of the course: The course includes kinematics, dynamics and basics of electricity. In addition to the theoretical studies, the course also includes laboratory work related to the topics. The course lays an emphasis on the particular degree program.

Prerequisites: -

WI1921 Physics II, 3 crs/4,5 ECTS crs

Objectives of the course: The aim is to learn scientific thinking and methods applied in technology.

Contents of the course: The course includes electricity, magnetism, thermophysics, and basics of solid state physics, fluid and gas mechanics. In addition to the theoretical studies, the course also includes laboratory work related to the topics. The course lays an emphasis on the particular degree program.

Prerequisites: WI1920 Physics I

WI1922 Physics III, 2,5 crs/3,75 ECTS crs

Objectives of the course: The aim is to learn scientific thinking and methods applied in technology.

Contents of the course: The course includes oscillating motion and basics of optics, wave motion, photometrics and radiation physics. The course also includes obligatory laboratory work. The course aims at laying an emphasis on the particular degree program.

Prerequisites: WI1921 Physics II

WI1923 Mathematics I, 2 crs/3 ECTS crs

Objectives of the course: The aim is to learn mathematical thinking and methods applied to technology

Contents of the course: Arithmetic, algebra and trigonometry

Prerequisites:

WI1924 Mathematics II, 2 crs/3 ECTS crs

Objectives of the course: The aim is to learn mathematical thinking and methods applied to technology

Contents of the course: Geometry, vector algebra, matrix algebra and analytic geometry

Prerequisites:

WI1925 Mathematics III, 2 crs/3 ECTS crs

Objectives of the course: The aim is to learn mathematical thinking and methods applied to technology

Contents of the course: Differential Calculus of one variable

Prerequisites:

WI1926 Mathematics IV, 2 crs/3 ECTS crs

Objectives of the course: The aim is to learn mathematical thinking and methods applied to technology

Contents of the course: Integral calculus of one variable

Prerequisites:

WI1927 Applied Mathematics I, 2 crs/3 ECTS crs

Objectives of the course: The aim is to learn mathematical thinking and methods applied to technology

Contents of the course: Ordinary differential equations. Sequences and series.

Prerequisites:

WI1928 Applied Mathematics II, 1,5 crs/2,25 ECTS crs

Objectives of the course: The aim is to learn mathematical thinking and methods applied to technology

Contents of the course: Transforms of functions. Laplace Transforms and Z-transforms.

Prerequisites:

**WI1929 Applied Mathematics III, 1,5 crs/
2,25 ECTS crs**

Objectives of the course: The aim is to learn mathematical thinking and methods applied to technology

Contents of the course: Probability and Statistics

Prerequisites:

**WP1922K Introduction to Engineering English,
2 crs/3 ECTS crs**

Objectives of the course: Students will be introduced to engineering English. Review of some grammar and studying professional terminology. Students learn the job application process and they learn to write application documents. The aim is also to practise using language learning aids in reading and writing texts. Students practise spoken situations.

Contents of the course: social contacts, small talk, telling about yourself and Finland, study terminology, nationalities, travelling, talking about work, applying for a job. Telephone terminology and professional terminology.

Prerequisites: matriculation exam or vocational degree

**WP1924K Communication and Customer Service,
2 crs/3 ECTS crs**

Objectives of the course: The course concentrates on more difficult technical English texts and different forms of discourse. Focussing on Finnish industry as well as company correspondence. The course improves oral presentation skills.

Contents of the course: Themes are: effective communication through different media, discourse, studies, Finnish industry, business correspondence, email, telephone, product and company presentations. Some field-specific terminology.

Prerequisites: WP1922k

**WP1926K Engineering Communication, 2 crs/
3 ECTS crs**

Objectives of the course: Students learn to communicate in professional spoken and written situations. They learn to use language learning aids as well as professional texts. The aim is also to focus on professional and academic writing, process descriptions and trade fair situations.

Contents of the course: Reading and writing technical and academic texts, reporting, process description, spoken presentations and trade fair situations. Self assessment. Grammar review, if needed.

Prerequisites: WP1924k

WP1930 Communication I, 1 crs/1,5 ECTS crs

Objectives of the course: A student can write documents needed in the studying and working life. He/she knows the principles of communication and can make and perform speeches for different situations.

Contents of the course: Technical and scientific documents, speeches.

Prerequisites: Vocational school or high school

WP1931 Communication II, 2 crs/3 ECTS crs

Objectives of the course: A student knows how to make the documents needed in the studying and working life. A student knows the principles of team working, conferences and meetings and he/she can prepare speeches for different situations. A student knows the meaning of communication in organizations.

Contents of the course: Documents, reports, the knowhow of meetings, conferences and speeches.

Prerequisites: Communication I

WP1951 Working Life Swedish, 3 crs/4,5 ECTS crs

Objectives of the course: The student can use Swedish in oral and written working life situations, he understands professional literature, magazines and internet pages in Swedish.

Contents of the course: Engineering studies in Finland and Sweden, job application and an interview for a job, an engineer as a host and a guest, company presentation, process/product description, using telephone and email, trade fairs, meetings, using professional texts, cultural differences in working life

Prerequisites: Matriculation or vocational examination

**WP1957K Business Communication Face-to-face,
1 crs/1,5 ECTS crs**

Objectives of the course: The student improves oral skills and is able to cope in more demanding spoken situations. He is able to follow the life and events in the target country.

Contents of the course: Describing one's work, meeting and negotiation skills and central terminology. English newspaper articles, news and documentaries. Discussions with native teacher.

Prerequisites: WP1926K

PROFESSIONAL STUDIES

**WI2002 Introduction to Industrial Economics,
3 crs/4,5 ECTS crs**

Objectives of the course: Students know the founding of enterprise and basic information of functions of enterprise and industrial economics.

Information Technology

Contents of the course: -national economy -enterprise -founding of enterprise -organizing and management – production

Prerequisites:

WI2003 Business Economics, 2 crs/3 ECTS crs

Objectives of the course: Students can apply knowledge of business economics when he is enterpriser or in responsible job.

Contents of the course: -introduction of course -financial Accounting -concepts of costs -optimization of profitability and costs -cost accounting -pricing -optimization of product range -productional investment -management accounting -principles of business accounting -analysis of the financial statements

Prerequisites: WI2002 Introduction of Industrial Economics

WI2004 Management and Personnel Administration, 2 crs/3 ECTS crs

Objectives of the course: Basics in management and leadership, managing and training personnel

Contents of the course: Management and leadership, managing and training personnel. The way an organisation operates. Management and communication. Personnel policy. Direction and training. Inducements.

Prerequisites:

WI2006 Linear Systems, 2 crs/3 ECTS crs

Objectives of the course: This course introduces the students to the basic mathematical techniques and methods needed in information technics.

Contents of the course: Signals and spectrums; Systems and frequency response; Properties of the discrete signals; Linear time-invariant systems.

Prerequisites:

WI2010 Computer Systems, 2 crs/3 ECTS crs

Objectives of the course: Learning to understand basics of micro computer technology. Learning the effect of different system components on overall computing power. Learning the installation of operating systems, common application software and most common peripherals and their drivers.

Contents of the course: Modern processors, motherboard technology, peripheral components, memory components, buss structures etc.

Prerequisites: -

WI2014 Programming, 2 crs/3 ECTS crs

Objectives of the course: Making simple programmes in Java

Contents of the course: Principles and work phases in language based command programming. Making small programmes using Java programming language

Prerequisites:

WI2016 Introduction to Engineering Studies, 1 crs/1,5 ECTS crs

Objectives of the course: Student will understand the structure of studies.

Contents of the course: Structure of studies. Study resources. Premises, Engineering requirements. Study plans. Information services. Learning methods. Student will complete the following practices: Personal Study Plan (HOPS), finnish and english job application, feedback via OPALA and grouping in Patvisuo.

Prerequisites: none

WI2018 Basic Laboratory Measurements, 1 crs/1,5 ECTS crs

Objectives of the course: Mastering basic measurement devices.

Contents of the course: Basic measurements and measuring methods in laboratories. Electrical safety precautions in laboratories.

Prerequisites: -

WI2019 Introduction to Automation Engineering, 2 crs/3 ECTS crs

Objectives of the course: Introduction to automation.

Contents of the course: History of automation. Automation devices. Hardware, functions and programming of automation systems. Sensors and actuators. Introduction to continuous control.

Prerequisites:

WI2020 Introduction to Electronics, 2 crs/3 ECTS crs

Objectives of the course: Overview on electronics, terminology of electronics.

Contents of the course: Fundamental concepts of analogue and digital electronics, microprocessors, and manufacturing technology of electronic devices and components.

Prerequisites: -

WI2021 Digital Electronics, 2 crs/3 ECTS crs

Objectives of the course: Main objective is to learn those basic methods and principles of digital electronics which are applied in electrical engineering.

Contents of the course: Number systems, boolean algebra, combinational logic and sequential logic. In addition to the theoretical studies, the course also includes

laboratory work related to the topics.

Prerequisites: WI 2020 Basic Electronics

WI2023 Introduction to Data Communications, 2 crs/3 ECTS crs

Objectives of the course: Introduction to the concepts and principles of modern data communications systems.

Contents of the course: Fundamental concepts of data communication (presentation of information, signals, compression methods, the OSI-model etc.), modern communication networks and services.

Prerequisites: No prerequisites.

WI2361 Business Game, 1 crs/1,5 ECTS crs

Objectives of the course: This course provides an overall view of the management of a manufacturing company through a simulation model.

Contents of the course: The course is carried out by playing a business simulation game. Students form groups of 3-5 students, who compete with each other. These groups make decisions concerning manufacturing, financing and marketing, taking into consideration information given by the particular line of business. The game continues through many accounting periods and the winning team is the one that has the largest profit at the end of the game. Students will analyze their decisions and make a final report.

Prerequisites:

WI2011 Operating Systems, 2 crs/3 ECTS crs

Objectives of the course: Student can explain the principles of modern operating systems

Contents of the course: How different kind of operating systems work, kernel of os, memory management and file systems. Course os is Windows 2000.

Prerequisites:

WI2013 Local Area Networks, 2 crs/3 ECTS crs

Objectives of the course: Learning the structure and functional principles of local area networks (LANs).

Contents of the course: The history and background of local area networks, fundamental principles of Ethernet-LANs, cabling, active components, LAN management, future prospects.

Prerequisites: No prerequisites.

WI2015 Technical Documentation, 2 crs/3 ECTS crs

Objectives of the course: Understanding the common standards of technical drawing. The student can make drawings according to the standards.

Contents of the course: Documents of information systems and their documentation. Process and instrumentation diagrams. Electrical drawing. National and international standards. Basics of CAD.

Prerequisites: None

WI2022 Analogue Electronics, 2 crs/3 ECTS crs

Objectives of the course:

Contents of the course: Fundamental components and circuits in analogue electronics: semiconductors, diodes, and transistors.

Prerequisites: WI2020 Basic Electronics

WI2100 Industrial Automation I, 4 crs/6 ECTS crs

Objectives of the course:

Contents of the course: Introduction to programmable automation device. Hardware and functions. Programming of PLC. Connection of field instruments to automation system. Analog and sequence control. Exercises and laboratory works.

Prerequisites: WI2009 Digital electronics

WI2101 PC -Based Control Systems, 2 crs/3 ECTS crs

Objectives of the course: Using PC in automation.

Contents of the course: Benefits and disadvantages of using PC in automation. Planning of Human Machine Interface (HMI). Introduction to visualisation software.

Prerequisites: WI2100 Industrial automation

WI2102 Sensors and Transducers, 2 crs/3 ECTS crs

Objectives of the course: Sensors and transducers in process automation and machine automation.

Contents of the course: Measuring of temperature, pressure, flow, and level. Limit switches and proximity switches.

Prerequisites: -

WI2103 Basics of Control Engineering, 2 crs/3 ECTS crs

Objectives of the course: Learning basics of the Control Engineering. Student will learn the basic structure of a control system.

Contents of the course: Basic terms, structure of control circuits, modes of control, tuning a controller and basics of process dynamics.

Prerequisites: WI1906 Mathematics I, WI1908 Mathematics II, WI2006 Linear Systems

WI2120 Automation Project Management, 2 crs/3 ECTS crs

Objectives of the course: Introduction to project ma-

Information Technology

agement.

Contents of the course: Phases of automation project. Elements of project. Human relations in project work. Making project plan. Case -study.

Prerequisites: WI2100 Industrial automation

WI2121 Industrial Automation, Lab Work, 2 crs/ 3 ECTS crs

Objectives of the course: Practising of solving automation tasks.

Contents of the course: Small automatision tasks in laboratory.

Prerequisites: WI2100, WI2101, WI2102 and WI2103

WI2122 Process Engineering, 2 crs/3 ECTS crs

Objectives of the course: Learning and understanding fundamental process industry.

Contents of the course: Mechanical and thermal processes, material transfer processes, chemical and paper industry.

WI2123 Measurement Technology, 2 crs/ 3 ECTS crs

Objectives of the course:

Contents of the course: Statistical process control. Measurement practice in industry: process and quality measurements, especially in paper industry. Signal processing: sampling, aliasing, filtering. LabVIEW measurement system.

Prerequisites: WI2102 Sensors and Transducers

WI2124 Control Engineering, 2 crs/3 ECTS crs

Objectives of the course: Understanding the connection between industrial processes and their mathematical models, and dynamic behavior of systems in terms of time and frequency.

Contents of the course: Computer-aided identification, analysis and simulation of dynamic systems. Fundamentals of digital control algorithms and fuzzy control.

Prerequisites: WI2103 Basics of Control Engineering

WI2140 Project Work in Industrial Automation, 2 crs/3 ECTS crs

Objectives of the course: Practising solving automation tasks in project.

Contents of the course: Automatising of machine in groups.

Prerequisites: Basic studies in Automation. WI2101

WI2141 Distributed Control Systems, 2 crs/ 3 ECTS crs

Objectives of the course: Industrial process control

using distributed control systems.

Contents of the course: Structure, properties and use of distributed control systems. Configuration of control systems.

Prerequisites: WI2100 Industrial Automation I, WI2124 Control Engineering, WI2014 Programming

WI2201 Electronic Circuits, 4 crs/6 ECTS crs

Objectives of the course: Structure and analyze of fundamental analogue circuits, especially operational amplifiers.

Contents of the course:

Prerequisites: WI2008 Basic Electronics

WI2202 Micro Computers, 4 crs/6 ECTS crs

Objectives of the course:

Contents of the course: Structure and function of microprocessors and microcomputers. Memories and other additional circuits. Instruction set, assembly programming. Using logic-analyzer.

Prerequisites: WI2009 Digital Electronics

WI2203 Digital Equipment Design, 2 crs/ 3 ECTS crs

Objectives of the course:

Contents of the course: Logic families, design and implementation of a digital device, testing, programmable logic circuits, ASIC principles.

Prerequisites: WI2009 Digital Electronics

WI2204 Computer Aided Design of Electronics, 2 crs/3 ECTS crs

Objectives of the course: Drawing schematics and analyzing electronic circuits with computer. Computer-aided PCB design.

Contents of the course:

Prerequisites:

WI2205 Introduction to Electrical Engineering, 2 crs/3 ECTS crs

Objectives of the course: The basic aim is to get student to be familiar with basic concept of electrical circuits, components, power and connections.

Contents of the course: Basics of electrical circuits, components, power and connections, basic laws to calculate circuits current, voltage and power, resonance, power transmission.

Prerequisites:

WI2220 Embedded Systems, 3 crs/4,5 ECTS crs

Objectives of the course: Learning controller based embedded systems: basics of most common controllers,

memory, peripherals. Learning to make system specifications: optimal components, development environment, embedded programming.

Contents of the course: Requirement specification, controller families, development environments, embedded programming

Prerequisites: WI2202 Microcomputers

WI2223 Production Methods in Electronics, 2 crs/ 3 ECTS crs

Objectives of the course: Student will learn basics of the electronics production technology in the view of a designer. Making a prototype.

Contents of the course: Components and materials. Design, testing and serial production of electronic circuits. Prototyping, component placement and soldering. EMC

Prerequisites: WI2204 Computer Aided Design of Electronics

WI2224 Management of Electronics Development Project, 2 crs/3 ECTS crs

Objectives of the course: Learning the project work requirements as an expert of electronics in a project group. Learning terms, responsibilities, roles, working methods and planning.

Contents of the course: Project as an organization, creating a project, roles and responsibilities in it, time scheduling. Project as a social working environment, problem solving, brain storming. Quality systems in brief.

Prerequisites: recommended to study in parallel with the other advanced studies in electronics

WI2225 Electronics II, 3 crs/4,5 ECTS crs

Objectives of the course: Learning to design op. amp. applications: amplifiers and filters. Interfaces between system components: converters and buffering. Basics of power sources in an electronic device. Learning basics of power amplifiers.

Contents of the course: Small signal amplifiers employing op. amps, second order filter blocks, A/D- and D/A- converters, buffering, power sources and power stages of an amplifier.

Prerequisites: WI2201 Electronic Circuits

WI2226 Special Studies in Production Methods in Electronics, 2 crs/3 ECTS crs

Objectives of the course: The student shall understand quality requirements in the manufacturing of electronics production. The student shall master basic skills on manual soldering, and she/he has a basic understand-

ing of the reflow technology and the electronics production testing.

Contents of the course:

Prerequisites:

WI2227 Project Work in Electronics, 2 crs/ 3 ECTS crs

Objectives of the course: Learning of practical development project work: planning, scheduling, team work and designers “toolboxes” - usefull aids in project work.

Contents of the course:

Prerequisites: WI2224 Management of Electronics Development Project

WI2256 Design of Microelectronic Circuits, 2 crs/ 3 ECTS crs

Objectives of the course: Learning basics of the VHDL-design

Contents of the course: Use of the VHDL-language, structures. Comparison to other computer languages, especially to C. Planning and simulation of a small scale design targeted to a PLD or a FPGA circuit.

Prerequisites: Basics of a programming language, basic course in in digital electronics

WI2303 Unix Operating System, 2 crs/3 ECTS crs

Objectives of the course: using a Unix work station, learning the basis for command language programming. Operating system commands, programming a command translator, basis of Perl language.

Contents of the course: Unix shell commands, shell programming, Perl-language

Prerequisites: Introduction to computer science

WI2304 Data Structures, 2 crs/3 ECTS crs

Objectives of the course: Understanding, how data structures act to the performance of data systems.

Contents of the course: Usually used data structures. Implementation using C/C++ ja Java programming languages.

Prerequisites: WI2307 C-programming, Programming in Java

WI2306 Human-Computer Interaction, 2 crs/ 3 ECTS crs

Objectives of the course: Know process, how good human-computer interface is possible to accomplish.

Contents of the course: Good, clear, logical, so simple as possible and visually nice human-computer interface improves much the usability of computer programs. Making and testing human-computer interface.

Prerequisites:

Information Technology

WI2307 C-Programming, 3 crs/4,5 ECTS crs

Objectives of the course: Developing programming skills and algorithmic thinking.

Contents of the course: Programming using ANSI-C programming language.

Prerequisites: WI 2014 Programming

WI2308 Object Oriented Programming in Java, 3 crs/4,5 ECTS crs

Objectives of the course: Knowledges and skills to compose object oriented Java programs.

Contents of the course: Developing object-oriented programs using Java programming language. User interfaces, threads and I/O.

Prerequisites: WI2014 Programming

WI2310 Software Engineering, 2 crs/3 ECTS crs

Objectives of the course: After the course student can use modeling languages (UML) to produce requirements documentation. He knows the phases and tasks of the software engineering process; requirements, design, coding, testing and maintenance.

Contents of the course: The subjects are modeling languages, UML -models, Rational Rose application and RUP process model.

Prerequisites:

WI2320 Software Project Management, 2 crs/3 ECTS crs

Objectives of the course: Students have the basic knowledge on software project management and implementation. Project phases, team working, project planning and version management.

Contents of the course:

Prerequisites:

WI2321 Design Methods of Object Oriented Programmes, 2 crs/3 ECTS crs

Objectives of the course: Students have the basic knowledge on object oriented software analysis and design using Unified Modeling Language.

Contents of the course: UML diagrams. Software engineering: analysis and design phases.

Prerequisites:

WI2322 Object Oriented Programming in C++, 2 crs/3 ECTS crs

Objectives of the course: Students have the basic knowledge on C++ language. Implementing object oriented designs.

Contents of the course: - Classes and objects - Constructors and destructors - Dynamic objects - Inhe-

ritance - Virtual functions - Exceptions - Operators - Class/function templates

Prerequisites:

WI2325 Design of Testing, 2 crs/3 ECTS crs

Objectives of the course: To develop software design and testing skills. Basic testing methodologies and software testing process.

Contents of the course: Black box and white box testing methodologies. Testing and software engineering: unit testing, integration testing, system testing and approval.

WI2326 Relational Data Bases, 2 crs/3 ECTS crs

Objectives of the course: Understanding relational data bases and using SQL language in building and maintaining a data system. Using a PC based relational data base programme

Contents of the course: Making PC based relational data base with MS-Access. SQL-Language with Oracle or MS SQL Server.

Prerequisites: WI2014 Basics of programming

WI2341 Project Work in Software Engineering, 4 crs/6 ECTS crs

Objectives of the course: Integrating and improving different skills needed during software projects: project planning, team working, analysis, design, testing.

Contents of the course:

Prerequisites:

WI2362 Amplifier Design, 2 crs/3 ECTS crs

Objectives of the course: Basics of amplifier modeling and design.

Contents of the course: Transistor amplifiers, operational amplifiers; noise, stability, gain, CMRR, bandwidth.

Prerequisites: WI2201 Electronic Circuits

WI2376 Software Process Improvement, 2 crs/3 ECTS crs

Objectives of the course: Student knows software processes, capability maturity models and can implement and improve them.

Contents of the course: Course subjects are software quality, quality assurance, process models (SPICE and CMM)

WI2412 Basics of Electrical Power, 2 crs/3 ECTS crs

Objectives of the course: Basics of power electric distribution networks and calculation.

Contents of the course: Basic calculation of three phase systems, components of distribution networks, transformers, rotating machines and compensating systems.

Prerequisites:

WI2505 Introduction to Radio Communications Engineering, 2 crs/3 ECTS crs

Objectives of the course: Learning the fundamentals of radio communications engineering.

Contents of the course: Fundamentals of electric and magnetic fields, waveguides, passive and active components, antennas, propagation of radio waves, radio systems, applications.

Prerequisites: Introduction to Data Communications.

WI2506 WINDOWS/UNIX Networks, 2 crs/3 ECTS crs

Objectives of the course: The aim of this course is familiarize students TCP/IP protocols and services over the top of it and within different OS environments (Windows 2003 Server, Linux).

Contents of the course: Following issues are treated with hands on approach: TCP/IP configurations, naming service, Dynamic Host Configuration Protocol, Windows Internet Naming Service, Different File Sharing Services such as Samba, NFS.

Prerequisites: WI2508, WI2013

WI2507 Data Communications Laboratory, 3 crs/4,5 ECTS crs

Objectives of the course: Deepening the understanding of essential concepts of tele- and data communication by practical exercises.

Contents of the course: Laboratory exercises on signals, local area networks, protocols and wireless communication.

Prerequisites: Introduction to Data Communications, Local area Networks, Introduction to Radio Communications Engineering, Telecommunication Networks.

WI2508 OSI-Model in Communications, 3 crs/4,5 ECTS crs

Objectives of the course: Learning to understand the purpose of the OSI communication model and the operation of some essential networking protocols.

Contents of the course: The OSI layers 1-7, fundamentals of the TCP/IP protocol suite, the HDLC protocol.

Prerequisites: Introduction to Data Communications.

WI2509 Telecommunication Networks, 2 crs/3 ECTS crs

Objectives of the course: Learning the fundamental concepts and principles of telecommunication networks.

Contents of the course: Fundamentals of signal processing in digital communication systems, analog modulation methods, multiplexing, the telephony and ISDN-network.

Prerequisites: Introduction to Data Communications.

WI2526 Data Communications Project, 3 crs/4,5 ECTS crs

Objectives of the course: Learning to apply project working methods in data communication problem solving.

Contents of the course: The students are divided into groups and each groups perform an independent project. The topics are discussed and chosen in the beginning of the course.

Prerequisites: The basic module of Communications Engineering.

WI2527 Network Security, 2 crs/3 ECTS crs

Objectives of the course: Learning the vulnerabilities and the basic security mechanisms involved in networked systems.

Contents of the course: Introduction to network security concepts, types of attacks, encryption methods and applications, LAN and WAN security, firewalls, VPN networks.

Prerequisites: Local Area Networks, Data Communications Laboratory works, OSI-model in communications.

WI2531 Advanced Features of IP Routing, 4 crs/6 ECTS crs

Objectives of the course: Learning the essential advanced features of the IP routing and configuring Cisco routers.

Contents of the course: The router WAN interfaces, routing protocols, IP quality of service, Voice Over IP, IP multicasting, IP Over DWDM.

Prerequisites: The modules of Communications Engineering.

WI2532 New Networking Technologies, 3 crs/4,5 ECTS crs

Objectives of the course: Getting familiar with selected new networking technologies and systems.

Information Technology

Contents of the course: The contents are updated each year.

Prerequisites: The modules of Communication Engineering.

WI2533 Switching and Routing in Local and Wide Area Networks, 4 crs/6 ECTS crs

Objectives of the course: Learning the basic configuration of routers and LAN switches and building networks with these equipment.

Contents of the course: The operation principles and basic configuration of routers and switches: basic settings, routing function and routing protocols (RIP, OSPF, EIGRP), access lists, virtual LANs, spanning tree protocol.

Prerequisites: Local Area Networks, OSI-model in communications

WI2534 Digital Transmission Systems, 3 crs/4,5 ECTS crs

Objectives of the course: Learning the fundamental concepts, structure and operation principles of modern digital transmission systems.

Contents of the course: Baseband and modulated transmission system, channel coding, fundamentals of

spread spectrum systems, fiber optic systems, digital TV transmission.

Prerequisites: Telecommunication networks.

WI2536 Mobile Communication Networks, 3 crs/4,5 ECTS crs

Objectives of the course: Learning the operational principles of mobile cellular networks.

Contents of the course: Fundamentals of cellular systems. GSM-, UMTS- and TETRA-systems. Wireless networks, short range radio systems. Mobile IP.

Prerequisites: Introduction to Radio Communications Engineering.

WI2537 Fixed Radio Link Systems, 2 crs/3 ECTS crs

Objectives of the course: Learning the principles of fixed radio link design and the most common link systems.

Contents of the course: Fundamental concepts of radio propagation, radio link planning. Radio link types, satellite systems, digital TV transmission.

Prerequisites: Introduction to Radio Communications Engineering.

DEGREE PROGRAMME IN ENVIRONMENTAL TECHNOLOGY

General description and aims of the degree

What is Environmental Technology?

Worldwide, environmental technology is one of the most expanding fields in industry and in business. It can be defined as follows: environmental technology stands for improvement of the stage of the environment and environmental protection, maintenance of the desired stage, and environmental follow-up with the help of all technical methods available.

Some of the vastly growing fields of environmental technology include water techniques, noise control, ecological energy production, waste management and recycling, for example. Pure water supply and waste water treatment are of worldwide importance. Central issues in the EU-region are noise control, watershed protection and renovation, and waste management.

It is mainly the government who takes care of the environmental protection, examples of which are: follow-up of the environmental stage, environmental management and repairing work. In our country, these procedures are managed by regional environmental centres. Most environmental protection and maintenance work is financed by different EU-projects.

The actual companies involved in environmental tasks are located in the sectors of waste management, watershed protection and community planning. On the other hand, environmental protection is an important part of industrial actions due to, in particular, its market values.

The Overall Objectives of the Degree Programme

The objective of the Degree Programme in Environmental Technology is to train professional experts in the fields of planning, training, instructing and research in organizations or as independent entrepreneurs. The objective of the studies is to train modern experts who understand the views of different sectors without confrontation with environmental issues. Holistic understanding of the issues concerning environment and people creates opportunities to come to a sustainable solution in environmental questions.

Training in environmental technology is multi-level and one of its objectives is to train the students to master the typical entities of issues and problems within the environmental sector. In addition to the basic studies, oral and literal communication, English, Swedish, chemistry, physics and statistics are integrated in the professional studies. Furthermore, the most relevant legislation is being taught. Many-sidedness is realized by cooperation with other degree programmes in North Karelia Polytechnic and with other technical institutes in the field. The know-how is based on ecological, social and techno-economic views and on planning skills. Many-sidedness can be illustrated by the following figure:



Figure 1. Many-sided field of study

Nature, Environment, Ecology

A professional objective in environmental technology is to understand the function of natural organizations and how they are influenced by people's actions. In North Karelia Polytechnic, the teaching has its main focus on water ecology, management and treatment of it, and on minimizing the scattered loading of agriculture and forestry. Other central fields of environmental technology are management and renovation of natural and cultural areas, and also landscaping and landscape planning.

Society, Technology, Management

Technological know-how is of great importance in finding solutions to environmental problems. Technological solutions within the environmental field require high

Environmental Technology

technical knowledge, many-sidedness and problem solving skills. A great pressure is put on environmental planning and developing water techniques and waste management systems in sparsely populated areas.

Human being, welfare, problems

Environmental issues are tied to economical and social context? they relate to every human being, organisation and enterprise in some way. The central principle to follow is sustainable development, which includes ecological, economical, social and cultural fields. Sustainable development is realized in municipal administration on local agendas. Nowadays, settlements of different kinds are an essential part of many planning and building operations, in which the impact of the project on quality of the habitat is researched (e.g. inhabitant inquiry, noise measuring). In an enterprise, sustainable development is realized by making quality- and environmental systems for the enterprise. Environmental issues have an impact on every trade based on utilization of nature both in cities and in rural areas.

In training, the student gets the basic scientific knowledge in the field and is provided with skills in following professional development and in assessing the reliability of the knowledge in professional tasks and problems. The education also provides the student with the important basic skills needed in working life, such as understanding economical views, readiness to act internationally, entrepreneurship, and many-sided communication and co-operational skills.

In addition to theoretical studies, an essential part of the education is practical training where the objective is to learn to combine theory and practise, to get work experience and to create contacts with working life, and to get acquainted with interest groups in the field. It would be ideal for the student to have the practical training, project work and the final thesis as a professional entity supporting each other. Problem-based learning, project learning, case studies and lectures are used as teaching methods. Special experts will also be used as lecturers in study units.

Assessment

Study progress is assessed by tests, with the help of individual and group exercises, activity during lectures, learning diaries and portfolios. Different kinds of teaching methods are used in the best suitable ways depending on the issue, e.g. problem-based learning, project studies, case studies, lectures, lectures given by experts.

The studies are assessed also on module level. A grade is calculated after every part of the module has been assessed and marked in the Winha-system. The contact person of each module is responsible for the assessment of the module.

The Degree and the Location of Teaching

The Degree Programme in Environmental Technology leads to the Bachelor of Engineering degree. The graduates who have taken the degree can use the title Graduate Engineer (polytechnic degree). The extent of the degree programme is 160 credits, which corresponds to four years of full-time studying. There are no separate professional studies.

Specialisation Professional studies are conducted by optional courses.

The studies in the Degree Programme in Environmental Technology are organised in co-operation with the field of Natural Resources (Kitee, Puhos) and the field of Engineering (Wärtsilä-house, Joensuu). During the first two years of studying, the studies take place in Kitee and after that in Joensuu.

Structure and syllabus of the studies

Thesis 10 credits/15 ECTS credits

Practical Training 20 credits/30 ECTS credits

Optional Studies 10 credits/15 ECTS credits

Specialized Professional Studies 76 credits/114 ECTS credits

Basic Studies 44 credits/66 ECTS credits

Orientation options / Elective studies

Environmental Planning

The objective of the specialization alternative is to provide the student with technical skills in planning the use of areas and environmental constructing. An engineer specialized in environmental questions and orientated towards the sectors mentioned above is able to make plans for environmental maintenance and for audition and waste management.

Environmental Monitoring and Research

The studies emphasize planning monitoring, research and measuring the state of the environment. An expert orientated towards these sectors has both scientific and technical skills in developing automation systems for measuring, monitoring and scientifically analyzing the measuring results in, for instance, applications dealing with stray emissions loading the water system.

	Code	1. year	2. year	3. year	4. year
BASIC STUDIES					
ORIENTATIONAL STUDIES	AY05				
Introduction to Polytechnic Studies	AY1000	1	0	0	0
Written Communication	AY1001	1	0	0	0
Oral Communication	AY1006	1	0	0	0
Environmental English	AY1002	1	0	0	0
Miljösvenska	AY1005	1	0	0	0
Basics of Information Technology	AY1007	1	0	0	0
Qualifications for Fieldwork	AY1008	3	0	0	0
Basics of National Economy	AY1054	1	0	0	0
MATHEMATICS AND NATURAL SCIENCES	AY06				
Mathematics I	AY1014	2	0	0	0
Mathematics II	AY1019	0	2	0	0
Physics I	AY1029	2.5	0	0	0
Physics II	AY1027	0	2	0	0
Physics III	AY1028	0	1.5	0	0
Chemistry I	AP1110	1	0	0	0
Chemistry II	AP1112	1	0	0	0
Environmental Chemistry	AY1024	0	1	0	0
Ecology and Basics of Field Study	AY1055	4	0	0	0
Microbiology	AY1051	1	0	0	0
Plant Morphology and Physiology	AY1056	1	0	0	0
FAMILIARITY WITH SPECIES	AY07				
Mushroom Course	AY1032	1	0	0	0
Familiarity with Species of Plants	AY1057	1	0	0	0
Zoology	AY1058	1	0	0	0
STATE OF ENVIRONMENT	AY08				
State of Environment in Finland	AP2603	0	1	0	0
Stage of Environment in the World	AY1067	0	1	0	0
The Climate and Air Protection	AY2156	0	1	0	0
NATURE PROTECTION	AY15				
Basics of Nature Protection	AY1069	1.5	0	0	0
Basics of Nature Management in Forest	AY1074	1.5	0	0	0
PROFESSIONAL STUDIES					
BASIC SKILLS IN ENVIRONMENTAL TECHNOLOGY	AY26				
Land Use Planning	AY2001	0	0	2	0
Basics of geographical information system (GIS) and Remote Sensing Systems	AY2002	0	1	0	0
Geographical Information Systems (GIS)	AY2003	0	0	2	0
Drawing with Data Programmes	AY2004	0	0	2	0
Geodesy Techniques	AY2005	0	0	2	0
Research Work	AY1011	0	0	2	0
MANAGEMENT, UTILIZATION AND PROTECTION OF WATERWAYS	AY27				
Basics in Limnology	AY2178	1.5	0	0	0
Applied Limnology	AY2172	1.5	0	0	0
Diffuse Pollution as a Water Loading Factor in Finland	AY2173	2	0	0	0
Evaluation and Follow-up of the State in Waterways	AY2174	0	3	0	0
Conservation and Management of Waterways	AY2175	0	3	0	0
Project Know-how in Conservation of Waterways	AY2176	0	2	0	0
Miljösvenska II	AY1071	0	0.5	0	0
Environmental English 1	AY1003	0	0.5	0	0
Communication I	AY2180	0	1	0	0

Environmental Technology

PROCESSES IN AGRICULTURE AND FORESTRY AND IN PEAT PRODUCTION AY28

Processes in Agriculture	AY2136	1	0	0	0
Processes in Forestry and Peat Production	AY2137	2	0	0	0
Miljösvenska I	AY1070	0.5	0	0	0
Reporting	AY2182	0.5	0	0	0
COMMUNITY TECHNIQUES	AY29				
Waste Management and Recycling	AY2702	0	0	2	0
Geo-techniques and Soil Constructions	AY2126	0	0	2	0
Soil Analyses and Poisonous Land Areas	AY2127	0	0	2	0
Water Techniques	AY2704	0	0	2	0
Machine and Energy Techniques	AY2501	0	0	2	0
SOCIETY AND ENVIRONMENT I	AY30				
Public Administration	AY2177	0	1.5	0	0
Rural Policy	AY1049	0	2	0	0
Environmental Sociology and Policy	AY2163	0	0	0	0
Environmental Economy	AY1048	0	1	0	0
Svenska för offentliga sektorn	AY1073	0	0.5	0	0
SOCIETY AND ENVIRONMENT II	AY31				
Environmental Health Care	AY2999	0	0	1.5	0
Noise Control	AY2192	0	0	2	0
Air Protection	AY2193	0	0	2	0
SOCIETY AND ENVIRONMENT III	AY32				
Cultural Environment and Landscape Planning	AY2115	0	0	2	0
Ecological Construction	AY2135	0	0	1.5	0
Miljösvenska III	AY1072	0	0	0.5	0
Communication II	AY2181	0	0	1	0
ENVIRONMENTAL MANAGEMENT I	AY33				
Enterprise Functions	AY2117	0	2	0	0
Quality and Environmental Management	AY2118	0	0	3	0
Environmental Communication	AY2119	0	2	0	0
ENVIRONMENTAL MANAGEMENT II	AY34				
Industrial Ecology	AY2212	0	0	0	1.5
Evaluation of Environmental Impacts	AY2213	0	0	0	1
Eco Design	AY2214	0	0	0	2.5
International Environmental Issues	AY2215	0	1.5	0	0
Industrial English	AY1208	0	0	0	0.5
Environmental English II	AY1016	0	0	0	2
Intercultural English	AY1207	0	0.5	0	0
Elective studies		2	0	4	4
Fram med Svenskan	AY1061	1	0	0	0
English Grammar and Vocabulary	AY1062	1	0	0	0
Mathematics for Environmentalists	AY1063	1	0	0	0
Acceleration Course in Physics	AY1064	1	0	0	0
Mother Tongue (Finnish)	AY1065	1	0	0	0
Optional virtual courses in Environmental Technology	AY1066	2	0	0	0
Waterway Conservation Project	AY2216	0	4	0	0
Environmental Project	AY2170	0	0	4	0
Indicator Species and Exam in Forest Nature Management	AY2218	0	4	0	0
Nature Mapping and Management of Eco Systems	AY2219	0	4	0	0
Environmental Issues in Agriculture	AY2220	0	4	0	0
International Environmental Co-operation	AY2160B	0	0	0	4

Environmental Technology

Automatic Measurement Systems	AY2222	0	0	4	0
Environmental Laws	AY2223	0	0	4	0
OPTIONAL STUDIES		0	0	2	8
PRACTICAL TRAINING		0	10	0	10
Practical training in ET 1	AY36	0	10	0	0
Practical training in ET 2	AY37	0	0	0	10
THESIS		0	0	0	10

BASIC STUDIES

AP1110 Chemistry I, 1 crs/1,5 ECTS crs

Objectives of the course: To know the structure of the material and binding, chemical reaction and its influential factors. To know how to use the most common equipment and measuring instruments safely in a laboratory. To know the safety regulation factors of chemicals.

Contents of the course: Atoms, chemical bindings, acid-alkaline reactions, oxidation-reduction reactions, measuring of pH, titration.

Prerequisites: Not required.

AP1112 Chemistry II, 1 crs/1,5 ECTS crs

Objectives of the course: To know the energy changes connected with reactions and their impacts on propagation of the reaction. To know the characters of elements and element groups. To know the central organic material groups and reactions.

Contents of the course: Thermochemistry, electrochemistry, chemistry of elements and organic chemistry.

Prerequisites: Not required.

AP2603 State of Environment in Finland, 1 crs/1,5 ECTS crs

Objectives of the course: The student receives the basic knowledge of the factors, such as industry and traffic, affecting the state of environment in Finland.

Contents of the course: Different operations in our own country and in the near distance affecting the Finnish environment and the changes in the quality of air and water in Finland caused by these operations, and also their effect on agriculture.

Prerequisites: Not required.

AY1000 Introduction to Polytechnic Studies, 1 crs/1,5 ECTS crs

Objectives of the course: The student gets acquainted with the values of North Karelia Polytechnic and the studying opportunities there. The objective is to promote co-operativeness in studying the environment as well as in group building.

Contents of the course: The student does several kinds of tests during the study unit in order to map the readiness for the studies and to be guided in making a personal curriculum.

Prerequisites: Not required.

AY1001 Written Communication, 1 crs/1,5 ECTS crs

Objectives of the course: The student develops his/

her skills in written communication and can produce ir-reproachable professional and literary language. Implementation and assessment: Test, exercises and activity.

Contents of the course: Preservation of the purity of the language and correct spelling, basics of written expression, final revision of a written treatise, matter-of-fact style and reports.

Prerequisites: Not required.

AY1002 Environmental English, 1 crs/1,5 ECTS crs

Objectives of the course: The student has the readiness to tell about him-/herself, the studies and the field of studies in English.

Contents of the course: Basic vocabulary and themes in environmental technologies. Emphasis on oral expression.

Prerequisites: Not required.

AY1005 Miljösvenska, 1 crs/1,5 ECTS crs

Objectives of the course: The student has the readiness to tell about him-/herself, the studies and the field of studies in Swedish.

Contents of the course: Basic vocabulary and themes in environmental technologies. Emphasis on oral expression.

Prerequisites: Not required.

AY1006 Oral Communication, 1 crs/1,5 ECTS crs

Objectives of the course: The student becomes acquainted with the basics of oral communication and with different types of speech styles. Implementation and assessment: Active classroom working with plenty of exercises, the students are divided into two groups. A demonstration of a speech situation and either a study diary or a reflective essay according to the student's own choice.

Contents of the course: Basic elements of oral communication- respiration, limpness and different voice and speech styles.

Prerequisites: Not required.

AY1007 Basics of Information Technology, 1 crs/1,5 ECTS crs

Objectives of the course: The student receives the basic knowledge in information technology and is capable of an independent use of it.

Contents of the course: Basic hardware needed in data processing and the purpose of it, basics of operating systems, operational principles of data communication and the most important services provided by the Internet, such as e-mail and the basic operating skills in word processing.

Prerequisites: Not required.

**AY1008 Qualifications for Fieldwork, 3 crs/
4,5 ECTS crs**

Objectives of the course: The student knows the basics of map and aeronautical picture interpretation and knows how to read a map. He/She can use a compass and satellite location equipment as an instrument for orientation and location definition. The student can do the basic service for terrain vehicles (snow mobile, all terrain vehicles, motor boat) and manages their safe use. The student knows the requirements for basic camping equipment, knows how to pack and is able to adjust a backpack. The student can independently get ready for a few days? hiking trip and survives in terrain. He/She can plan in a group a route for a few days? hiking trip in summer conditions, menus, safety regulation planning in an environmentally beneficial way.

Contents of the course: The study unit contains a hiking trip (2-3 days) and several shorter trips in terrain and practical training with the equipment.

Prerequisites: Not required.

AY1014 Mathematics I, 2 crs/3 ECTS crs

Objectives of the course: To master the ways of solving equations. To be able to convert a problem into a mathematic equation. To master the basics of level and spatial geometry. To know the concept of function and to be able to form and handle the most typical functions.

Contents of the course: Equations, groups of equations, logarithms, functions, vectors.

Prerequisites: Not required.

AY1019 Mathematics II, 2 crs/3 ECTS crs

Objectives of the course: To master the basics of differential and integral calculus for one variable and to know their applications.

Contents of the course: Limit, continuity, derivate, the rules and charts of derivation, integral function, defined integral and its applications, complex numbers.

Prerequisites: Not required.

**AY1024 Environmental Chemistry, 1 crs/
1,5 ECTS crs**

Objectives of the course: To know the most common chemical analyses in defining water quality. To know how to take, store and analyze water samples with the basic methods and laboratory equipment and instruments.

Contents of the course: Take, store and analyze water sample, titration, spectrofotometric analysis.

Prerequisites: AP1110 Chemistry I and AP1112 Chemistry II.

AY1027 Physics II, 2 crs/3 ECTS crs

Objectives of the course: To get the student acquainted with physical thinking and the usage of mathematical instruments in solving technical problems. The main objective is to apply the concepts of electricity as a practical tool in making different kinds of electrical measurements. The study unit also gives basic knowledge of electricity and energy techniques.

Contents of the course: The contents include electricity static and dynamics, power circles, magnetism and basics of change electricity.

Prerequisites: Not required.

AY1028 Physics III, 1,5 crs/2,25 ECTS crs

Objectives of the course: To get the student acquainted with physical thinking and the usage of mathematical instruments in solving technical problems. The main objective is to understand the phenomenon of vibratory and wave motion in different natural phenomena and in technical applications.

Contents of the course: The contents deal with the basics of vibratory and wave motion, acoustics, optics and radiation physics.

Prerequisites: Not required

AY1029 Physics I, 2,5 crs/3,75 ECTS crs

Objectives of the course: To get the student acquainted with physical thinking and the usage of mathematical instruments in solving technical problems. The main objective is to apply the classical mathematical concepts and energy principles as a practical tool.

Contents of the course: The contents include kinematics, dynamics, work, power, mechanics of fluids and energy concepts, and thermology.

Prerequisites: Not required.

AY1032 Mushroom Course, 1 crs/1,5 ECTS crs

Objectives of the course: To know the most important commercial, edible and poisonous mushrooms and the most common polyporus species.

Contents of the course: The student learns commercial mushrooms and the most important edible and poisonous mushrooms in terrain and organizes a mushroom show. Two mushroom examinations.

Prerequisites: Not required.

AY1051 Microbiology, 1 crs/1,5 ECTS crs

Objectives of the course: The student knows the most important groups of microbes and their living requirements and is able to recognize the most common microbes or groups of microbes with the help of a microscope.

Environmental Technology

Contents of the course: Lessons, labs

Prerequisites: Not required.

AY1054 Basics of National Economy, 1 crs/

1,5 ECTS crs

Objectives of the course: The student knows the basics of national economy, micro and macro economics, and the structure of the Finnish national economy and its functioning principles.

Contents of the course: Basic terminology and theories of economics and the Finnish national economy.

Prerequisites: Not required.

AY1055 Ecology and Basics of Field Study, 4 crs/

6 ECTS crs

Objectives of the course: The student knows the basics of ecology, especially population, habitat and ecosystem ecology. He/She knows the basic environmental factors concerning Finnish forests and mire ecosystems as well as the basics of disorder and succession dynamics. The student knows the system used for forest and mire typing, and is able to identify different types of forests and mires in terrain. The student can plan and realize a simple ecological field study by using the techniques and methods needed. He/She can handle the data with the most common statistical methods and make a conclusion based on the samples. The student can make a written report of the research and present it orally in a seminar.

Contents of the course: Basic concepts of ecology, forest and mire ecology, planning a field study, basics, equipment and techniques in terrain work. Handling samples, analyzing results, literal and oral presentation. Skills in problem solving and team work.

Prerequisites: Not required.

AY1056 Plant Morphology and Physiology, 1 crs/

1,5 ECTS crs

Objectives of the course: The student gets acquainted with the structure of plants, water and nutrient economy and the basics of photosynthesis.

Contents of the course: Structure of cells, water absorption, water transport, evaporation, nutrition and use of nutriment. Influence of air pollution on plants. Research /test, nutrient shortage test.

Prerequisites: Not required.

AY1057 Familiarity with Species of Plants, 1 crs/

1,5 ECTS crs

Objectives of the course: The student recognises the most common weeds in fields and headlands, he knows meadow plants, water plants and forest type plants and

also plants growing in valuable habitats, and environment indicators.

Contents of the course: The student collects a botanic collection during the study unit. An exam of the familiarity of plants.

Prerequisites: Not required.

AY1058 Zoology, 1 crs/1,5 ECTS crs

Objectives of the course: The student knows the most central mammals, fish and birds as well as the most common butterflies, insects in shores and lakes, and beetles in forests.

Contents of the course: The studies will be realized at the Biological Department of Joensuu University. An obligatory bird trip to Siikalahti in Parikkala is included in the unit. There will be a final exam on the familiarity of species and bird singing. The students who pass the exam have an opportunity to take part in an optional study unit Familiarity of Specialized Species in Ladoga Karelia with a bird trip to Sortavala.

Prerequisites: Not required.

AY1067 Stage of Environment in the World, 1 crs/

1,5 ECTS crs

Objectives of the course: The student understands the global nature of environmental problems and is provided with knowledge in current environmental problems affecting the whole Earth and solutions to them.

Contents of the course: The course will be conducted by taking an exam based on literature.

Prerequisites: AP2603 State of Environment in Finland

AY1069 Basics of Nature Protection, 1,5 crs/

2,25 ECTS crs

Objectives of the course: The student has a comprehensive view on the different means by which nature protection is realized in Finland and in the EU.

Contents of the course: Natura 2000, Nature Act, Bird Act, national nature protection legislation, nature protection areas, protection of species and their habitats.

Prerequisites: Not required.

AY1074 Basics of Nature Management in Forest, 1,5 crs/2,25 ECTS crs

Objectives of the course: The student has the basic knowledge of legislation, recommendations and certification needed in handling commercial forests, especially from the point of view of protection and management of nature of the forest.

Contents of the course: The following subjects are handled in the study unit: Forest Act, Sustainable Fo-

restry Financing Act, The Act of Insect and Fungi Damage, recommendations for forest management and forest certification.

Prerequisites: Not required.

**AY2156 The Climate and Air Protection, 1 crs/
1,5 ECTS crs**

Objectives of the course: The student knows the consistency of the atmosphere and the risks relating to the changes in it (the greenhouse effect, ozone depletion, acidification) and the possible environmental effects of them in Finland.

Contents of the course: In the study unit, the students get acquainted with defining air quality with indicator species. Also an excursion to the research station of the University of Joensuu in Ilomantsi is carried out in order to get acquainted with researching the possible effects of the greenhouse effect on Finnish forests.

Prerequisites: AP2603 State of Environment in Finland

PROFESSIONAL STUDIES

**AY1003 Environmental English 1, 0,5 crs/
0,75 ECTS crs**

Objectives of the course: The objective of the course is to learn the basic vocabulary and phraseology of the management and conservation of waterways and to be able to cope in the most essential communication situations relating to studying and working in the field. The student is able to present his/her field.

Contents of the course: Basic vocabulary, telling about work, texts of the field, group discussions based on articles, oral and listening exercises.

Prerequisites: Not required.

AY1011 Research Work, 2 crs/3 ECTS crs

Objectives of the course: The student can independently use different systems and sources of information, can pick up the relevant information for reports and knows the instructions concerning layout, style, publication and presentation of the final thesis.

Contents of the course: Layout, style, language and structure of the final thesis as well as its presentation, working plan, quantitative and qualitative research, research types, research methods and handling, interpreting and analyzing data. The unit is integrated with Statistics studies.

Prerequisites: Not required.

**AY1016 Environmental English II, 2 crs/
3 ECTS crs**

Objectives of the course: The objective of the course is to learn the basic vocabulary and phraseology of the life span analysis and to be able to cope in the most essential communication situations relating to studying and working in the field.

Contents of the course: Basic vocabulary, texts of the field, group discussions based on articles, oral and listening exercises.

Prerequisites: Not required.

**AY1048 Environmental Economy, 1 crs/
1,5 ECTS crs**

Objectives of the course: The student gets acquainted with different definitions of sustainable development, he/she understands the interaction between society and nature and knows the different means of external impacts affecting economic decision making.

Contents of the course: Economic model that takes environmental issues into consideration, optimal pollution, economic steering ways, alternative economic policy.

Prerequisites: Not required.

AY1049 Rural Policy, 2 crs/3 ECTS crs

Objectives of the course: The student is aware of the social and political position of rural areas reflecting the development of the present day operational environment in rural areas. He/She recognizes and is able to analyze the opportunities and threats in rural development from the point of view of sustainable development. The student knows the development, content and system of rural policy in Finland and in Europe, he/she also knows the different practical applications on different action levels. The student will get a vision of environmental issues as a dimension in rural policy.

Contents of the course:

Prerequisites: Not required.

AY1070 Miljösvenska I, 0,5 crs/0,75 ECTS crs

Objectives of the course: The objective of the study unit is to deepen the student's knowledge of the vocabulary relating to agriculture and forestry as well as peat production. The student is also able to cope in Swedish in the most essential communication situations in his/her field and is capable of reading and utilizing literature of the field.

Contents of the course: Special vocabulary, current texts, group discussions based on articles, oral exercises, presentations.

Prerequisites: Not required.

Environmental Technology

AY1071 Miljösvenska II, 0,5 crs/0,75 ECTS crs

Objectives of the course: The objective of the study unit is to deepen the student's knowledge of the vocabulary relating to the management and conservation of waterways. The student is also able to cope in Swedish in the most essential communication situations in his/her field and is capable of reading and utilizing literature of the field.

Contents of the course: Special vocabulary, current texts, group discussions based on articles, oral exercises, presentations.

Prerequisites: Not required.

AY1072 Miljösvenska III, 0,5 crs/0,75 ECTS crs

Objectives of the course: The objective of the study unit is to deepen the student's knowledge of the vocabulary relating to cultural environments, landscaping and eco-construction. The student is also able to cope in Swedish in the most essential communication situations in his/her field and is capable of reading and utilizing literature of the field.

Contents of the course: Special vocabulary, current texts, group discussions based on articles, oral exercises, presentations.

Prerequisites: Not required.

AY1073 Svenska för offentliga sektorn, 0,5 crs/0,75 ECTS crs

Objectives of the course: The objective of the study unit is to deepen the student's knowledge of Swedish in the public sector, the vocabulary of it and to cope in Swedish in the most essential communication situations in the field. The student is also capable of reading and utilizing literature of the field.

Contents of the course: vocabulary, current texts, group discussions based on articles, oral exercises, presentations.

Prerequisites: Not required.

AY1207 Intercultural English, 0,5 crs/0,75 ECTS crs

Objectives of the course: The objective of the course is to provide the student with skills in acting in international contexts in English. The student is able to face different cultures and knows the differences between them. Telling about the student's own field and culture.

Contents of the course: Special vocabulary (Finnish countryside, customs and central features in different cultures), oral exercises, simulation situations.

Prerequisites:

AY1208 Industrial English, 0,5 crs/0,75 ECTS crs

Objectives of the course: The objective of the course is to learn the basic vocabulary and phraseology of the environmental issues in industry and to be able to cope in the most essential communication situations relating to studying and working in the field. The student is able to present his/her field.

Contents of the course: Basic vocabulary, telling about work, texts of the field, group discussions based on articles, oral and listening exercises.

Prerequisites: Not required.

AY2001 Land Use Planning, 2 crs/3 ECTS crs

Objectives of the course: The study unit is realized in co-operation with the Degree Programme in Civil Engineering. The student gets acquainted with the regulations on social building, different levels of land use planning.

Contents of the course: Lectures and exercises, terrain visits.

Prerequisites: Not required.

AY2002 Basics of geographical information system (GIS) and Remote Sensing Systems, 1 crs/1,5 ECTS crs

Objectives of the course: The student gets acquainted with one geographical information system (GIS) and the basic terminology of geographical information system and remote sensing.

Contents of the course: During the study unit, the student gets acquainted with the chances of remote mapping in environmental follow-up.

Prerequisites: Not required.

AY2003 Geographical Information Systems (GIS), 2 crs/3 ECTS crs

Objectives of the course: The student knows the basics of data-based geographical information and the ways of using it. The study unit is realized in co-operation with the Degree Programme in Forestry (e.g. MM2392).

Contents of the course: Geographical information systems, exercises with different programmes.

Prerequisites: AY1007 Basics of Information Technology, AY2002 Basics of Geographical Information Systems (GIS) and Remote Sensing Systems.

AY2004 Drawing with Data Programmes, 2 crs/3 ECTS crs

Objectives of the course: The student gets the basic skills in doing technical drawings and planning with a computer.

Contents of the course: Exercises and studying is done with the AutoCad programme. Exercises in a computer class.

Prerequisites: Not required.

AY2005 Geodesy Techniques, 2 crs/3 ECTS crs

Objectives of the course: The student knows the field of geodesy and masters it in a way that is required in working life.

Contents of the course: Basics of cartography and its techniques. Measuring distance, angle and height differences. Detailed mapping.

Prerequisites: Not required.

AY2115 Cultural Environment and Landscape Planning, 2 crs/3 ECTS crs

Objectives of the course: The student can analyze different types of cultural environment and the structure of it. The student knows the most important factors affecting the birth and development of the cultural environment. The student is also aware of the different values in cultural environment such as aesthetic and architectural values. The student gets acquainted with landscape and environmental planning and the aesthetics as a part of planning green areas and constructed environment. The student knows the basics of the management of the city forest environment and town ecology.

Contents of the course: Participation in a real landscape/environment planning project as an exercise. In some parts of the exercises Swedish (0, 5 credits) is used integrated in the study unit.

Prerequisites: AY2003 Geographical information systems (GIS)

AY2117 Enterprise Functions, 2 crs/3 ECTS crs

Objectives of the course: How to make products and services available for consumers and what kind of an impact environmental issues have on products and services.

Contents of the course: Business in national economy, development of environmental thinking among entrepreneurs. Types of companies, types of entrepreneurs, description model of functions, finance, marketing, production.

Prerequisites: Not required.

AY2118 Quality and Environmental Management, 3 crs/4,5 ECTS crs

Objectives of the course: The student knows the most common principles of standards used in organizations and gets familiar with building up an environmental sys-

tem. The objective is to give the student basic readiness to manage and steer interactive processes of change in companies, organizations and in networks.

Contents of the course: Management by standards, central contents of an environmental system, evaluation of environmental impacts. Human idea of management, organization culture, tools and methods in managing the change, ethical questions in human management.

Prerequisites: Not required.

AY2119 Environmental Communication, 2 crs/3 ECTS crs

Objectives of the course: The student understands that information on environmental communication is a way to improve the company image and to make an influence on attitudes within interest groups. The student gets used to handling and spreading material concerning environment in the form of different publications. The student understands the power of pictures and other visual material and the purpose of text and typography in publications. He/She gets used to producing and combining text and pictures in informational writing.

Contents of the course: Planning a publication, informative texts and making them, basics of folding and visualizing, basics of environmental communication, information on environmental projects as well as making and analyzing an environmental report.

Prerequisites: Not required.

AY2126 Geo-techniques and Soil Constructions, 2 crs/3 ECTS crs

Objectives of the course: The student gets acquainted with bedrock and soil materials from the point of view of environment building.

Contents of the course: Basic working methods for soil construction and calculations of costs. Ways of establishment and subsidence calculations. Lectures and practical exercises, visits.

Prerequisites: Not required.

AY2127 Soil Analyses and Poisonous Land Areas, 2 crs/3 ECTS crs

Objectives of the course: The student masters the most important chemical substances and combinations causing soil destruction and knows their origin. He/She knows the behaviour of the most important harmful substances in soil and their impacts. The student knows the health and environment hazards caused by these harmful substances and the basics of risk evaluation. The concept of normative valence and limiting value. Environmental legislation, permission applications and authorities. Soil analyzes as a part of land use planning

Environmental Technology

and building planning. The student masters the stages of a research plan and the basics of sample taking. Visits in laboratories making analyzes of different samples or/ and in other expert organizations. The student knows the different alternatives of the reconstruction of spoiled soil. Getting familiar with concrete projects of soil analyze and reconstruction.

Contents of the course: The study unit will be arranged in co-operation with the Degree Programme in Civil Engineering. Includes 0, 5 credits of chemistry and 1 credit of microbiology integrated in the studies.

Prerequisites: AY2126 Geo-techniques and Soil Constructions, AY1055 Ecology and the Basics of Field Research, AY2001 Land Use Planning.

AY2135 Ecological Construction, 1,5 crs/ 2,25 ECTS crs

Objectives of the course: The student knows the principles of ecological building (architecture, energy economy), he/she knows different building materials and structural solutions. He/She knows the basics of corrective building. The student can make solutions in accordance with sustainable development in community planning. Light traffic arrangements, shore line areas, noise barriers.

Contents of the course: The student gets acquainted with domestic and foreign eco buildings (eco villages, suburban projects and garden cities). A practical exercise is included in the study unit: an oral and written presentation of a chosen project. Oral and written communication (0, 5 credits) is included in the study unit.

Prerequisites: AY2001 Land Use Planning.

AY2136 Processes in Agriculture, 1 crs/ 1,5 ECTS crs

Objectives of the course: The student knows the different stages of work as well as their purposes in plant and animal production. The student understands the main concepts of agriculture and is able to work in co-operation with agricultural professionals in issues of environmental protection.

Contents of the course: Plant cultivation: sowing, fertilizing, plant protection, tilling the soil, harvesting and crop handling. Animal husbandry: caring work of the most common animals, basic concepts of feeding and manure handling.

Prerequisites: Not required.

AY2137 Processes in Forestry and Peat Production, 2 crs/3 ECTS crs

Objectives of the course: The student has the basic knowledge of approved procedures concerning the ma-

nagement and utilization of commercial forests. The student knows the basics of peat production and the most important production methods.

Contents of the course:

Prerequisites: Not required.

AY2163 Environmental Sociology and Policy, 00 crs/00 ECTS crs

Objectives of the course: The student knows the different roles of social factors in environmental issues and problems. He knows the concepts of environmental problem, environmental awareness and environmental publicity, and can handle them from local, regional and global point of view. The student can analyze the idea of sustainable development from social view point. The student gets familiar with the different roles of the public sector, national organizations, companies and individual citizens as actors in different environmental issues.

Contents of the course:

Prerequisites: Not required.

AY2172 Applied Limnology, 1,5 crs/2,25 ECTS crs

Objectives of the course: The student masters the basics of the factors that have an effect on the state of waterways and he/she also knows how to define and evaluate them.

Contents of the course: The state of the Finnish waterways and the factors affecting them, classification of waterways, target programmes of water protection and other administrative actions, co-operation in national and international water protection, and the basics of legislation concerning water use and protection.

Prerequisites: Not required.

AY2173 Diffuse Pollution as a Water Loading Factor in Finland, 2 crs/3 ECTS crs

Objectives of the course: The student gets acquainted with pollution loads coming into waters especially from agriculture and forestry, with the actions causing the loads, and with the processes that the extra nutrients in waterways cause. In addition, the student learns about the legislation and support systems trying to diminish the loads coming from agriculture and forestry.

Contents of the course:

Prerequisites: Not required.

AY2174 Evaluation and Follow-up of the State in Waterways, 3 crs/4,5 ECTS crs

Objectives of the course: The student gets acquainted with evaluating the state of waterways with the help of biological, physical and chemical variables and by handling and analyzing samples of water, plankton, bottom

animals and sediment. Integration with languages, communication and chemistry studies.

Prerequisites: Not required.

AY2175 Conservation and Management of Waterways, 3 crs/4,5 ECTS crs

Objectives of the course: The student gets acquainted with the basics of limnological factors of water conservation and with different methods and systems of conservation used in different lake pools and seepage areas. Furthermore, the study unit gives information about the administration and legislation concerning conservation projects and making follow-up studies of waterways. With the help of case studies, the student gets familiar with different factors causing nutrient loads and learns how to make calculations about the amounts of nutrient loads coming into waterways.

Contents of the course: The study unit includes a study trip to Kuohatti-lake in Nurmes, where the student learns the different conservation methods in seepage areas in practice. At the end of the unit, the student makes a conservation plan for a given area. Integrated studies with languages and communication.

Prerequisites: Not required.

AY2176 Project Know-how in Conservation of Waterways, 2 crs/3 ECTS crs

Objectives of the course: The student masters the planning process of a development project done in cooperation with several interest groups. He/She can organize and manage a process of a project as well as make an assessment of the quality and effectiveness of the project from different interest groups' point of view.

Contents of the course: The concept of a project, the process of planning and preparing a project, financial channels, quality criteria and self evaluation of project work. During the study unit, a project plan is made by the student for a real resort given by North Karelia regional Environmental Centre.

Prerequisites: Not required.

AY2177 Public Administration, 1,5 crs/2,25 ECTS crs

Objectives of the course: The basics of municipal and governmental administration and their functions in the society.

Contents of the course: The functioning of a municipal organization, decision making procedures and opportunities of influence in municipal actions as a citizen. Environmental issues as a part of municipal functions. Administrative Swedish (0, 5 credits).

Prerequisites: Not required.

AY2178 Basics in Limnology, 1,5 crs/2,25 ECTS crs

Objectives of the course: The student gets acquainted with the basics of applied water ecology, physics and chemistry as well as hydrology, especially in the Finnish conditions.

Contents of the course: The basic entities to be studied are water rotation, ground waters, water resources and production biology of waterways and fish supply.

Prerequisites: Not required.

AY2180 Communication I, 1 crs/1,5 ECTS crs

Objectives of the course: The student gets acquainted with planning and implementing expert and professional oral communication situations and is able to use expert language and versatile means of influencing. The student learns to be positive towards developing his/her literal communication skills and gets practise in writing faultless professional and standard texts.

Contents of the course:

Prerequisites: AY1006 Oral Communication, AY 1001 Written Communication.

AY2181 Communication II, 1 crs/1,5 ECTS crs

Objectives of the course: The student deepens his/her skills in planning and implementing expert and professional oral communication situations and is able to use expert language and versatile means of influencing. The student learns to be positive towards developing his/her literal communication skills and gets practise in writing faultless professional and standard texts.

Contents of the course:

Prerequisites: AY1006 Oral Communication, AY 1001 Written Communication

AY2182 Reporting, 0,5 crs/0,75 ECTS crs

Objectives of the course: The student learns to be positive towards developing his/her literal communication skills and gets practise in writing faultless professional and standard texts.

Contents of the course:

Prerequisites: Not required.

AY2192 Noise Control, 2 crs/3 ECTS crs

Objectives of the course: The student gets acquainted with noise problems and the legislation concerning them.

Contents of the course: Sources, spreading and deadening of the noise. Measurement methods and ways of management. 0, 5 credits of physics is integrated in the study unit. Lectures and measuring exercises.

Prerequisites: Not required.

Environmental Technology

AY2193 Air Protection, 2 crs/3 ECTS crs

Objectives of the course: The student gets acquainted with the management of emissions and with the technology needed as well as the legislation.

Contents of the course: Sources of emissions, diminishing and costs. Combustion techniques and combustion gas washers. Methods of measuring the emissions. Lectures and measuring exercises.

Prerequisites: Not required.

AY2212 Industrial Ecology, 1,5 crs/2,25 ECTS crs

Objectives of the course: Viewpoints on environmental management, deepening of the methods and visions.

Contents of the course: Industrial ecosystems, a metaphor or an opportunity to sustainable development? English studies (1 credit) are integrated in the unit. Lectures and exercises, summaries and presentations.

Prerequisites: Not required.

AY2213 Evaluation of Environmental Impacts, 1 crs/1,5 ECTS crs

Objectives of the course: The objective of the unit is based on previously learned facts of making commissioned evaluations on environmental impacts.

Contents of the course: The size of the client will be adapted to the amount of credits (1 credit). As an alternative output could be an evaluation already made, which the student reads and analyzes in a written report, though also an oral presentation is needed. The study unit can also be combined with the final thesis.

Prerequisites: AY2118 Quality and Environmental Management.

AY2214 Eco Design, 2,5 crs/3,75 ECTS crs

Objectives of the course: Environmental viewpoints on planning products and services. Basics and concepts of Life Cycle Assessment, LCA. MIPS.

Contents of the course: Practical exercises and a small-scale LCA done with the SimaPro-programme are included in the unit. English studies (0, 5 credits) are integrated in the unit.

Prerequisites: Not required.

AY2215 International Environmental Issues, 1,5 crs/2,25 ECTS crs

Objectives of the course: The student gets acquainted with international environmental problems and culture.

Contents of the course: English studies (0,5 credits) are integrated in the unit. Introductory lecture, video course (Sustainable Baltic Region) and virtual parts.

Prerequisites: Not required.

AY2501 Machine and Energy Techniques, 2 crs/3 ECTS crs

Objectives of the course: The objective of this study unit is to understand the basic principles of the functions of energy changing machines and equipment, and to make calculations concerning energy changes in them.

Contents of the course: Central contents: thermodynamic levels, functioning principles and processes of thermal power machines and thermal power plants, steam and its characters, combustion, heat conveying, heat exchangers, 0, 5 credits of physics is integrated in the study unit.

Prerequisites: Not required.

AY2702 Waste Management and Recycling, 2 crs/3 ECTS crs

Objectives of the course: The student gets acquainted with organizing waste management and the legislation of it. Prevention of waste growth, managing waste material flows, waste treatment, processing for raw material or to new products. Recycling in private and public circumstances. Laying out and management of a new landfill site. Lectures and practical exercises, visits.

Contents of the course:

Prerequisites: Not required.

AY2704 Water Techniques, 2 crs/3 ECTS crs

Objectives of the course: The student gets acquainted with the basics of hydro building and water services as well as the legislation concerning water management.

Contents of the course: Dams and working methods of hydro building and natural ways of building waters.

Prerequisites: Not required.

AY2999 Environmental Health Care, 1,5 crs/2,25 ECTS crs

Objectives of the course: The student gets acquainted with different environmental health hazards and their control.

Contents of the course: The study unit is partly realized in co-operation with the Degree programme in Nursing. Lectures and exercises, visits and virtual studies.

Prerequisites: Not required.

PRACTICAL TRAINING

AY36 Practical training in ET 1, 10 crs/15 ECTS crs

Objectives of the course: The objective of the training period is to create connections with working life, to get to know one specific environmental field and its work tasks and working environment.

Contents of the course: Practical training can be done in two separate places at the most. The place for practical training is approved by the supervisor, based on the practical training plan.

Prerequisites:

AY37 Practical training in ET 2, 10 crs/15 ECTS crs

Objectives of the course: The objective of the training period is to deepen the student's knowledge of environmental technology in practical situations and to widen the student's view on environmental issues.

Contents of the course: Practical training can be done partly or entirely abroad, in two separate places at the most. Practical training can consist of project studies in 4 credits at the most. The place for practical training is approved by the supervisor, based on the practical training plan. A learning process is included in the training, the instructions for the training process will be given by the supervisor.

Prerequisites:

Elective studies

AY1061 Fram med Svenskan, 1 crs/1,5 ECTS crs

Objectives of the course: Revision of the basic structures and vocabulary of the Swedish language. To activate already existing language skills. To be a better language user both orally and literally.

Contents of the course: Revision of the basic structures and vocabulary of the Swedish language.

Prerequisites: Not required.

AY1062 English Grammar and Vocabulary, 1 crs/1,5 ECTS crs

Objectives of the course: Revision of the basic structures and vocabulary of the English language. To activate already existing language skills. To be a better language user both orally and literally.

Contents of the course: of the basic structures and vocabulary of the English language.

Prerequisites: Not required.

AY1063 Mathematics for Environmentalists, 1 crs/1,5 ECTS crs

Objectives of the course: Revision of the basic terminology in mathematics. The objective of the study unit is to support the student in his/her mathematics studies.

Contents of the course: Revision of the basic terminology in mathematics.

Prerequisites: Not required.

AY1064 Acceleration Course in Physics, 1 crs/1,5 ECTS crs

Objectives of the course: Revision of the basic terminology in physics. The objective of the study unit is to support the student in his/her physics studies.

Contents of the course: Revision of the basic terminology in physics.

Prerequisites: Not required.

AY1065 Mother Tongue (Finnish), 1 crs/1,5 ECTS crs

Objectives of the course: Revision of the basic structures in the Finnish language. To be a better language user both orally and literally. Supporting the student's studies.

Contents of the course: Revision of the basic structures in the Finnish language.

Prerequisites: Not required.

AY1066 Optional virtual courses in Environmental Technology, 2 crs/3 ECTS crs

Objectives of the course: The objective of the study unit is to activate and support the student, who already has the basic skills in languages and mathematics, to study environmental issues as their supportive studies at the Polytechnic or at Virtual Polytechnic.

Contents of the course: The options are negotiated with the student counsellor (OPO) or with the degree programme director (Kohjo) in advance.

Prerequisites: According to the requirements of the study unit.

AY2160B International Environmental Co-operation, 4 crs/6 ECTS crs

Objectives of the course: The student gets acquainted with international environmental problems and the environmental culture as well as studying the environmental field abroad.

Contents of the course:

Prerequisites:

AY2170 Environmental Project, 4 crs/6 ECTS crs

Objectives of the course: The student can plan and realize nature mapping of an area in terrain, e.g. mapping of rotten wood or a bird biotope. The student can use historical information and information about the location as well as aerial pictures as the basis for his/her mapping. He/She can use different methods of nature mapping. The student knows the ecological basics of management and restoration of heathland, herb-rich forests and mires. In addition, the student will learn about

Environmental Technology

the requirements of the habitat of one or several threatened species and about the management of the habitats. The student knows the planning and work techniques used in management and restoration of the target areas. He/She can make a restoration plan and mapping of the terrain area for a client and a follow-up of the flora and fauna species. The student manages terrain work. - Ecological basics of care and restoration of ecosystems, indicator species, threatened species, planning of work and work techniques. Skills in team work and management of field work. A commissioned work will be realized during the course together with the students of nature and environment at Kitee Learning Centre.

Contents of the course:

Prerequisites:

AY2216 Waterway Conservation Project, 4 crs/ 6 ECTS crs

Objectives of the course: Gives the student readiness to act as an expert and a leader in projects of waterway conservation.

Contents of the course: The target of conservation is chosen among those already suggested areas that need conservation. During the project, the student works in co-operation with the local environmental, forestry and fishery authorities, local people and other users of the area. During the project, the student makes a biological, physical and chemical report on the state of the water in the target area and on the factors affecting the waterway. The report on the state of the water will be presented for the co-operation group of the project. On the basis of the report, conservational acts are planned and realized. Depending on the project, there are several chances to proceed in the subject. Foreign languages and communication studies are integrated in the unit.

Prerequisites:

AY2218 Indicator Species and Exam in Forest Nature Management, 4 crs/6 ECTS crs

Objectives of the course: Indicator species as a tool of evaluation of the environmental state and treatment of eco systems. The student knows the most essential indicator species, such as vessels, birds and shelf fungi, in forests, herb-rich forests, mires and in cultural environments. The student gets familiar with the ecology of the indicator species, especially with their habitat requirements. In addition, the student learns to identify different terrain areas and, thus, gets help with taking a degree of nature care in forestry. The student takes part in a demonstration test arranged by the Forestry Centre of

North Karelia. - Ecology of indicator species and familiarity with the species, taking a degree of nature care in forestry. Forestry Act and other knowledge needed in forest care degree.

Contents of the course:

Prerequisites:

AY2219 Nature Mapping and Management of Eco Systems, 4 crs/6 ECTS crs

Objectives of the course: The student is able to plan and realize nature mapping, such as mapping of the biotope, vascular plants, rotten wood or a bird biotope, for an area in terrain. The student can use historical information and information about the location as well as aerial pictures as the basis for his/her mapping. He/She can use and apply different methods of nature mapping. The student knows the ecological basics of management and restoration of heathland, herb-rich forests and mires. In addition, the student will learn about the requirements of the habitat of one or several threatened species and about the management of the habitats. The student knows the planning and work techniques used in management and restoration of the target areas. He/She can make a restoration plan and mapping of the terrain area for a client and a follow-up of the flora and fauna species. The student is able to manage terrain work.

Contents of the course: Ecological basics of care and restoration of ecosystems, indicator species, threatened species, planning of work and work techniques. Skills in team work and management of field work. A commissioned work will be realized during the course together with the students of nature and environment at Kitee Learning Centre.

Prerequisites: AY1055 Ecology and the Basics of Field Research, AY07 Familiarity with Species, AY2003 Location Data Systems.

AY2220 Environmental Issues in Agriculture, 4 crs/ 6 ECTS crs

Objectives of the course: The student gets acquainted with the most important factors in agriculture that load the environment, and with the means of diminishing the problems. A significant part of environmental protection is to diminish the seepage of agricultural waste.

Contents of the course: Within the expanding EU, diminishing agricultural waste in Eastern Europe will be a great challenge. The consumers demand more and more pro-environmental and ethically produced foodstuffs. Therefore, organic farming and welfare of animals are very important parts of the modern agriculture. Nowa-

days, permissions to build new animal shelters also include evaluation of the environmental impacts. Furthermore, already existing shelters are controlled by authorities concerning emissions and animal welfare. This is why people dealing with environmental issues are to know the basics of animal welfare and cultivation techniques. Environmental issues have an effect on every livelihood based on nature utilization both in cities and in sparsely populated areas. From the point of view of landscape management, it is very important to keep the rural areas inhabited, which can also be affected by environmental acts. Realized partly in co-operation with the Degree Programme in Rural Industries.

Prerequisites: AY2136 Processes in Agriculture.

**AY2222 Automatic Measurement Systems, 4 crs/
6 ECTS crs**

Objectives of the course: Environmental measurements done with a computer. Sensors of environmental measurements. Information transfer. Realized together with the Degree Programme in Information Technology.

Contents of the course:

Prerequisites: IT-studies.

AY2223 Environmental Laws, 4 crs/6 ECTS crs

Objectives of the course: The get a view on the legislations concerning the environment and interpreting the law.

Contents of the course: Implemented according to the requirements of the University of Joensuu by attending lectures, exercises and exams at the university.

Prerequisites: Modules AY26, AY27, AY28, AY29, AY31

DEGREE PROGRAMME IN INTERNATIONAL BUSINESS

Aim of the study programme

This programme educates students to be professionals in International Marketing, especially in Russian and European trade. The students learn how to meet the challenges and opportunities of rapidly emerging markets. Furthermore, the programme provides students with fluency in English and Russian, and improves students' awareness and competence in inter-cultural issues.

In addition to theoretical knowledge of international business and the Russian market, emphasis is placed on the development of practical skills as well as the student's interpersonal abilities. The students are guided in their efforts to create a career in an international company. Our graduates hold positions in international companies on all continents. Their job titles include: export manager, country manager, marketing manager, project manager, business controller, HRM consultant, and market analyst.

Outline of the studies

The underlying principle of the study programme is to provide an open learning environment, reflecting the complex world of international business. The mode of studies consists of the combination of lectures, tutorials, assignments, practical work, and projects. The use of computers and electronic networks is an essential part of studies. In addition to the academic staff of the Polytechnic, several visiting lecturers, both from Finland and abroad, are involved in the Programme.

The first year studies provide students with the general understanding of business life. They include the concepts of marketing, accounting and other functions of a company. Studies in economics and business legislation deal with a company's relation to the surrounding environment. Through research projects students are able to apply the acquired theoretical knowledge in a real context, and to develop skills in information processing, in

the collection and analysis of data, as well as in reporting.

The second year studies deal with strategic and practical activities in international business. Emphasis is placed on the planning and implementation of export operations. The themes of international economy, finance and legislation explore the global environment.

The third study year focuses on the markets in Russia and Central Eastern Europe. The autumn semester of the third year provides students with a comprehensive overview of the markets, as well as of the emerging business opportunities and successful business practices in Russia and other parts of Eastern Europe. These studies emphasise East-West trade from the perspective of Western companies. The spring semester of the third year aims at providing a comprehensive understanding of Business in Russia. Emphasis is placed on the Russian perception of business and East-West trade. Studies take place in St. Petersburg.

Work placement, or practical training in companies, is an important part of the learning process. It connects the theoretical studies to the real context of international business. In order to gain qualifications gradually, practical training is divided into three phases. The first two periods take place in the summer after the first and second study years. These periods have two goals. The first goal is to provide students with experience in business and international business. The second goal is to reinforce students' basic skills in language acquisition and intercultural competencies. The content of the job and the language areas are planned individually based on students' previous work experience and language skills. The third work placement, taking place after the third year of studies, deals with some more challenging task. The idea is that student will carry out a project for a company, for instance, in order to help the company.

	Code	1. year	2. year	3. year	4. year
BASIC STUDIES	BI1				
Orientation	BI100				
Study and Career Planning I	BI1008A	1	0	0	0
Study and Career Planning II	BI1008B	0	1	0	0
Introduction to Computing	BI1001B	1	0	0	0
Successful Business	BI16				
Introduction to Business	BI1602J	1	0	0	0
Introduction to Marketing	BI1602I	4	0	0	0
Introduction to Economics	BI1044	3	0	0	0
Introduction to Accounting	BI1602K	5	0	0	0
Introduction to Business Legislation	BI1602H	3	0	0	0
Introduction to Management	BI1045	1	0	0	0
Business Behaviour	BI1002	1	0	0	0
Business Analysis	BI17				
Introduction to Quantitative Analysis	BI1702E	2	0	0	0
Market Research	BI1702H	1	0	0	0
Spreadsheet	BI1702F	1	0	0	0
Research case	BI1702G	1	0	0	0
Business Dynamics	BI181				
Project Management	BI1012	1	0	0	0
Organizational Behaviour	BI1712	2	0	0	0
Occupations in International Business	BI1713	0	1	0	0
Languages					
Finnish Communication	BI1201	1	0	0	0
Customer Contacts	BI1202	2	0	0	0
Presentation Skills	BI1203	1	0	0	0
Cross-Cultural Communication	BI1204	1	0	0	0
Written English	BI1205	2	0	0	0
Basic Russian I	BI1125	3	0	0	0
Basic Russian II	BI1126	3	0	0	0
PROFESSIONAL STUDIES	2				
Corporate Planning and Budgeting	BI2092A	0	4	0	0
International Markets	BI25				
International Marketing	BI2090A	0	4	0	0
International Economics	BI2090B	0	2	0	0
International Market Research	BI2090C	0	1	0	0
Contracts and Documents	BI28				
Foreign Trade Legislation	BI2093A	0	1	0	0
EU Legislation	BI2093B	0	1	0	0
International Logistics	BI2093C	0	1	0	0
Foreign Trade Documentation	BI2093D	0	1	0	0
International Sales Operations	BI27				
Sales Operations of an SME	BI2091	0	3	0	0
Financial Analysis and Export Plans	BI2092B	0	2	0	0
Selling	BI2091B	0	1	0	0
Business Correspondence	BI2091D	0	1.5	0	0
Meetings and Negotiations	BI2091E	0	1.5	0	0
Cross-Cultural Management	BI2091F	0	1	0	0
Export Project	BI2094A	0	2	0	0

International Business

Doing Business in Russia and Eastern Europe	BI23				
Finland as a Gateway	BI2070A	0	0	2	0
Transition in Russia and Eastern Europe	BI2070B	0	0	2	0
Business Strategies and Operations in Russia and Eastern Europe	BI2070C	0	0	4	0
Business Legislation in Russia and Eastern Europe	BI2070D	0	0	1	0
Markets in St. Petersburg	BI2070E	0	0	2	0
Doing Business in Central Eastern Europe	BI2070F	0	0	1	0
Languages					
Business Russian I	BI1127	0	2	0	0
Business Russian II	BI1128	0	2	0	0
Cyrillic Word Processing	BI1130	0	1	0	0
Russian Business Communication	BI1129	0	0	2	0
Russian Language and Culture I	BI1129B	0	2	0	0
Russian Language and Culture II	BI1129C	0	2	0	0
Business Swedish	BI1188	3	0	0	0
BUSINESS IN RUSSIA	BI4004				
Business in Russia	BI4004	0	0	10	0
Research Methods	BI24				
Quantitative Business Research	BI2062	0	0	2	0
Writing a Scientific Report	BI2063	0	0	1	0
Research Workshop	BI2067	0	0	1	0
WORK PLACEMENT		0	5	5	10
THESIS		0	0	0	10

BASIC STUDIES

BI1008A Study and Career Planning I, 1 crs

Objectives: The aim of this course is to tutor each student in self-directive learning by means of an individual study plan (ISP/HOPS). The student orientates himself to polytechnic studies and his future profession, becomes aware of the requirements of working life and his learning needs.

Content: Studying at IB and the Polytechnic, learner types, learning and team-working skills, study and career planning through an individual study plan (ISP/HOPS).

Prerequisites: -

BI1008B Study and Career Planning II, 1 crs

Objectives: The aim is to tutor each student in goal-oriented, self-directive and reflective learning by means of an individual plan.

Content: This study unit includes individual and group tutorials conducted by the director of the degree programme, teacher-tutor, international office and peer-tutors throughout the studies at the polytechnic. The individual plan, realised in form of a portfolio, comprises guidance to goal-directive and autonomous study, studies at the polytechnic and abroad, training period and orientation to working life.

Prerequisites: -

BI1001B Introduction to Computing, 1 crs

Objectives: This course introduces the students to the basic computer skills needed in such areas as word-processing programmes, navigating through the Internet and using e-mail.

Content: The students are taught how to help themselves - learning by doing - and are shown the computing facilities of the institute.

Prerequisites: -

BI1602J Introduction to Business, 1 crs

Objectives: This course provides an overview of the functions of businesses and companies and a company's relation to its environment.

Content: Issues covered include the business idea, customer orientation, profitability, management and the external relations of a company.

Prerequisites: -

BI1602I Introduction to Marketing, 4 crs

Objectives: This course provides a comprehensive picture of marketing.

Content: The course includes topics like markets, segmentation, consumer behaviour, product, price, market-

ing communication and distribution. The newest trends in marketing thinking are also presented.

Prerequisites: -

BI1044 Introduction to Economics, 3 crs

Objectives: This course gives an introduction to the economic context of business operations.

Content: Microeconomics deals with the functioning of the market mechanism. Macroeconomics looks at the economy as a whole. Such issues as economic fluctuations, inflation and balance of payments are covered, as well as the sources of economic data.

Prerequisites: -

BI1602K Introduction to Accounting, 5 crs

Objectives: This course covers the basic elements of management accounting, financial accounting and a brief introduction to finance. The course provides the students with an understanding of the role of accounting in a company. After the course the students are able to produce calculations for the purpose of comparison and decision-making. In addition, the students are able to understand taxation and the content of financial statements.

Content: Basics of Cost and Profitability Accounting, Bookkeeping in Companies, Company Taxation and Value Added Tax.

Prerequisites: -

BI1045 Introduction to Management, 1 crs

Objectives: This course aims at providing an insight into the basics of management.

Content: The issues covered include organisation, strategy, planning of processes and communication, motivation, control, role of the manager and organisational development, organisational problems and approaches in solving them.

Prerequisites: -

BI1002 Business Behaviour, 1 crs

Objectives: The students will learn how to conduct themselves professionally in doing business.

Content: Socializing, dining skills, business attire, receiving and visiting clients, business travel.

Prerequisites: -

BI1602H Introduction to Business Legislation, 3 crs

Objectives: This course provides a basic understanding of the Finnish legal system and business legislation. The knowledge of Finnish legislation obtained in this course prepares students for the advanced courses in interna-

International Business

tional business legislation.

Content: Sources of law, contract law, company law, competition law and labour law.

Prerequisites: -

BI1702E Introduction to Quantitative Analysis, 2 crs

Objectives: This course provides students with an understanding of statistical principles and their use. Special emphasis is placed on descriptive statistics.

Content: Students learn how to collect data, examine data for patterns and relationships, and analyse data. In addition, SPSS programme, statistical analysis software will be introduced.

Prerequisites: -

BI1702F Spreadsheet, 1 crs

Objectives: This course introduces the basic operations and functions of Excel. In addition, the course will introduce the MS PowerPoint

Content: Students practice the skills needed in effective business spreadsheet building. The course use a problem-solving approach based on realistic business situations. Upon successful completion of this course, participants will be able to: - Create and modify worksheets, entering texts, values, formulas and functions - Use formatting and printing techniques - Create and modify charts that represent worksheet data - Sort and filter data - Link worksheets - Make and use Excel databases and basic macros.

Prerequisites: -

BI1702H Market Research, 1 crs

Objectives: This course provides students with an understanding of the concepts, principles, and analytical methods that enhance the systematic specification, gathering, analysis, and interpretation of information for marketing decision-making.

Content: The topics comprise the role of market research in marketing, planning of a survey, data processing and analysis, survey applications and purchasing a survey.

Prerequisites: Introduction to Marketing BI1602I

BI1702G Research case, 1 crs

Objectives: This course correlates some of the theoretical approaches of business to the reality of business.

Content: During the course one or more of the main approaches of marketing are applied in the context of real business. The research project consists of planning a survey, data processing and analysis, and reporting and presentation of the results.

Prerequisites: Market Research BI1702D and Introduction to Quantitative Analysis BI1702E

BI1012 Project Management, 1 crs

Objectives: An increasing share of company activities is performed in projects. This course trains students in how to carry out a project properly. The requirements for conducting a successful project are basically quite simple, at least in small projects. They deal with making a good project plan and steering the project's implementation.

Content: Process of a project, design of a project plan, role of steering.

Prerequisites: -

BI1712 Organizational Behaviour, 2 crs

Objectives: The course is designed to provide student a basic, yet comprehensive overview of the organizational behaviour.

Content: Students learn the key concepts and methods that drive organizational development, and how organizational development initiatives are designed.

Prerequisites: -

BI1713 Occupations in International Business, 1 crs

Objectives: This course explores the qualifications of the different positions in the international business. Understanding the requirements of the working life will help the student setting goals and planning the outline for individual study plan.

Content: Exploration of the qualifications will be completed through a study of the labour market and an one/week excursion to the Baltic States. The study is based on the interviews of the persons working in international business and announcements of vacancies in newspapers. The excursion aims at figuring out the specific tasks and related requirements of business people working abroad. Furthermore, the excursion provides an up-dated picture about the market area of the Baltic States.

BI1201 Finnish Communication, 1 crs

Objectives: Lúke-eláman kirjallisiin viestintátilanteisiin harjaantuminen. Oikeakielisen asiattylin hallinta.

Content: Kielenhuollon keskeisiä kysymyksiä. Kaupan peruskirjeet (tarjouspyyntö, tarjous, tilaus vahvistus, reklamaatio), tiedote, muistio, raportti.

Prerequisites: Ei edellytetä

BI1202 Customer Contacts, 2 crs

Objectives: The objective of this course is to improve student's oral and written communication skills in basic

business situations, to introduce and practise new vocabulary and to promote the use of active language learning methods for continuous self-study.

Content: CV and application, written communication, face-to-face and telephone communication, customer service situations in different types of companies, business texts.

Prerequisites: -

BI1203 Presentation Skills, 1 crs

Objectives: The objective is to not only learn how to make successful presentations, but also to build the student's confidence in their own presentation abilities.

Content: This course introduces students to the techniques of successful presentations, including brainstorming, drawing up a presentation outline, awareness of bodily movement and position when giving a presentation, creating energy, capturing an audience's attention, using visual aids, etc.

Prerequisites: -

BI1204 Cross-Cultural Communication, 1 crs

Objectives: The aim of this course is to promote cultural awareness and intercultural sensitivity, to increase culture-general knowledge and to improve students' communication skills in intercultural settings.

Content: Topics include: cultural competence, verbal and non-verbal communication, concepts of time, power distance, masculinity - femininity, collectivism - individualism, values and ethic. Intercultural studies and theories by Hall, Hofstede, Trompenaars, Lewis and others.

Prerequisites: -

BI1205 Written English, 2 crs

Objectives: The objective of this course is to introduce students to the language and conventions of written English. Students will practise and improve the skills needed in academic writing and reporting.

Content: During the course different reports are read and analysed. Written English is studied with special emphases on fluent and idiomatic written language, stylistic and grammatical accuracy, vocabulary and phrases.

Prerequisites: -

BI1125 Basic Russian I, 3 crs

Objectives: The aim of this course is to equip the beginner with the basic oral and written skills needed to communicate in practical everyday situations which visitors to Russia may encounter. The student also receives some background information about Russia and its culture.

Content: Oral and aural practice of vocabulary, grammar and conversational situations (talking about yourself, family and hobbies, likes and dislikes etc.) in contact classes, and guided and independent written work outside the classes.

Prerequisites: -

BI1126 Basic Russian II, 3 crs

Objectives: The aim of this course is to equip the beginner with the basic oral and written skills needed to communicate in practical everyday situations which visitors to Russia may encounter. The student also receives some background information about Russia and its culture.

Content: Oral and aural practice of vocabulary, grammar and conversational situations (dining, shopping, making a date, buying tickets etc.) in contact classes, and guided and independent written work outside the classes.

Prerequisites: BI1125 Basic Russian I

BI1188 Business Swedish, 3 crs

Objectives: This course aims at introducing oral and written business communication in Swedish.

Content: The topics covered are business terminology, business correspondence and customer service.

Prerequisites: Basic knowledge in Swedish (Secondary or Vocational school)

PROFESSIONAL STUDIES

BI2092A Corporate Planning and Budgeting, 4 crs

Objectives: This course covers corporate planning in a changing business environment. Planning is described as a multi-level process concerning all activities in a company. The course provides students with a holistic perspective of a company's planning system for both short and long periods of time. The students are provided with the necessary skills for making different kinds of budgets and for understanding the overall budgeting system.

Content: Corporate governance, planning systems, management accounting, budgeting and budgets.

Prerequisites: Basic knowledge of accounting, BI1602K Introduction to Accounting

BI2090A International Marketing, 4 crs

Objectives: This course provides an overall picture of the basics of international marketing, beginning with the preconditions of the internationalisation of a company.

Content: Analysing markets, competition and other fac-

International Business

tors in the international business environment, as well as potential ways of competing will be covered. The course will also include the planning, implementation, and control of export activities.

Prerequisites: Basic knowledge of marketing, BI1602I Introduction to Marketing

BI2090B International Economics, 2 crs

Objectives: This course is designed to offer basic knowledge of international economics.

Content: The course analyses theories which explain the operation of the global economy. Determination of competitive advantages is considered at national and company levels. The subjects covered also include open economy macroeconomics and the present state of the world economy.

Prerequisites: Basic knowledge of Economics, BI1044 Introduction to Economics

BI2090C International Market Research, 1 crs

Objectives: This course provides students with an understanding of the procedures of an international market research.

Content: Emphasis will be put on analytical methods that enhance the systematic specification, gathering, analysis, and interpretation of information for export marketing decision-making. The course includes a practical assignment.

Prerequisites: BI1602I Introduction to Marketing, BI2090A International Marketing

BI2093A Foreign Trade Legislation, 1 crs

Objectives: This course offers students a basic understanding of foreign trade legislation.

Content: The main emphasis will be put on legislation which regulates the rules of import and export activities.

Prerequisites: -

BI2093B EU Legislation, 1 crs

Objectives: This course provides students with a basic understanding of the legislation of the European Union.

Content: The main emphasis of the course is the competition regulations of the EU.

Prerequisites: -

BI2093C International Logistics, 1 crs

Objectives: This course introduces students to the role of logistics in international trade from a company's point of view.

Content: Logistics from vendoring to distributing

goods and services: international supply chain, purchasing, warehousing, storing, vertical and horizontal transport, production management and distribution.

Prerequisites: -

BI2093D Foreign Trade Documentation, 1 crs

Objectives: This course provides students with practical information on export procedures to EU countries and to countries outside the EU.

Content: The course focuses on the terms of delivery (Incoterms), terms of payment, quotations, invoices, insurance, forwarding, and documentation. Students must write a report on a topic related to the course.

Prerequisites: -

BI2091 Sales Operations of an SME, 3 crs

Objectives: This course provides a realistic picture of the internationalisation process of a small-medium-sized company.

Content: How does a small company located in the periphery go abroad with its very limited resources? What are the suitable strategies for the small company? How will the company find a reliable partner? How should distribution be organised? Which fairs should the company take part in and what are the preparations for the event? Which is the right strategy for pricing? Because the aim of the course is to identify the procedures which are suitable for small companies, the phases of the process with its respective problems and respective successful solutions will be presented. The issues are illustrated with several examples of Finnish SMEs which have become international.

Prerequisites: BI2090A International Marketing

BI2092B Financial Analysis and Export Plans, 2 crs

Objectives: Student learns to analyse the financial state of companies with whom they are possibly dealing. Furthermore, the course teaches student how to make supportive plans for companies practising foreign trade.

Content: Planning of company finances, different sources of financing, and financing of export/import activities.

Prerequisites: -

BI2091B Selling, 1 crs

Objectives: This course is designed to provide the students with the basic skills required in personal sales work.

Content: The course will cover, both in theory and in practise, the sales process, argumentation and other factors behind success and failure in selling.

Prerequisites: -

BI2091D Business Correspondence, 1.5 crs

Objectives: The objective of this course is to introduce students to effective means of international business correspondence.

Content: The assignments cover a wide range of business letters, faxes and e-mail in various business situations. Good style, effective layouts and wording will be emphasised.

Prerequisites: BI1202 Customer Contacts

BI2091E Meetings And Negotiations, 1.5 crs

Objectives: This course introduces students to the strategies of negotiations and the English language of meetings and negotiations used in the business world. The course deepens students' awareness of the special nuances of speech and silence used strategically in business meetings and negotiations.

Content: Negotiation strategies are studied with the help of the drama of a hypothetical company on video and by acting out role simulations to the video.

Prerequisites: A good command of English

BI2091F Cross-Cultural Management, 1 crs

Objectives: The aim of this course is to increase students' knowledge of invisible cultural barriers involved in international business. The course examines the different aspects of managing intercultural relationships.

Content: The topics cover cultural issues involved in the management of an international company and its personnel, and the cultural aspects of meetings and negotiations.

Prerequisites: -

BI2094A Export Project, 2 crs

Objectives: The object of this course is to provide experience in real international marketing activities.

Content: Students will carry out a project for a company which is opening its markets or has already launched its products abroad.

Prerequisites: BI1601I Introduction to Marketing, BI2090A International Marketing

BI2070A Finland as a Gateway, 2 crs

Objectives: This course explores the role of Finland within the context of East-West business.

Content: The course discusses the impact of transition of Eastern Europe to the regional development. Special attention is paid to development in Russia and its impact on the future of Nordic peripheries.

Prerequisites: -

BI2070B Transition in Russia and Eastern Europe, 2 crs

Objectives: This course provides an overview of the socio-economic transition going on in Russia, in the Baltic States and in CEE countries.

Content: Special features of these economies are discussed and basic theories of economic development and convergence are also introduced. The impact of EU enlargement is also covered.

Prerequisites: -

BI2070C Business Strategies and Operations in Russia and Eastern Europe, 4 crs

Objectives: The course provides students with an understanding of the emerging business opportunities in Russia, the Baltic States and Central Eastern Europe.

Content: Emphasis is placed on successful business strategies and operations in these markets.

Prerequisites: -

BI2070D Business Legislation in Russia and Eastern Europe, 1 crs

Objectives: The course introduces business legislation in Russia and Central Eastern European countries.

Content: The legislative issues (e.g. contracts, taxes, arbitration) will be dealt with from the foreign company's point of view.

Prerequisites: -

BI2070E Markets in St. Petersburg, 2 crs

Objectives: The course aims at exploring the business opportunities and peculiarities of business strategies and practices in St. Petersburg region.

Content: This course includes a market research which will be carried out in St. Petersburg (during the Winter School).

Prerequisites: -

BI2070F Doing Business in Central Eastern Europe, 1 crs

Objectives: This course concentrates on a specific market area in Central Eastern Europe or in the Baltic States.

Content: The business environment, social and economic development, business opportunities, successful business strategies and methods of operation are covered.

Prerequisites: -

BI2062 Quantitative Business Research, 2 crs

Objectives: This course provides students with an understanding of statistical inference based on probability.

International Business

Content: Students learn the most important concepts of probability and principles of hypothesis testing and estimation.

Prerequisites: BI1702E Introduction to Quantitative Analysis

BI2063 Writing a Scientific Report, 1 crs

Objectives: The purpose of this course is to introduce students to the language and conventions of writing scientific reports in English.

Content: Students learn to recognise the types of text characteristic of (scientific) argumentation, and are able to produce them in both written and oral form. Students will write a paper on one subject in the field of East-West business. The paper, with an abstract written in good English, will contain the student's analyses of the subject which will increase his/her professional know-how. The students will have a poster presentation on their papers.

Prerequisites: -

BI2067 Research Workshop, 1 crs

Objectives: This course introduces the basic principles of research work.

Content: The objectives and requirements of the thesis are presented and discussed. The planning of the process, the theoretical framework, results and conclusions are among the topics covered.

Prerequisites: -

BI1127 Business Russian I, 2 crs

Objectives: Students will develop their Russian language skills in elementary business situations. They will also get some background information about the Russian business environment.

Content: The course comprises elementary business situations and features essential for survival, such as making travel arrangements, attending a trade fair, dining, and telephone Russian. The course consists of oral and aural practice on vocabulary and grammar in contact classes, guided and independent written work outside the classes.

Prerequisites: BI1126 Basic Russian II or corresponding studies.

BI1128 Business Russian II, 2 crs

Objectives: Students will continue to develop their Russian language skills in business situations. They will also receive some background information about the Russian business environment.

Content: The course comprises more elementary business situations, such as telephone Russian, business vi-

sits and hosting, company presentations. The course consists of oral and aural practice on vocabulary and grammar in contact classes, guided and independent written work outside the classes.

Prerequisites: Business Russian I or corresponding studies.

BI1129 Russian Business Communication, 2 crs

Objectives: The students will continue to develop their Russian skills in more demanding business situations

Content: Oral practice on vocabulary, grammar and business situations, such as telephone conversations, company visits and presentations plus basic business correspondence.

Prerequisites: BI11298 Business Russian II or corresponding studies.

BI1129B Russian Language and Culture I, 2 crs

Objectives: This intensive period of one week spent in St. Petersburg, Russia, will continue to build up the student's competence and confidence in the language in an authentic environment.

Content: The period comprises Russian language classes and lectures under the guidance of native teachers plus introduction to the Russian culture and society (excursions, company visits and cultural programme).

Prerequisites: -

BI1129C Russian Language and Culture II, 2 crs

Objectives: The second intensive period of one week spent in St. Petersburg, Russia, will continue to build up the student's competence and confidence in the language in an authentic environment.

Content: The period comprises Russian language classes and lectures under the guidance of native teachers plus introduction to the Russian culture and society (excursions, company visits and cultural programme).

Prerequisites: -

BI1130 Cyrillic Word Processing, 1 crs

Objectives: The course will equip the student with basic cyrillic word processing skills needed in written Russian business communication.

Content: The course comprises basic keyboard practice, creating short written messages and using Russian Internet resources

Prerequisites: BI1128 Business Russian II or corresponding studies.

BI4004 Business in Russia, 10 crs

Objectives: Russia, CEE countries and the Baltic States are going through a period of rapid transition. New

markets are emerging with a potentially huge demand. From foreign companies' viewpoints these countries build up an attractive area for business, either for export or for the establishment of production units. However, the conditions for business in these areas differ from with which the Western Markets are used dealing. This means that the ordinary business strategies and operations may not work in these markets. Specific knowledge of these cultures and markets is a necessity for success. This study module aims at providing a comprehensive understanding of Business in Russia. Emphasis is placed on the Russian perception of business and East-West trade.

Content: The subjects covered include management, business legislation, marketing and organisational behaviour in the context of Russian business culture. Studies take place in St. Petersburg.

Prerequisites: The study module is connected to the module BI23 Doing Business in Russia and Central Eastern Europe (which emphasises East-West trade from the perspective of Western companies).

BI4003 Work Placement, 20 crs

Objectives: The work placement is designed to prepare the students for positions in international business

Content: The students receive training in the tasks of international business and experience working life in a foreign country. This will help them manage in conditions both new and unknown to them. However, work placement abroad may be compensated by a work placement in a company in Finland, provided that company is actively involved in foreign trade, and the student's tasks deal with foreign trade. The possibilities of undertaking a work placement in Finland should be discussed with the course coordinator.

Prerequisites: Sufficient knowledge and skills in the field of international business. An approved plan for personal specialisation and approval of the work placement(s).

BI5001 Thesis, 10 crs

Objectives: Preparing a thesis teaches students to carry out demanding projects, acquire knowledge in their own specialised field and produce advanced reports.

Content: The thesis is the result of a process during which the student will study a professionally relevant topic connected to East-West business. A practical project commissioned by a company is preferred to purely theoretical research. The report should be written in English, the recommended length being 50-60 pages. Individual work is preferred, but in case of a demanding and extensive subject it may be done in groups of 2-3 students. In the preparation of the paper, the student will be assisted by a supervisor (a member of the teaching staff or a specialist from outside the school). In case the investigation is carried out for a company, it is recommended that a supervisor from the respective company be involved as well. The thesis will be presented at an event open to the public. Having left the report to be assessed, the students must attend a maturity test. The aim is to test the student's knowledge of language (Finnish language for Finnish students) and (English language for foreign students) and knowledge of the respective subject. In this written test the student will answer 2-3 questions concerning the final paper. The answers will be checked by the supervisor and the language teacher.

Prerequisites: The student is expected to have sufficient knowledge in international business, methodological skills and a good command of English, which are necessary for a high standard thesis.

DEGREE PROGRAMME IN BUSINESS ECONOMICS

General description and aims of the degree

Degree programme in Business Economics is the biggest degree programme of business and administration in the number of students, and it exists at almost every polytechnic. The studies equip the student for working in expert tasks of business economics both in Finland and abroad. The extent of the programme is 140 credits and the set duration for it is 3,5 years. The title of the person graduated from the degree programme is Bachelor of Business Administration (BBA). Studying in the degree programme is modern, extensive and versatile. Degree programme in Business Economics maintains many-sided and active relations to companies of the own branch. Already during the studies, the student can establish advantageous connections to working life. Studies can also be carried out at foreign institutions of higher education and, in addition, the practical training can take place abroad.

Structure and syllabus of the studies

In degree programme in Business Economics, the aim of the basic studies (40 credits) is to make the student widely acquainted with the basics of business operations and to equip him/her with versatile know-how in applying information technology. In professional studies (60 credits), the student can specialize in some particular area of business economics. These specialization options, where skills in business operations are made deeper, are marketing, financial administration, business administration (Joensuu) and entrepreneurship (Liekka). The degree also includes at least 10 credits of optional studies, which can also be taken from other degree programmes. Optional studies usually take place in the second and third study year. Degree programme in Business Economics contains a continuous period of instructed practical training, which lasts approximately

five months (20 credits, 100 workdays) and is completed in a company or a public corporation. During the training, the student can apply the information and skills he/she has learned to practical work in a real community. Work tasks usually coincide with the specialization option selected in the professional studies. Practical training takes place in the autumn of the third study year. It can also be carried out abroad. The extent of the thesis is 10 credits and it is mainly carried out as a commission to a company or other corporation in the final stage of the studies after practical training.

Orientation options / Elective studies

Joensuu: After basic studies, in the spring of the first study year, the student presents his/her wishes concerning the specialization options of professional studies. Students are evenly selected into different specialization options. The selection criteria are based on success in studies and application wishes.

Liekka: After basic studies, the student carries out the specialization option of entrepreneurship.

Following specialization options are carried out in the degree programme of Business Economics:

1. Marketing (Joensuu) The aim is to equip the student for marketing small and medium-sized enterprises and for work in customer control.
2. Financial administration (Joensuu) The aim is to equip the student for professional expertise both in management and design of finances in a company.
3. Business administration (Joensuu) The aim is to equip the student for managing a company, organization, materials management and the use of personnel resources.
4. Entrepreneurship (Liekka) The aim is to equip the student for assignments that require economical and managerial expertise.

BASIC STUDIES	Code	1. year	2. year	3. year	4. year
	B01				
Introduction to Business	BT1001	4	0	0	0
Introduction to Marketing	BT1002	4	0	0	0
Introduction to Financial Accounting	BT1003	4	0	0	0
Business Law	BT1004	4	0	0	0
Introduction to Economics	BT1005	2	0	0	0
International Business Environment	BT1006	2	0	0	0
	B02				
Introduction to Business Mathematics	BT1101	2	0	0	0
Introduction to Statistics	BT1102	2	0	0	0
Business Software	BT1104	2	0	0	0
Introduction to Data Processing and Information Retrieval	BT1108	2	0	0	0
Word Processing and Reporting	BT1109	2	0	0	0
Self-management	BT1111	2	0	0	0
	B03				
Business Communication	BT1202	2	0	0	0
Norden och dess näringsliv (Swedish course)	BT1251	1	0	0	0
Muntlig kommunikation (Swedish course)	BT1252	1	0	0	0
English for International Business Environment	BT1301	1	0	0	0
Spoken English	BT1302	1	0	0	0
PROFESSIONAL STUDIES					
	BT04				
Marketing Planning	BT2002	0	3	0	0
Profitable Working Methods	BT2401	0	2	0	0
Successful Business	BT2402	0	3	0	0
Planning of Economics	BT2403	0	4	0	0
Personnel Management	BT2405	0	2	0	0
Introduction to E-commerce	BT2526	0	2	0	0
	BT05				
Företaget i funktion (Swedish course)	BT1275	0	1	0	0
Affärskommunikation 1 (Swedish course)	BT1276	0	1	0	0
Business Communication 1	BT1325	0	2	0	0
STUDIES OF THE ORIENTATION OPTION		0	0	0	0
	B10				
Graphical Communication	BT2035	0	2	0	0
Practical Communication	BT2036	0	2	0	0
Marketing Communication	BT2021	0	4	0	0
Service Marketing and personal Sales Work	BT2037	0	4	0	0
International Logistics	BT2023	0	2	0	0
Marketing Research	BT2024	0	0	3	0
International Legislation	BT2028	0	0	2	0
Customer Relationship marketing	BT2038	0	4	0	0
Cross-Cultural Negotiations	BT2033	0	0	1	0
Developing Small and Medium Size Enterprises	BT2030	0	0	4	0
Research Methods	BT2031A	0	1	0	0
Thesis Seminars and Counselling	BT2031B	0	0	1	0
Specialities in Marketing	BT2039	0	0	4	0
	B11				
Controlling Company Economics	BT2108	0	4	0	0
Financial Manager (Case Study)	BT2109	0	4	0	0

Business Economics

Operation Analysis in Decision Making	BT2110	0	1	0	0
Taxation	BT2111	0	4	0	0
Balance Sheet Planning and Analysis	BT2112	0	4	0	0
Appearance and Negotiation Skills	BT2113	0	1	0	0
Financial Planning	BT2114	0	0	4	0
Auditing	BT2115	0	0	4	0
International Accounting	BT2116	0	0	2	0
Developing Small and Medium Size Enterprises	BT2030	0	0	4	0
Research Methods	BT2031A	0	1	0	0
Thesis Seminars and Counselling	BT2031B	0	0	1	0
B12					
Developing Working Environment	BT2211	0	4	0	0
Management Accounting	BT2212	0	2	0	0
Salary Administration	BT2213	0	1	0	0
Logistics	BT2215	0	4	0	0
Risks and risk management	BT2216	0	2	0	0
Extension Course of National Economics	BT2220	0	4	0	0
Management	BT2208	0	0	4	0
Legislation of Company Administration	BT2218	0	0	3	0
Statistical Methods	BT2219	0	0	2	0
Appearance and Negotiation Skills	BT2113	0	1	0	0
Corporate Communication	BT2221	0	1	0	0
Developing Small and Medium Size Enterprises	BT2030	0	0	4	0
Research Methods	BT2031A	0	1	0	0
Thesis Seminars and Counselling	BT2031B	0	0	1	0
Balance Sheet Planning and Taxation	BT2600	0	3	0	0
Office Technique in a Business Enterprise:					
IT Application	BT2601	0	2	0	0
Office Work Organization	BT2602	0	0	1	0
Use of Information Technology	BT2603	0	2	0	0
Business Idea Development	BT2604	0	2	0	0
Business Communication	BT2605	0	2	0	0
Risk Management	BT2607	0	2	0	0
Internationalization as a Growth Strategy	BT2615	0	2	0	0
Logistics	BT2618	0	2	0	0
Business Economics Implementation	BT2608	0	0	3	0
Business Analyses	BT2609	0	0	2	0
High Performance Organizations	BT2610	0	0	2	0
Database Marketing	BT2611	0	0	1	0
Relationship Marketing and Networking	BT2612	0	0	2	0
Market Research and Information	BT2613	0	1	0	0
Business Financing	BT2614	0	0	1	0
Export and Import Documents	BT2616	0	0	1	0
Cross - Cultural Studies	BT2617	0	0	1	0
Elective studies					
Telefonsvenska (Swedish course)	BT3052	0	1	0	0
Samtal (Swedish course)	BT3053	0	1	0	0
Administrationssvenska (Swedish course)	BT3054	0	1	0	0
Tidningssvenska (Swedish course)	BT3055	0	0	1	0
Möten och förhandlingar (Swedish course)	BT3056	0	1	0	0
Affärskontakter och PR (Swedish course)	BT3058	0	1	0	0
Redovisning (Swedish course)	BT3060	0	0	1	0

The Language of Meetings and Negotiations	BT3102	0	2	0	0
Business Communication 2	BT3103	0	2	0	0
Marketing and PR Communications	BT3110	0	2	0	0
Administration and Finance	BT3113	0	0	2	0
Language of Media	BT3115	0	1	0	0
Face-to-Face English	BT3116	0	1	0	0
English Literature	BT3117	0	1	0	0
E-English Workshop	BT3133	0	1	0	0
Basic German I	BT3150	4	0	0	0
Basic German II	BT3151	0	2	0	0
Koversation (German course)	BT3153	0	2	0	0
German at Work	BT3157	0	2	0	0
Geschäftliche Kommunikation (German course)	BT3158	0	2	0	0
Basic German II	BT3160	0	2	0	0
Basic French I	BT3200	4	0	0	0
Basic French II	BT3201	2	0	0	0
French at Work	BT3207	0	2	0	0
Français avancé (French course)	BT3208	0	1	0	0
Oral Communication in French	BT3209	0	1	0	0
Basic Russian I	BT3250	4	0	0	0
Basic Russian II	BT3251	2	0	0	0
Oral Communication in Russian	BT3253	0	2	0	0
Russian at Work	BT3254	0	2	0	0
Cyrillic Word Processing	BT3257	0	1	0	0
Management Olympics	BT3304	0	1	0	0
Business Management in Russia	BT3305	0	1	0	0
Accounting in International Teams	BT3306	0	1	0	0
	BT3327	0	0	1	0
OPTIONAL STUDIES		0	0	10	0
PRACTICAL TRAINING		0	0	20	0
THESIS		0	0	0	10

BASIC STUDIES

BT1001 Introduction to Business, 4 crs/6 ECTS crs

Objectives of the course: The aim of the course is to give the student a general view of companies and their operations, regulations and operational environment. In addition, the objective is to provide the student with information of the different stages in establishing a company.

Contents of the course: General information about companies, the purpose of companies, the characteristics of entrepreneurship, the different processes and the operational environment in a company, planning strategic and operational functions, establishing a company

Prerequisites: No prerequisites

BT1002 Introduction to Marketing, 4 crs/6 ECTS crs

Objectives of the course: In the course, the student is equipped with skills in understanding the meaning of comprehensive marketing thinking to entrepreneurship. Concurrently, the course gives an informational basis to further studies of marketing at North Karelia Polytechnic. Through an enterprise report integrated in the studies, the student is provided with skills in applying marketing thinking to practical entrepreneurship.

Contents of the course: Development of marketing thinking, the purpose and operational environments of marketing, creating demand through basic competitive weapons, maintaining demand, customer satisfaction and marketing services, customership thinking, life cycle and economy. Enterprise report attaches essentially to the course.

Prerequisites: No prerequisites

BT1003 Introduction to Financial Accounting, 4 crs/6 ECTS crs

Objectives of the course: In the course, the student understands the meaning of bookkeeping as a registration system and information system for the management. The aim of the course is also that the student can do double-entry bookkeeping and understands principles to make financial statements. Furthermore, the student has basic knowledge of company taxation and value added taxation and also can use key ratios for analysing companies. An enterprise report is integrated in the studies and the student is provided with skills in applying economical thinking to practical entrepreneurship.

Contents of the course: Expenditure, revenue and financial transactions, accounts, opening and closing accounts, principles of double-entry bookkeeping, vouchers, financial year, record transaction, equity capi-

tal, balance book, profit and loss, capitalisation and write-off of the acquisition costs of current and fixed assets, key ratios and company analyses, VAT, company taxation, ADP-bookkeeping and enterprise report.

Prerequisites: No prerequisites

BT1004 Business Law, 4 crs/6 ECTS crs

Objectives of the course: The student knows the legislation regulating business activities and the basics of juridical systematics as well as juridical way of thinking.

Contents of the course: Juridical system and juridical norms; law of contract; running a business; sales and service contracts; consumer protection; debt, securities and collection; laws on competition and cooperation.

Prerequisites: No prerequisites

BT1005 Introduction to Economics, 2 crs/3 ECTS crs

Objectives of the course: The student understands the basic instructions in economics and also learns to use them in practise. The course also activates the student to find information about economical phenomenon on her/his own.

Contents of the course: Basic instructions in economics: Scarc, multiplier and circular flow, demand/supply/market, GDP and national income The problems in economy: inflation, unemployment, internationalisation, terms of trade Economypolicy in EMU countries

Prerequisites:

BT1006 International Business Environment, 2 crs/3 ECTS crs

Objectives of the course: Student will understand factors, which are influencing in the international business environment and s/he will have basic knowledge and skills to work in international context.

Contents of the course: Changes in the business world, the competitiveness of Finland, cross-cultural differences; EU, Asia, Russia, North- and South-America as business environments

Prerequisites: No prerequisites

BT1101 Introduction to Business Mathematics, 2 crs/3 ECTS crs

Objectives of the course: The main aim of this course is to provide the students understanding with the basic mathematical theory of economy .

Contents of the course: Repetition of percentages and interests. Different kind of functions and their use in practical problems of economy.

Prerequisites: -

BT1102 Introduction to Statistics, 2 crs/3 ECTS crs

Objectives of the course: The main aim of this course is to provide understanding of the statistical principles and their use.

Contents of the course: Special emphasis is placed on descriptive statistics. The main topics are: methods for collecting data, describing data with tables, charts and statistics, correlations, regression and time series.

Prerequisites: -

BT1104 Business Software, 2 crs/3 ECTS crs

Objectives of the course: The student knows the principles of Microsoft Excel and can use it situations of different kind in working life. In addition, the student knows the basics of PowerPoint.

Contents of the course: The environment of Excel and the cooperation with Word, mathematical functions, macros. Using PowerPoint dias in short presentations.

Prerequisites:

BT1108 Introduction to Data Processing and Information Retrieval, 2 crs/3 ECTS crs

Objectives of the course: The aim of the course is to provide the student with skills in understanding the meaning of data processing and to learn how to get information from different sources. Basics of telecommunications.

Contents of the course: Structure of computer hardware and devices. Windows XP. Web searching and information retrieval, library and information services.

Prerequisites:

BT1109 Word Processing and Reporting, 2 crs/3 ECTS crs

Objectives of the course: The governing of a touch-type system and basics of a word processing program. The student knows how to formulate a clear and well-organized report with the help of a word processor.

Contents of the course: Familiarizing oneself with a word processing program, typing practices with a touch-type system. Writing a text to be reported and produced in a publishable form.

Prerequisites:

BT1111 Self-management, 2 crs/3 ECTS crs

Objectives of the course: The course provides the student how to improve self-knowledge and knowledge of human nature, how to build own career by self-management.

Contents of the course: General information about how to lead your own life, self-knowledge, how to recognize your resources, how to have strength enough to

live, how to make your timetable reasonable, self-fulfillment and how to cross the line of comfortable, skills of interactive communication and how to meet conflict and how to handle it.

Prerequisites: No prerequisites

BT1202 Business Communication, 2 crs/3 ECTS crs

Objectives of the course: Developing both written and oral communication skills in a variety of business situations. Improving performing skills. Adequate mastery of the field-related language.

Contents of the course: Central issues of correct language use. Communicating exercises. Basic types of business letters and documents.

Prerequisites:

BT1251 Norden och dess näringsliv (Swedish course), 1 crs/1,5 ECTS crs

Objectives of the course: The students are provided with information about Scandinavian countries and they will obtain skills in discussing social and economical life.

Contents of the course: News and newspaper articles in media. Team and pair work.

Prerequisites: BT1252 Muntlig kommunikation (Swedish course)

BT1252 Muntlig kommunikation (Swedish course), 1 crs/1,5 ECTS crs

Objectives of the course: The students improve oral communication skills in Swedish in every-day environment and in working life.

Contents of the course: Phone and customer service situations, travelling, company visits, small talk, personal history.

Prerequisites:

BT1301 English for International Business Environment, 1 crs/1,5 ECTS crs

Objectives of the course: The student will actively obtain business vocabulary, becomes acquainted with telling about his/her own work and studies, and gets familiar with presenting a company and its operations in both national environment and within international trade.

Contents of the course: Basic concepts of economical- and business life, establishing a company, operation processes and marketing environment, applying for a job.

Prerequisites: Matriculation Examination or similar skills

Business Economics

BT1302 Spoken English, 1 crs/1,5 ECTS crs

Objectives of the course: The objective of this course is to provide an opportunity for students to enhance their oral communication skills in English through pair work, group discussion and role playing.

Contents of the course: Telling about oneself and Finland, small talk, telephone communication, customer service and group discussions.

Prerequisites: No prerequisites

PROFESSIONAL STUDIES

BT1275 Företaget i funktion (Swedish course), 1 crs/1,5 ECTS crs

Objectives of the course: The students are equipped with company presentation skills in Swedish. Daily working skills in a company.

Contents of the course: Customer service situations and business terminology. Team and pair work. Individual case studies.

Prerequisites:

BT1276 Affärskommunikation 1 (Swedish course), 1 crs/1,5 ECTS crs

Objectives of the course: The students will continue to develop their Swedish skills in business situations.

Contents of the course: Oral practice of vocabulary, grammar and business situations, business correspondence. CV and application.

Prerequisites: 1st year studies in Swedish

BT1325 Business Communication 1, 2 crs/ 3 ECTS crs

Objectives of the course: The course aims at developing both the written and oral communication skills in central business situations in English

Contents of the course: Business letters (layout; writing an inquiry, a request for quotation, a quotation); effective emails and faxes, and central situations that require oral communication skills (customer contacts, negotiations, presentations, socializing)

Prerequisites: BT1301 and BT1302

BT2002 Marketing Planning, 3 crs/4,5 ECTS crs

Objectives of the course: The student knows the different phases in marketing planning. The student can plan and implement the marketing plan of a new product, service or a business concept. The student understands the meaning of scenario techniques and quality thinking in marketing planning.

Contents of the course: Marketing planning process. Trends and scenarios in marketing planning. Marketing

planning and quality models. Implementation of marketing plans.

Prerequisites: Basics in Marketing BT1002

BT2401 Profitable Working Methods, 2 crs/ 3 ECTS crs

Objectives of the course: Students know the principles of team work and are able to act naturally in different kinds of interaction situations (teams and meetings).

Contents of the course: Essence of teams, meeting and negotiation skills, presenting matters, skills of listening and giving feedback.

Prerequisites:

BT2402 Successful Business, 3 crs/4,5 ECTS crs

Objectives of the course: The student is acquainted with the main factors of successful business and can apply these factors to the development of a case-enterprise.

Contents of the course: Entrepreneurship, successfactors of enterprises and measures of success.

Prerequisites: No prerequisites

BT2403 Planning of Economics, 4 crs/6 ECTS crs

Objectives of the course: The course provides the students with an understanding of the role of the management accounting and financial accounting in a company. After the course the students are able to produce calculations for the purpose of planning, comparison and decision-making. Also the students are able to combine the financial and non-financial information in a company.

Contents of the course: This course covers the basic theory of management accounting. Subjects in this course are: introduction of management and cost accounting, profitability, pricing, budgeting and reporting.

Prerequisites: BT1003 Financial Accounting, BT1101 Introduction to Business Mathematics, BT1108 Introduction to Data Processing and Information Retrieval

BT2405 Personnel Management, 2 crs/3 ECTS crs

Objectives of the course: The student knows the main sectors of personnel management, the use and development of human resources, and basic jurisdiction of employment.

Contents of the course: Importance of personnel management, planning, recruitment, selection and training of personnel, regulating the employment contract, responsibility for employee relations and laws of employment.

Prerequisites: No prerequisites

**BT2526 Introduction to E-commerce, 2 crs/
3 ECTS crs**

Objectives of the course: The course provides the student with general knowledge of e-business. The student is equipped with a concept of the changes needed in business processes with a network as a central part of the entrepreneurship.

Contents of the course: Creating an e-business strategy to a small and medium-sized enterprise.

Prerequisites: No prerequisites

**BT2021 Marketing Communication, 4 crs/
6 ECTS crs**

Objectives of the course: In the course provides the students with an understanding of the meaning of marketing communication mix included with the relevant acts and ordinances. The student can co-operate with advertising agency and media. The student also understand how to operate in negotiation.

Contents of the course: Acts and ordinances of advertising and marketing. Oral and literary effectiveness. Skills of negotiation. Planning and realization of promotion.

Prerequisites: No prerequisites

BT2023 International Logistics, 2 crs/3 ECTS crs

Objectives of the course: The student is acquainted with the terminology of logistics, absorbs logistical thinking and knows the importance of logistics as a successfactor in international markets, and knows the documents of international business

Contents of the course: Concept of logistics, importance of logistics, purchasing, warehousing, transportation in international business, international documents.

Prerequisites: Basic studies

BT2024 Marketing Research, 3 crs/4,5 ECTS crs

Objectives of the course: The student has skills to implement a quantitative marketing research project. The student will also know how to use statistical software and make statistical conclusions.

Contents of the course: Definition of the concepts, marketing information system, ethics of marketing research, demands of a good research, research methods, sampling methods, planning of the questionnaire, implementing of the field research, handling of the research material, how to write the report, interpreting of the results, examples of different research projects.

Prerequisites: BT1002 Introduction to Marketing, BT1102 Introduction to Statistics

BT2028 International Legislation, 2 crs/3 ECTS crs

Objectives of the course: In the course, the student is equipped with skills in operating international marketing and business assignments.

Contents of the course: Various jurisdictional constellations. Contracts of representation, forwarding, transportation and insurance. Standards and connecting factor rules for international trade agreements. International standards for product protection. Regulation for both competition and advertising.

Prerequisites: BT1004 Business Law

BT2030 Developing Small and Medium Size Enterprises, 4 crs/6 ECTS crs

Objectives of the course: During the development program the students participate in making a development project for a North-Karelian company or organisation. During the program products and/or services are defined and implemented to the needs of the company or organisation.

Contents of the course: Negotiations with the company or organisation, implementation of service products, counselling, making and presenting reports. North-Karelian companies are chosen to this program annually in the autumn. The execution of the project is done in spring.

Prerequisites: Practice period

BT2031A Research Methods, 1 crs/1,5 ECTS crs

Objectives of the course: The aim of the course is to give an overview of main qualitative theories and research traditions and also, the aim is to understand difference between quantitative and qualitative methods, as well as academic/scientific material for qualitative research. The student is acquainted with quantitative research methods making thesis.

Contents of the course: Qualitative and quantitative methods as tools for theses.

Prerequisites: BT1102 Basics of Statistics

**BT2031B Thesis Seminars and Counselling, 1 crs/
1,5 ECTS crs**

Objectives of the course: The student understands the purpose and meaning of thesis in the development of his/her expertise. The student knows the aim, prerequisites and the phases and possible problems in the process of a thesis in a polytechnic. The student plans the purpose and process of his/her own thesis. The student knows the basic methods in both quantitative and qualitative research, and can apply these methods to his/her own thesis. The student is able to plan his/her work so

Business Economics

that the thesis material and methods are in line with the purpose of the thesis.

Contents of the course: Purpose and prerequisites of thesis work, thesis process, choosing the right topic, frame of reference, project plan, writing thesis report, process instructions and the evaluation of thesis. Applying quantitative and qualitative methods. Two seminars (spring - autumn).

Prerequisites: Practice period

BT2033 Cross-Cultural Negotiations, 1 crs/ 1,5 ECTS crs

Objectives of the course: The objective of the course is to introduce students to the basic concepts and dimensions of cross-cultural management and communication and to practise skills needed in negotiations in a multi-cultural environment.

Contents of the course: Basic theories of Hofstede and Trompenaars, multicultural environment, intercultural competence, awareness and sensitivity, verbal and nonverbal communication, negotiation techniques and strategies.

Prerequisites: Compulsory Marketing and English courses

BT2035 Graphical Communication, 2 crs/ 3 ECTS crs

Objectives of the course: The aim of the course is to develop the student's skills in producing communication and education material to printers, printing houses and web sites.

Contents of the course: Basics of vector and bitmap graphics. Web publishing.

Prerequisites: Basic studies

BT2036 Practical Communication, 2 crs/ 3 ECTS crs

Objectives of the course: The student learns the basics of different types of corporate communication situations.

Contents of the course: Communication as an essential part in successful business: internal and external communication, crisis communication, planning and organization of communication, communication plan, interest group reports.

Prerequisites: No prerequisites

BT2037 Service Marketing and personal Sales Work, 4 crs/6 ECTS crs

Objectives of the course: After completing the course the student understands the specialties in services marketing compared to traditional product marketing. The

student masters the management based on customer satisfaction. The student understands the role of personal selling services and products, both in business-to-business and business-to-consumer markets.

Contents of the course: Specialities in services marketing. Customer satisfaction based marketing. Customer satisfaction measurement. Managing customer satisfaction. Personal selling.

Prerequisites: Basics in Marketing BT1002

BT2038 Customer Relationship marketing, 4 crs/ 6 ECTS crs

Objectives of the course: After completing the course the student understands the basics in customer relationship marketing and knows how to create and maintain customer relationships.

Contents of the course: Framework in customer relationship marketing, life span of a customer relationship, profitability in customer relationships, customer relationship marketing strategies, regular customer programs in marketing.

Prerequisites: Basics in Marketing BT1002

BT2039 Specialities in Marketing, 4 crs/6 ECTS crs

Objectives of the course: The students will be familiar with current themes in marketing while repeating earlier skills in marketing. The underlying theme of course is to study specially from the viewpoint of SME:s a) how a company gets and maintains customers and b) how an SME can market profitably and take into account its role as a player in the society. The course introduces also several alternatives to self-employment within the fields of marketing and selling.

Contents of the course: 1) Frame of reference in marketing in SMEs and how to choose the right marketing tools according to the business field. 2) Economically profitable marketing from the viewpoint of the basic tools and customer relationships in marketing. 3) Self-employment and entrepreneurship as alternatives as career in marketing. 4) Ethics in marketing and the social impact of marketing.

Prerequisites: Basics in Marketing BT1002 and Marketing planning BT2002

BT2108 Controlling Company Economics, 4 crs/ 6 ECTS crs

Objectives of the course: After this course the students are able to analyse business as a whole. They are also capable of producing calculations and creating new models of action to the purpose of business economic management.

Contents of the course: Subjects in this course are:

analysis of financial statements, budget controlling and analysing, strategic management accounting, activity-based costing.

Prerequisites: BT2403 Planning of Economics

**BT2109 Financial Manager (Case Study), 4 crs/
6 ECTS crs**

Objectives of the course: The student is acquainted with the financial management system in a company as a producer of information and the student becomes familiar with different accounting systems connected to each other by using a case-company. The course provides the capability to make annual accounts using vouchers. Also budgets are considered for controlling business.

Contents of the course: Parts of financial management systems: order processing, invoicing, personal ledgers, payment transactions, stock accounting, fixed assets accounting, production

Prerequisites: BT1003 Introduction to Financial Accounting, BT2403 Planning of Economy, BT2111 Taxation

**BT2110 Operation Analysis in Decision Making,
1 crs/1,5 ECTS crs**

Objectives of the course: The aim of this course is to provide understanding of some mathematical methods using as instruments in decision-making.

Contents of the course: Linear programming, transport problems, assignment problems, critical path method.

Prerequisites: BT1101 Introduction to Business Mathematics

BT2111 Taxation, 4 crs/6 ECTS crs

Objectives of the course: The student is able to understand individual income taxation and the taxation procedure. The student is also getting deeper into corporate income taxation and value added taxation. The student is getting acquainted with the special questions of corporate organizing and international taxation.

Contents of the course: Income and estate taxation, inheritance and gift taxation, corporate income taxation and international taxation.

Prerequisites: BT1003 Introduction to Financial Accounting

**BT2112 Balance Sheet Planning and Analysis,
4 crs/6 ECTS crs**

Objectives of the course: The student is able to understand the contents of financial statements in different kind of companies and the student is able to determine the expected net profit by using the acts of financial sta-

tements and taxation. Additionally the student is able to analyse business and economy.

Contents of the course: Planning financial statements in different kind of companies, expected net profit, cost store, taxation and planning financial statements, concerns financial statements, fusion, business evaluating, utilization of the information in financial statements, analysing financial statements, analysing cash flows.

Prerequisites: BT1003 Introduction to Financial Accounting, BT2403 Planning the business economy, BT2111 Taxation

**BT2113 Appearance and Negotiation Skills, 1 crs/
1,5 ECTS crs**

Objectives of the course: The student strives for developing oral communicating skills and knows how to proceed in different types of communicating situations.

Contents of the course: Negotiation exercises and different performance exercises.

Prerequisites:

BT2114 Financial Planning, 4 crs/6 ECTS crs

Objectives of the course: The student is acquainted with different financing alternatives and is able to compare them with each other. The student understands financial planning as a part of corporate planning and can make financial plans. The student also appreciates the stock market.

Contents of the course: Finance market and its function, need for and acquisition of finance, risks and price of finance, taxation aspect of finance, comparison of different financial alternatives, financial planning and calculations, cash management and debt collection, international finance and computer applications

Prerequisites: BT1003 Financial Accounting, BT2403 Planning of Economics, BT2111 Taxation, BT2112 Balance Sheet Planning and Analysis

BT2115 Auditing, 4 crs/6 ECTS crs

Objectives of the course: In the course, the student is equipped with skills in auditing and it creates a basis of taking a degree in Approved Accountants. The student is acquainted with auditing and company laws as well as other regulations and practices.

Contents of the course: Company law from point of view of auditing, auditing act and other regulations, basics of auditing, planning and organising of auditing, objects of auditing, counting systems, ADP-auditing, other tasks and responsibility of the auditor.

Prerequisites: BT1003 Financial Accounting, BT1004 Business Law, BT2111 Taxation, BT2112 Balance Sheet Planning and Analysis

Business Economics

BT2116 International Accounting, 2 crs/3 ECTS crs

Objectives of the course: The student is able to understand international practises in the annual accounts and consolidated accounts as well as taxation in EU-countries and in Russia. Course is part of Socrates-project "European Taxation and Accounting in Practice, ETAP". Furthermore a student gets acquainted with International Accounting Standards.

Contents of the course: Comparative accounting in the EU-countries and in Russia, Individual Income Taxation, Corporate Taxation, Value Added Taxation and International Accounting Standards. The course includes distance learning organised by partner institutions.

Prerequisites: BT1003 Introduction to Financial Accounting, BT2403 Planning of Economics, BT2111 Taxation, BT2112 Balance Sheet Planning and Analyses

BT2208 Management, 4 crs/6 ECTS crs

Objectives of the course: The student is acquainted with the demands for superiors and the principles of management. The student understands management as a part of the leadingprocess and is acquainted with different theories of management.

Contents of the course: Management as a part of the leading process, demands for superiors, skills of superiors, history of management, development as a superior, challenges and targets of leadership in the future.

Prerequisites: Basic studies

BT2211 Developing Working Environment, 4 crs/6 ECTS crs

Objectives of the course: The aim of the course is to understand changes at work on the local and global level, from the viewpoint of people, organisations and values. The course consists of three parts: 1. Developing work units and environment, as well as methods at work 2. Legislation at work 3. Writing a report based on practical training

Contents of the course: Changes at work and organisations, changing leadership and values at work.

Prerequisites: BT1001 Introduction to Business, BT1107 Self-management, BT2405 Personnel Management

BT2212 Management Accounting, 2 crs/3 ECTS crs

Objectives of the course: The student is able to use management accounting in variety of organisations.

Contents of the course: Profitability accounting, budgeting and reporting

Prerequisites: BT1003 Financial Accounting, BT2403 Planning of Economics

BT2213 Salary Administration, 1 crs/1,5 ECTS crs

Objectives of the course:

Contents of the course:

Prerequisites:

BT2215 Logistics, 4 crs/6 ECTS crs

Objectives of the course:

Contents of the course:

Prerequisites:

BT2216 Risks and risk management, 2 crs/3 ECTS crs

Objectives of the course: The student gets a holistic perspective of business risks and risk management. The traditional risk management will be studied using especially small and medium-size enterprises as examples.

Contents of the course: History of risk management, main risks in enterprises, methods of risk management, strategies of risk management, risk management as a part of strategic management, the future of risk management

Prerequisites: Basic studies

BT2218 Legislation of Company Administration, 3 crs/4,5 ECTS crs

Objectives of the course: The student is acquainted with the essential jurisdiction of business administration, especially according fair business practice in relation to the stakeholders of a company. In the course, various legal opportunities which could be used to protect the company's own competitive advantage are handled.

Contents of the course: Legal norms of institutions in different company forms, civil trial, arbitration, execution, bankruptcy, debt restructuring, principle of publicity legislation, environment legislation, immaterial rights and competition legislation

Prerequisites: BT1004 Business Law

BT2219 Statistical Methods, 2 crs/3 ECTS crs

Objectives of the course:

Contents of the course:

Prerequisites:

BT2220 Extension Course of National Economics, 4 crs/6 ECTS crs

Objectives of the course:

Contents of the course:

Prerequisites:

**BT2221 Corporate Communication, 1 crs/
1,5 ECTS crs**

Objectives of the course:

Contents of the course:

Prerequisites:

**BT2600 Balance Sheet Planning and Taxation,
3 crs/4,5 ECTS crs**

Objectives of the course: The student understands the meaning of taxation and is able to plan and make financial statements for different situations.

Contents of the course: Tax legislation, taxable income, capital tax, the situation of the financial statement, taxation of the company from and taxation planning.

Prerequisites:

**BT2601 Office Technique in a Business Enterprise:
IT Application, 2 crs/3 ECTS crs**

Objectives of the course: The student knows the principles of payroll calculation on a general level as well as the principles of relational databases. He can also design databases consisting of multiple tables, queries and reports and cooperation between other Office applications.

Contents of the course: Principles of payroll calculation, using the payroll calculation software, printing and interpretation of reports and functions in the turn of the year. Principles of relational databases, tables, relations between tables, fields of tables, data types of the fields, queries, reports, cooperation between other Office applications.

Prerequisites:

**BT2602 Office Work Organization, 1 crs/
1,5 ECTS crs**

Objectives of the course: The student understands the demands of an effective office work and is able to improve the latest information technology. The student understands and pays attention to the demands of working environment, information technology and environmental protection.

Contents of the course: Office work, document production and administration, invoicing, payable and receivable accounts, filing and development of office work and one's own work.

Prerequisites:

**BT2603 Use of Information Technology, 2 crs/
3 ECTS crs**

Objectives of the course: The student knows how to utilize information technology in the studies and diffe-

rent kinds of work environments. The student knows Networks and Network services.

Contents of the course: Applications of information technology, enterprise resource planning and order processing systems, E-learning, IP-based video conferencing, offline and online multimedia, security, advanced search techniques, patent databases, newsgroups, different ways of utilizing information technology.

Prerequisites:

**BT2604 Business Idea Development, 2 crs/
3 ECTS crs**

Objectives of the course: The student is acquainted with business idea as a concept and the meaning of the whole business entity. After the course the student has a view of the factors affecting the development and of business and the entity.

Contents of the course: Development factors of business and development of business as entity.

Prerequisites: BT1001 Introduction to Business, BT1002 Introduction to Marketing

**BT2605 Business Communication, 2 crs/
3 ECTS crs**

Objectives of the course: The student knows the Promotion mix and is able to make advertising material.

Contents of the course: Personal selling. Making advertising material.

Prerequisites:

BT2607 Risk Management, 2 crs/3 ECTS crs

Objectives of the course: The student understands the meaning of risk management and insurances and is able to plan risk control methods for different situations in SMEs.

Contents of the course: Business risks. Risk management process: hazard identification, evaluating the level of risks, risk control methods, insurances of a company.

Prerequisites:

**BT2608 Business Economics Implementation,
3 crs/4,5 ECTS crs**

Objectives of the course: The student understands the different parts of accounting.

Contents of the course: Bookkeeping and value added taxation, strategic accounting, financial issues, auditing.

Prerequisites:

BT2609 Business Analyses, 2 crs/3 ECTS crs

Objectives of the course: The student can evaluate profitability, liquidity and solvency of the company.

Business Economics

Contents of the course: Business analysis, balance scorecard, cash flow statement.

Prerequisites:

BT2610 High Performance Organizations, 2 crs/3 ECTS crs

Objectives of the course: The student is acquainted with a successful company from the point of view of an individual and a company.

Contents of the course: Factors organising work, leadership of work community, supervision of work, motivated employee, social relations, ethics of work, work atmosphere, control of change in changing environment, learning organisation, requirements for successful company, management and leadership,

Prerequisites: BT2495 Personal Management

BT2611 Database Marketing, 1 crs/1,5 ECTS crs

Objectives of the course: The student knows the benefits of database marketing and knows how to use database marketing in marketing planning.

Contents of the course: Market segmentation and the use of it in CRM and direct marketing.

Prerequisites:

BT2612 Relationship Marketing and Networking, 2 crs/3 ECTS crs

Objectives of the course: The student knows the concepts of CRM and networking and is aware of their benefits.

Contents of the course: Customer relationship marketing. Networking. Different viewpoints of marketing.

Prerequisites:

BT2613 Market Research and Information, 1 crs/1,5 ECTS crs

Objectives of the course: The student can use quantitative research methods in marketing decision making.

Contents of the course: Marketing research: planning, process, analysis.

Prerequisites:

BT2614 Business Financing, 1 crs/1,5 ECTS crs

Objectives of the course: The student knows the markets, different financial opportunities and evaluates and makes comparisons between different financial alternatives.

Contents of the course: Financial markets, financial opportunities, comparisons of alternative financial opportunities

Prerequisites: Basic studies

BT2615 Internationalization as a Growth Strategy, 2 crs/3 ECTS crs

Objectives of the course: The student is acquainted with internationalisation as a concept, internationalisation of Finnish companies, strategic planning of internationalisation and operating models of internationalisation.

Contents of the course: Challenges in the internationalisation of companies, international competitiveness, general strategic planning of international operations, international operation options and choosing.

Prerequisites: BT1001 Introduction to Business, BT1002 Introduction to Marketing,

BT2616 Export and Import Documents, 1 crs/1,5 ECTS crs

Objectives of the course: The student knows and can fill the basic documents needed in export and import business in EU countries and outside them.

Contents of the course: Offers and orders. Transport documents. Invoicing and payment documents. Public authority documents.

Prerequisites:

BT2617 Cross - Cultural Studies, 1 crs/1,5 ECTS crs

Objectives of the course: The student learns the differences in cultures, norms and values and gets practical tools in working and communicating with people from other cultures.

Contents of the course: Key cultural dimensions. Communication styles. Skills and competencies needed in international business.

Prerequisites:

BT2618 Logistics, 2 crs/3 ECTS crs

Objectives of the course:

Contents of the course:

Prerequisites:

Elective studies

BT3052 Telefonsvenska (Swedish course), 1 crs/1,5 ECTS crs

Objectives of the course: Communication skills in telephone conversations.

Contents of the course: Telephone situations and terminology, receiving and sending messages.

Prerequisites: 1st year studies in Swedish

**BT3053 Samtal (Swedish course), 1 crs/
1,5 ECTS crs**

Objectives of the course: The students will improve their communication skills in more demanding situations.

Contents of the course: Introductions and presentations with a native speaker as a group leader. Current topics concerning the field of study.

Prerequisites: 1st year studies in Swedish

**BT3054 Administrationssvenska (Swedish course),
1 crs/1,5 ECTS crs**

Objectives of the course: The students get acquainted with public organisations in Swedish. Customer service situations, understanding and producing Swedish documents in the field of public life.

Contents of the course: Oral and written communicative tasks and studying documents.

Prerequisites: Basic studies in Swedish

**BT3055 Tidningssvenska (Swedish course), 1 crs/
1,5 ECTS crs**

Objectives of the course: The students get acquainted with magazines and newspapers and can take advantage of news in business life.

Contents of the course: Reading newspapers and magazines as self-study. The students increase their media vocabulary.

Prerequisites: Swedish studies in basic and professional studies

**BT3056 Möten och förhandlingar (Swedish course),
1 crs/1,5 ECTS crs**

Objectives of the course: The students are provided with skills in operating in Swedish in basic negotiations and meetings.

Contents of the course: Oral training in meetings and studying meeting documents individually and in groups.

Prerequisites: Basic Swedish studies in Polytechnic

**BT3058 Affärskontakter och PR (Swedish course),
1 crs/1,5 ECTS crs**

Objectives of the course: The students are provided with skills in working with more demanding marketing and sales situations.

Contents of the course: Case studies in fairs and Sales Promotions-events. Individual presentations and speeches.

Prerequisites: Swedish studies in basic and professional studies

**BT3060 Redovisning (Swedish course), 1 crs/
1,5 ECTS crs**

Objectives of the course:

Contents of the course:

Prerequisites:

BT3102 The Language of Meetings and Negotiations, 2 crs/3 ECTS crs

Objectives of the course: The student becomes familiar with the means of affecting the public opinion through media; understands English phrases, idioms and metaphors commonly used in public media; studies and learns to analyse some of the most influential business journals and papers, and learns to produce short texts and speeches for different media.

Contents of the course: Business and economic journals and papers, English used in Finnish public media; broadcasting, publishing and press relations; advertising in press and digital media; media security, reliability and bias

Prerequisites: BT1301, BT1302 and BT1325 or mastery of similar contents and skills

**BT3103 Business Communication 2, 2 crs/
3 ECTS crs**

Objectives of the course: The course aims at developing both the written and oral communication skills in more demanding business situations in English.

Contents of the course: Business letters (order and order confirmation, complaints and adjustments, terms of payment, collection letters and reminders) and more demanding negotiations and presentations.

Prerequisites: BT1301, BT1302 and BT1325

**BT3110 Marketing and PR Communications, 2 crs/
3 ECTS crs**

Objectives of the course: The student is able to demonstrate satisfactory linguistic and communicative abilities to be able to manage in professional tasks and situations that relate to marketing communications, information, promotion and PR.

Contents of the course: Revision of marketing terminology, SP, trade fairs, product presentations and demonstrations, sales negotiations, language of advertising, direct and telemarketing, customer satisfaction surveys, after sales situations, PR, information and external communications

Prerequisites: BT1301, BT1302 and BT1325 or mastery of similar contents and skills

Business Economics

BT3113 Administration and Finance, 2 crs/ 3 ECTS crs

Objectives of the course: The student is able to understand texts and spoken language used in and produced by public administration and economic life, can describe and give a presentation on corporate activities, administration, management culture and finance, and can interpret and compile brief reviews and reports in English.

Contents of the course: State, provincial and municipal organisations and their sphere of activities; taxation, types of companies, corporate management and administrative tasks, financial management, reporting and budgeting, basic terminology used in accounting, banking, and in financial and economic texts

Prerequisites: BT1301, BT1302 and BT1325 or mastery of similar contents and skills

BT3115 Language of Media, 1 crs/1,5 ECTS crs

Objectives of the course:

Contents of the course:

Prerequisites:

BT3116 Face-to-Face English, 1 crs/1,5 ECTS crs

Objectives of the course: To maintain and further develop students' conversational and interaction skills in English especially in demanding business situations.

Contents of the course: Discussions in small groups, exchange of opinions and ideas, statements, speeches and presentations with a native English teacher.

Prerequisites: BT1302 or mastery of similar contents and skills

BT3117 English Literature, 1 crs/1,5 ECTS crs

Objectives of the course: The student becomes familiar with the cultures and lifestyles of English-speaking countries at present or in the past with the help of contemporary and/or classic English literature. The student develops his/her receptive language skills through vocabulary practice and with the help of extensive reading techniques.

Contents of the course: E-learning and online interaction supplemented by self-study. The student and the teacher agree on the novels to be read at the beginning of the course. While reading, the student participates in vocabulary practice and group discussion in an e-learning environment. The student writes a book review; comments on other student's reviews and evaluates his/her own learning.

Prerequisites: BT1301, BT1302 and BT1325 or mastery of similar contents and skills

BT3133 E-English Workshop, 1 crs/1,5 ECTS crs

Objectives of the course: The student is capable of using Internet resources in English language with help of various search engines when dealing with e-learning, on-line services, and e-commerce.

Contents of the course: Self-directive learning in the Learning Space virtual environment, information search and reporting, vocabulary work, on-line communication, familiarization with on-line public services, and various e-tailing companies. Net marketing, customer service, and general rules for on-line shopping: orders, payment methods, delivery, returns policy, privacy and security.

Prerequisites: Mastery of similar contents and skills.

BT3150 Basic German I, 4 crs/6 ECTS crs

Objectives of the course: The student gets basic information of the language, language area, communications culture. The student applies knowledge of German in simple oral and written situations for own communication purposes.

Contents of the course: Pronunciation and intonation, reading and writing, listening comprehension and basic structures of grammar.

Prerequisites: No prerequisites

BT3151 Basic German II, 2 crs/3 ECTS crs

Objectives of the course: To learn the basic grammar structures and new vocabulary, to apply these skills to communication situations

Contents of the course: Grammar studies, oral communication

Prerequisites: BT3150

BT3153 Koversation (German course), 2 crs/ 3 ECTS crs

Objectives of the course: Capability to converse relatively fluent German in professional situations.

Contents of the course: Conversation exercises with native teacher.

Prerequisites: BT3157 German at Work

BT3157 German at Work, 2 crs/3 ECTS crs

Objectives of the course: The students develop their skills in communicating in German in business situations

Contents of the course: A company and its operations, working tasks, organisation of a company, visits

Prerequisites: BT3151

BT3158 Geschäftliche Kommunikation (German course), 2 crs/3 ECTS crs

Objectives of the course: The student copes with German in oral and written communication and negotiation situations in business life

Contents of the course: To become familiar with business letters and negotiation language in German

Prerequisites: BT 3157

BT3160 Basic German II, 2 crs/3 ECTS crs

Objectives of the course: The students develop their skills in the German language and in the German culture. Developing oral skills in German

Contents of the course: To refresh German structures and to practice various communication situations

Prerequisites: German in Upper Secondary School

BT3200 Basic French I, 4 crs/6 ECTS crs

Objectives of the course: The student masters the basics of French for being able to cope in simple oral and written communication situations.

Contents of the course: The course includes, for example, pronunciation and intonation, reading and writing, listening comprehensions and basic grammatical structures.

Prerequisites: No prerequisites

BT3201 Basic French II, 2 crs/3 ECTS crs

Objectives of the course: The student strengthens his/her basic skills in French and gets more deeply acquainted with the French language area and culture.

Contents of the course: The study unit includes, for example, grammatical structures, topics concerning the French language area and both oral and written exercises of the French communication culture.

Prerequisites: Basics of French or similar skills

BT3207 French at Work, 2 crs/3 ECTS crs

Objectives of the course:

Contents of the course:

Prerequisites:

BT3208 Français avancé (French course), 1 crs/1,5 ECTS crs

Objectives of the course:

Contents of the course:

Prerequisites:

BT3209 Oral Communication in French, 1 crs/1,5 ECTS crs

Objectives of the course:

Contents of the course:

Prerequisites:

BT3250 Basic Russian I, 4 crs/6 ECTS crs

Objectives of the course: The aim of the course is to give basic information on Russian language, Russia and its culture. The students apply the knowledge to practice in basic everyday situations in oral and written exercises.

Contents of the course: Pronunciation, reading and writing, listening comprehension, basics of the grammar. Exercises in basic everyday situations.

Prerequisites: No prerequisites studies

BT3251 Basic Russian II, 2 crs/3 ECTS crs

Objectives of the course:

Contents of the course:

Prerequisites:

BT3253 Oral Communication in Russian, 2 crs/3 ECTS crs

Objectives of the course:

Contents of the course:

Prerequisites:

BT3254 Russian at Work, 2 crs/3 ECTS crs

Objectives of the course: The students develop their skills to communicate in Russian in business situations.

Contents of the course: The course comprises elementary business situations, business vocabulary, manners, special features of oral business communication and structures of business language.

Prerequisites: BT3251 Basic Russian 2 or corresponding studies

BT3257 Cyrillic Word Processing, 1 crs/1,5 ECTS crs

Objectives of the course: The students get familiar with the Cyrillic keyboard in word processing. The students acquire the skills needed for creating short messages using the Cyrillic keyboard and a text processing programme. They also get familiar with Russian Internet sites.

Contents of the course: Keyboard exercises, exercises on vocabulary and language structures using Internet sites and on-line dictionaries, basic communicative messages.

Prerequisites: BT3254

BT3304 Management Olympics, 1 crs/1,5 ECTS crs

Objectives of the course: The course gives opportunity for the student to show and compare own business

Contents of the course:

Prerequisites:

Business Economics

**BT3305 Business Management in Russia, 1 crs/
1,5 ECTS crs**

Objectives of the course:

Contents of the course:

Prerequisites:

**BT3306 Accounting in International Teams, 1 crs/
1,5 ECTS crs**

Objectives of the course:

Contents of the course:

Prerequisites:

BT3327 , 1 crs/1,5 ECTS crs

Objectives of the course:

Contents of the course:

Prerequisites: