

LAUREA UNIVERSITY OF APPLIED SCIENCES

Degree Programme in Business Information Technology, in English (Laurea leppävaara, tiko), NIA13SN

Learning concept at Laurea

Universities of applied sciences have three tasks set by law: research and development, regional development, and pedagogy. The effective integration of these three tasks has been seen as one of the keys to the successful completion of Laurea's statutory duties. The aim for Laurea is to produce competent graduates who become research-oriented developers of their work and their fields. A further aim is to develop and renew labour market competence through research and to produce innovations that make use of multidisciplinary competence to have an impact on our surroundings.

Laurea's learning concept is embodied in the Learning by Developing model, which has been rewarded by the Finnish Higher Education Evaluation Council. The objective of learning is competence, which is visible as new ways and means of working, and which allows for renewal of the labour market and the field. Learning by Developing takes place in workplace-oriented projects in which students, lecturers, workplace experts and customers work together to develop innovative solutions.

Students are seen as partners who, as their competence develops, are able to take on increasing responsibility and make use of their creativity to complete research and development tasks. Students acquire competence in learning environments comprising diverse workshops and labs. Professional competence is constructed out of the integrated combination of empirical data, a deep understanding of it, and skills in doing and handling situations. Working together to build knowledge-based skills leads to competence that allows students to manage diverse situations in the constantly changing world of work.

Learning at Laurea progresses through an orientation of skills. Scientific data is significant as a tool. Learning directs students to process knowledge and to select ethically significant knowledge that can be utilised and applied in development projects that correspond to their degrees. Laurea places importance on ensuring that students grow into skilled experts who can renew the labour market. Workplace-oriented development projects as learning environments allow for genuine learning, the construction of partnership networks, the application of meaningful experiences and the development of creativity and research orientation. In the work-oriented development projects, individuals and the target community develop their competence together. In addition, they generate new knowledge for developing and reforming the labour market.

Learning environments

The aim of the learning environment is to facilitate the achievement of learning outcomes while supporting the generation and development of new competence. Laurea's learning environments utilise internal and external networks and are in constant interaction with the workplace. Regional influence increases through communities and the networks that they form. Students use projects to learn the basics of networking, social skills and communication with experts in the field. Students grow into developers by carrying out development tasks and by interacting in competence networks.

Practical applications of learning environments include initiatives and projects that form innovation environments for the community, as well as various operating spaces designed for learning and development, competence hubs and development labs.

The student's role and responsibility in learning

In Laurea's work-oriented research and development projects, the concept of partnership implies cooperation between teachers, experts from the labour market and students. The cooperation is based on responsible commitment to the development project. Studying at Laurea requires critical thinking, problem-solving skills, self-directiveness, a proactive attitude and cooperation skills from students. The studies place a focus on an independent attitude. In development projects, all participants are seen as learners, because the projects aim to produce change and generate something new. Partnership also means mutual respect and appreciation for diverse skills. The progress of the development project requires sharing competence and building new competence out of different areas of expertise. Students participate as partners who build their competence by obtaining new tools and by taking part in various research and development initiatives.

The teacher's role at Laurea

The teacher's role in development projects can be described as that of an expert, a participant and a pedagogical leader. The teacher cannot transfer competence to students but guides the student's learning process. Depending on their roles, Laurea's teachers are both researchers and developers, influencers in regional development, and pedagogues. Teachers who work as researchers publish reports that demonstrate the effectiveness of development projects as reformers and developers of competence in the labour market. As a developer, a teacher is responsible for ensuring the progress of a development project.

Structure of the curriculum

Laurea's curricula are based on themes and study units. A theme refers to a wider competence area that typically requires that a student master several study units within the subject area. The contents of the themes and study units cover the core vocational competence in the field. Annual themes form an umbrella for studies from the perspective of increased professional growth. The curriculum contains the nationally defined generic competences (see Table 1) as part of the objectives set for the themes or study units. Mastering the generic competences ensures vocational education that meets the requirements set for the level to be obtained at universities of applied sciences, and mastering the themes builds competence needed in working life.

Table 1. National generic Competences (Arene 2010)

Generic competences	Description of the competence, bachelor level
LEARNING COMPETENCE	• is able to self-evaluate and develop one's competence and learning style orientation • is able to retrieve and analyze information and evaluate it critically • is capable of taking responsibility for collaborative learning and sharing knowledge in teams
ETHICAL COMPETENCE	• is able to take responsibility for one's own actions and for the consequences of these actions • is able to work according to the ethical principles of the subject field • is able to take other people into account in one's actions • is able to apply the principles of equality • is able to apply the principles of sustainable development • is capable of social influencing using one's know-how and based on ethical values
WORKING COMMUNITY COMPETENCE	• is able to operate as a member of a work community • is able to operate in communicative and interactive situations in working life • is able to utilize information and communications technology in one's subject field • knows the working life in one's subject field and is able to create personal contacts in working life and to operate in professional networks • is capable of decision making in unpredicted situations • is able to apply the principles of organizational management and leadership in working life and has abilities for supervision tasks • possesses entrepreneurial skills
INNOVATION COMPETENCE	

	• is able to conduct research, development and innovation projects applying the existing knowledge and methods of the field • is able to work in projects • is capable of creative problem solving and development of working methods • is able to find customer-oriented, sustainable and profitable solutions
INTERNATIONALIZATION COMPETENCE	• possesses communicative competence necessary for one's work and for professional development in the subject field • is able to operate in a multicultural environment • takes into account the effects of and opportunities for internationalization development in one's own field

Competence evaluation

Competence evaluation is based on the objectives described in the curriculum. These objectives define the requirements that students have to meet to achieve their degree titles. Competence evaluation shows how well the set objectives have been met. On the one hand, competence is seen as knowledge, skills and values, and on the other hand, as experience. Evaluation through development projects looks at an individual's and the project community's learning, the progress and significance of different processes, and the results achieved. Study units are evaluated on a numerical scale of 0 to 5 or on a pass/fail (H/O) basis. The evaluations apply criteria developed for evaluating the competence of students at the beginning of their studies and at graduation (see Table 2). The evaluation criteria for each study unit are given in the study unit's syllabus.

Table 2. Evaluation criteria for initial stage and graduation stage students

BACHELOR'S DEGREE	INITIAL STAGE STUDENTS	GRADUATION STAGE STUDENTS
EXCELLENT grade 5 Students are able to:	• Apply professional concepts expertly. • Comply with occupational safety instructions responsibly and independently. • Justify activities using research knowledge. • Work independently and take initiatives in line with objectives. Operations are often flexible, systematic, development-oriented, creative and active. • Select the appropriate techniques and models for activities, and justify the choices. • Act in customer-oriented ways and according to the situation. • Promote group activities. • Able to critically apply ethical principles in the subject field in one's conduct and tasks.	• Apply professional concepts expertly and extensively, and manage the big picture. • Develop occupational safety of their operating environment. • Develop operating methods by comparing, combining and selecting research knowledge. • Work independently and innovatively in line with objectives. Activities are mostly creative, focused on developing the workplace and distinctly professional. • Select, combine and develop appropriate techniques and models for activities. • Take initiatives and act responsibly in customer relations, and understand the meaning of customer relationships for the big picture. • Develop and renew activities of

		multidisciplinary teams. • Critically apply ethical principles in the subject field in complex and unanticipated situations.
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BACHELOR'S DEGREE	INITIAL STAGE STUDENTS	GRADUATION STAGE STUDENTS
GOOD grade 3 Students are able to:	• Apply professional concepts systematically. • Apply occupational safety instructions in their activities. • Justify, compare and analyse their activities using general guidelines. • Able to cope independently in different tasks in each operating environment. • Apply acquired techniques and models diversely. • Act professionally in customer situations. • Work in a group in line with objectives. • Justify their activities in accordance with ethical principles.	• Apply professional concepts expertly. • Take care of occupational safety for themselves and the work community, and perceive development objects. • Select methods of operation in accordance with research knowledge and guidelines. • Work systematically and critically in line with objectives in complex situations. Operations are often flexible, systematic, creative and active. • Select the appropriate techniques and models for activities, and justify the choices. • Prioritise and maintain customer relationships. • Promote group activities. • Critically apply ethical principles in the subject field in one's conduct and tasks.

BACHELOR'S DEGREE	INITIAL STAGE STUDENTS	GRADUATION STAGE STUDENTS
SATISFACTORY grade 1 Students are able to:	• Apply most important/individual and appropriate professional concepts, and indicate their familiarity with the knowledge base. • Act safely, although activities are often schematic/ experimental/ fumbling/ self-involved. • Comply with rules and instructions, and justify their activities using provided instructions. • Act appropriately under guidance. • Use acquired techniques and models. • Take customers into account in their actions. • Act as group members. • Act in accordance with ethical	• Apply professional concepts systematically. • Comply with occupational safety instructions responsibly and independently. • Justify and analyse their activities using general guidelines and in accordance with evidence-based information. • Act professionally and responsibly in unanticipated customer and problem situations. • Work independently in different tasks in each operating environment. • Apply acquired techniques and models diversely • Act in customer-oriented ways

	principles.	and according to the situation, and understand customer needs. • Work in a group in line with objectives. • Act and justify their activities in accordance with ethical principles.
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Degree programme's quality evaluation and development

The quality of Laurea's operations is monitored and developed with the quality assurance system (picture 1.). The aim of the quality assurance system is e.g. to extensively guarantee the quality of education and of other activities, systematically produce quality-related data for the development of the operations and to promote recognition of insufficient quality.

Processes have been described as support for Laurea's basic operations. The core process is the Learning by Developing process, its implementation is supported by the Education process, the Strategy and Management process and the HR process.

Strategy Implementation Plan, where the critical success factors and their indicators have been defined, functions as a tool for monitoring and evaluating operations. Central indicators for a degree programme's quality assurance are e.g. progress of studies, learning through research and development, dropout rate, completion of studies and development of competence in graduating students. The results according to the indicators are discussed annually and based on them the appropriate measures for the development of operations are defined.

Besides the data related to critical success factor indicators, Laurea also collects other feedback and evaluation data in order to develop the quality of a degree programme. The degree programme specific curriculum is evaluated annually. In addition to personnel also students and working life representatives take part in the evaluation.

Students' most important channel of evaluating and developing operations is the student feedback system. Student feedback system includes feedback questionnaires that measure the quality of education, student's professional growth and student wellbeing as well as immediate feedback. Collecting feedback data, its systematic processing with students and personnel as well as versatile exploitation of the data enable continuous quality development in education.

Students are actively involved in different development teams both on Laurea and local unit levels. Consultation meetings between student union LAUREAMKO and the steering group are organised regularly. The aim of the meetings is to take into account the students' points of view in the development of the operations. The consultation meetings are held both on Laurea and local unit levels. Student members participate also in Laurea's internal audits which are organised once an academic year. Through the internal audits students contribute to the quality development of education and other operations.



Laureas curriculum as a part of the European Higher Education Area

Finnish higher education institutions have reformed their curricula in accordance with the creation of the European Higher Education Area, i.e., the Bologna Process. The EU's strategic objectives regarding education also guide education in Finland. The Bologna Process covers a total 46 of countries, including some outside the EU. The aim of the Bologna Process is to establish a consistent, compatible and attractive Higher Education Area in Europe by 2010.

To promote the adoption of internationally understandable, comparable degrees, the process has created a system based on two main cycles: undergraduate (Bachelor level) and graduate (Master level). Finland has adapted its degree structure to align it with this European objective. In universities of applied sciences, the two-cycle degree is implemented in a way that students obtain a first-cycle (Bachelor's) degree, after which they have the opportunity to obtain a Master's degree. The requirement for access to Master's training is an undergraduate degree plus three years' work experience. The long-term objective is that approximately 20 per cent of Bachelor's graduates will take a Master's degree.

Finnish universities of applied sciences adopted ECTS (European Credit Transfer and Accumulation System) credits in 2005. In the ECTS, one academic year equals 60 credits. The ECTS is a student-centric system. It is based on the student workload needed to achieve the targets set for each degree programme.

The curricula describe the learning outcomes and competence. From the point of view of promoting international mobility, curricula must be internationally understandable. The aim of standardising the structures and learning targets of degrees is to improve the conditions for mobility within and between higher education institutions during the studies, and also in the workplace after graduation. In terms of the recognition and comparability of degrees taken in different countries, it is important to link learning targets to concrete competence requirements and definitions in the labour market.

Laurea's competence-based curriculum takes into account the demands of the Common European Framework. Studies are accumulated in the form of credits, and study units form larger modules. Competence is defined in terms of the students' learning outcomes. Currently resources are being directed towards further enhancing the ability of the curriculum implementations to generate new competence and innovations for Laurea's operating environment.

Sources:

The Bologna Process

<http://www.minedu.fi/OPM/Koulutus/artikkelit/bologna/index.html>

Global challenges and sustainable development in the curricula

The activities of the higher education institutions are based on responsibility, sustainable development and understanding and appreciating diversity within the higher education community.

A suggested measure of the Strategy for the Internationalisation of Higher Education Institutions is that the higher education institutions will increase education and research cooperation based on national and international networking in order to contribute to the attainment of the goals of the UN Decade of Education for Sustainable Development 2005-2014. Laurea's curricula will be developed according to the Strategy for the Internationalisation of Higher Education Institutions 2009-2015. Out of Laurea values sense of community and social responsibility represent these perspectives most clearly. Moreover, ethical competence of the generic competences of university of applied sciences degrees also means the ability to apply the principles of sustainable development in one's own work. Functioning in the globalising world requires the higher education institutions to critically consider the ethicality of their operational principles.

The goal is that all Finnish degree programmes have at least 30 cr. of studies in foreign language in their curricula. The local units proceed towards this goal gradually. In some degree programmes the goal has already been reached. The goal is also to produce competence that enables participating in solving global problems and building activities on an ethically sustainable foundation.

Source: <http://www.minedu.fi/export/sites/default/OPM/Julkaisut/2009/liitteet/opm23.pdf?lang=fi>

Operating environment

Laurea SID Leppävaara forms part of a business information technology value network and operating environment. Laurea's learning environments are development units that form part of the labour market's business information technology operating environment, and act as meeting places for employment and education. Close interaction with the labour market produces new operating models and systems, and helps to document and analyse research and development. At the same time, the network generates knowledge reserves and application methods. The network develops competence as part of the regional innovation system by merging R&D into teaching and learning activities. Technological competence involves not only basic IT skills and interest, but also innovation ability, subcontracting competence and an understanding of the use of digital services and their opportunities. Thus students acquire the necessary competences and skills to fulfill professional roles in the workplace.

Laurea SID Leppävaara - Learning Environment:

Laurea's strategic intent for 2015 is to be an internationally recognised university of applied sciences specialising in future competence and metropolitan development. Laurea SID Leppävaara's profile is to fulfill this strategy by directing its competence towards reforming services through service design. SID refers to Service Innovation and Design.



SID means user-driver innovation, development and planning of services to ensure that the services respond to the needs of users as well as the business targets and other aims of the service provider. SID is a cross-disciplinary, practically oriented and applied method that combines business, design and ICT competence. SID competence relates to systematically completing change processes, implementing new models and creating new kinds of business. Leppävaara SID's broad areas of focus are service business, security and social responsibility. In the Degree Programme in Business Information Technology, SID is evident in the development of information and communication technologies and innovative services, and their user-driven management and development. The studies emphasise applied ICT systems, ICT network and security, business management and communication, entrepreneurship, service design and innovative applied service development, development of the service business in the sector and close cooperation with labour market partners.

Laurea SID Leppävaara is a strong hub of research, development and innovation (RD&I) competence. The extensive RD&I project cluster at the Leppävaara campus forms a platform for Learning by Developing (LbD). The campus participates in many expert groupings, including centre of expertise efforts, strategic top expertise hubs and individual organisations. Projects form a challenging and genuine objective for students, while improving their R&D competence. The Spinno Enterprise Center, which supports the growth of student and growth entrepreneurship, forms a natural continuation of the R&D activities of the campus.

As an operator in the metropolitan area, Laurea's R&D efforts are ever more strongly oriented towards international partnerships. The campus offers degree programmes in English. In addition, each degree programme in Finnish includes a semester in English. Laurea SID Leppävaara is a multicultural work and study environment. All those who work and study at Laurea SID Leppävaara have opportunities to participate in international networks in various professional capacities. International R&D projects expand the operating environment and enrich learning. Project work opens doors to international value networks, areas of top innovation and the transfer of competence to form a learning platform, and generates recognised and productive RD&I.

Expertise

The students of Business Information Technology should target a career as IT service experts, ICT system analysts

and designers, application developers, project managers, network engineers, trainers, consultants, or relevant. Employment opportunities lie in companies that develop, maintain or market IT services and solutions or in any other businesses or industries that use these services and solutions. As an alternative, graduates may also consider master's level studies.

As their experience grows, their careers may take them towards increasingly demanding ICT jobs. Students can have ample opportunities to develop the necessary competence for becoming entrepreneurs.

Competences

The professional growth is taking place at progressive stages, where the students' developmental competence becomes apparent as an investigative and developmental approach to work. In the beginning of the studies, the students gain skills and knowledge in studying according to the LbD model. Learning by Developing (LbD) is applied in the studies. It is a pedagogical innovation by Laurea, in which the learning process is redefined as a research and development process. It means that creative learning is based on authenticity, research and encounters. The thesis is completed towards the end of the programme and consists of a research and development task for an employer. Learning is supported by various multicultural learning environments and workshops. Students increase their expertise through multidisciplinary projects, where they help to renew the sector and its practices by applying the competence generated and shared in the projects. During their studies, students learn to act as responsible experts in networks within and outside Laurea (Table 1).

The focus of BIT curriculum is on internationalization of thematic Helsinki-Espoo region. This means improving the amount of international students, trainers and researchers in region. Thematic city region of Helsinki and Espoo, universities and universities of applied sciences co-operate and share mutual and mutable roles within innovation system and clusters in perspective of learning. The key point is that the creativity and freedom of innovations have to be supported in learning. Added value is produced if local or global innovation systems and clusters are intervened to learning processes.

Professional Growth and Annual Themes

Growth to be an expert in business information and communication technologies (ICT) is a lifelong professional development process. Students develop by learning within a competent professional community, and by researching and developing chosen areas. Students act as investigative developers in development teams, with the aim of generating new competence in line with a given target. The objective of the learning process is purposeful generation of data and the development of related social customs. Mastery of professional information and skills and knowledge of influencing mechanisms are essential requirements for development work. In the competence development process, the individual's skills, knowledge, beliefs and values develop and change.

In the Degree Programme in Business Information Technology, students increase their competence through annual themes. Each annual theme is described in the detail curriculum with relation to general aspects, studies, teaching and learning outcomes.

Description of the Degree Programme

Universities of applied sciences have three tasks set by law: research and development, regional development, and pedagogy. The integration of these tasks has led Laurea to seek solutions that optimise our ability to respond to challenges. The aim is to produce graduates who are investigative developers of their work and of the workplace. Our collective effort is to produce research-based development initiatives for the competence required at work, with visible effects in our operating environments.

Studies in Business Information Technology are offered at Laurea SID Leppävaara. The Bachelor's degree in Business Information Technology (BIT) includes basic and professional studies, elective and optional studies, job placements that increase professional competence, and a thesis. The total extent is 210 credits. The studies take

place in a multicultural atmosphere, as the students come from different countries. There is a focus on acquiring the necessary skills in Finnish language to enhance employability in the Finnish markets. Students will create their own networks with information communication technologies companies in the private and/or public sectors, enhance their networks during job placement periods and deepen their expertise through the bachelor's thesis.

Expertise and value network of applied Information and Communication Technologies (ICT)

Student's expertise is growing as progresses in studies. The degree programme focuses on practical and applied science approach during studies.

At the initial stage of their studies, students learn to use learning tools and to apply them, particularly in the context of LbD. Other skills are related to, for example, project work and an investigative approach. At the same time, students start to become familiar with the substance of business information and communication technologies, seeing the significance of the field in the social context. In addition to specialist competence in business information technology, students develop skills in business and leadership. These competences are linked to the sector's operating environment and are studied from the first year.

In their second year, students develop their expertise in the field. They build the foundations of their ability to work in various operating environments of the sector. The distribution of job placements over the degree programme is set in each student's personal study plan. The first placement is carried out towards the beginning of the degree, and is used to build a bridge to the employment sector. The second placement, towards the end of the studies, deepens the students' practical competence and helps them to become profiled as developers of the field.

Third-year students continue to develop their expertise in business information and communication technologies. The objective of the themes in the third year is to help students apply what they have learnt and grow into developers of their field.

Network is a university and value network is a university of applied sciences, this is a work distribution where action in learning bridges and forms a body of knowledge to competences, hence competences are in first place on stage of clusters and in innovation systems which underlines funding, trust and timing (this is also known as agility in business). Students of the Degree Programme in Business Information Technology progress towards expertise in their fields. Studies are staggered so as to allow a gradual deepening of expertise.

Structure of the curriculum

The curriculum is designed based on the growth of students. It is further distributed in four main growth area: Initiation of Professional Growth, Development of Core Competencies of the Field, Deepening Professional Competence and Workplace Development and Renewal.

The basic guideline for study schedule is shown below. However, students can further discuss with tutor teacher and start brain-storming for work placement and thesis interest at early stage of studies.

Degree Programme in Business Information Techn

INITIATION OF PROFESSIONAL GROWTH		DEVELOPMENT OF CORE COMPETENCES IN THE FIELD		DEEPENING PROFESSIONAL COMPETENCES	
AUTUMN	SPRING	AUTUMN	SPRING	AUTUMN	SPRING
A0181 Integration in the Global ICT Field 5 CR	A9011 Principles of Accounting 5 CR	A0111 Managing Information Security 5 CR	A0112 Information Security Technologies 5 CR	A0113 Information Security Development Project 5 CR	A0119 Information : Development 5 CR
A0182 Becoming an ICT Professional 5 CR	A0147 Business Communication 5 CR	A0153 Corporate Social Responsibility 5 CR	A9013 Managing Business Performance 5 CR	A0110 ICT Project Management 5 CR	A0169 Job placem Informatio Communic Technolog
A0203 / 01137 Basic Finnish 1 / Swedish in the ICT 5 CR	A0204 / Elective Basic Finnish 2 / Elective 5 CR	A0109 Implementing ICT Systems 5 CR	A0205 / Elective Intermediate Finnish 5 CR	A0132 Creating Innovation through Service Design 10 CR	15 CR
A0105 Designing ICT Systems 5 CR	A0107 Developing ICT Systems 10 CR	A9063 Innovative Web Development 5 CR	A0115 Planning and implementing SOA solutions using Oracle 10 CR		
01117 Data Networks 10 CR	A9064 ICT Network Infrastructure 5 CR	A9062 SOA: Principles of Service Design 5 CR	00471 Research Methods / Elective 5 CR	A0164 Applied Innovative ICT Service Systems 10 CR	A0141 / Ele Organisati Manageme Leadersh
	A9065 ICT Network Infrastructure Project 5 CR	A9065 ICT Network Infrastructure Project 5 CR			
30 Credits	30 Credits	30 Credits	30 Credits	30 Credits	30 Credits
1st year of studies		2nd year of studies		3rd year of studies	

Quality assurance process

Global challenges and sustainable development in the curricula

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Education process, support process: The aim of the Education process is to handle centralised student applications and student affairs services as an official task. The purpose is to fulfil the curriculum in accordance with the Pedagogical Strategy. The aim is that students will develop learning and professional growth in line with their personal study plans and that the studies will progress smoothly.

Evaluation and development of curricula: The curricula of each degree programme are regularly evaluated once a year. The curriculum areas to be evaluated are set by the pedagogical team. Also student and labour market representatives participate in the evaluation of the curricula. The directors of the local units are responsible for ensuring that the evaluation of the curricula is carried out for each degree programme. New curricula are evaluated on the basis of the evaluation statements the labour market representatives and other external experts are asked to provide. The new degree programme proposals are evaluated by means of a uniform evaluation form. The steering group handles the proposals before sending them to the Ministry of Education.

Curricula are also developed using a study workload questionnaire intended for students. Steering groups from all degree programmes participate in the evaluation and development of degree programme curricula.

		1. year	2. year	3. year	4. year
OP	STUDIES	60	60	60	30
A029	INITIATION OF PROFESSIONAL GROWTH				
A0181	Integration in the Global ICT Field	5			
A0182	Becoming an ICT Professional	5			
A0203	Basic Finnish 1	5			
01137	Swedish in the ICT field	5			
A0105	Designing ICT Systems	5			
01117	Data Networks	10			
A9011	Principles of Accounting	5			
A0147	Business Communication Skills	5			
A0204	Basic Finnish 2	5			
A0107	Developing ICT Systems	10			
A9064	ICT Network Infrastructure	5			
A030	DEVELOPMENT OF CORE COMPETENCES IN THE FIELD				
A0111	Managing Information Security		5		
A0153	Corporate Social Responsibility		5		
A0109	Implementing ICT Systems		5		
A9063	Innovative Web Development		5		
A9062	SOA: Principles of Service Design		5		
A9065	ICT Network Infrastructure Project		5		
A0112	Information Security Technologies		5		
A9013	Managing Business Performance		5		
A0115	Planning and implementing SOA solutions using Oracle		10		
A0113	Information Security Development Project I			5	
A0110	ICT Project Management			5	
A0132	Creating Innovation through Service Design			10	
A0164	Applied Innovative ICT Service Systems			10	
A0119	Information Security Development Project II			5	
A0169	Job placement in Information and Communication Technologies - I		15		
0335	WORKPLACE DEVELOPMENT AND RENEWAL				
A0170	Job placement in Information and Communication Technologies - II		15		
A0159	Thesis			15	
127	LAUREA'S COMMON STUDIES				
00521	Initial Test in Finnish	0			
00636	Written skills in Finnish	0			
00637	Oral skills in Finnish	0			
00506	Initial Test in Swedish	0			
00635	Written skills in Swedish	0			
00634	Oral skills in Swedish	0			
00488	Maturity test (in English)				0
00489	Maturity test (in Finnish)				0

00490	Maturity test (in Swedish)				0
00202	Initial Test in English Skills	0			
00569	Initial test in English	0			
154	ELECTIVE STUDIES				
01261	Preparatory Studies in English		5		
A0205	Intermediate Finnish		5		
00471	Research Methods		5		
A0141	Organisational Management and Leadership			10	
A9010	International Leadership			10	
A0198	Organisational Communication			5	
00103	Interconnecting Networks			10	
00104	Developing Data Network Services			10	
00019	Service Innovations in Business Development			10	
00020	Innovation-Based Entrepreneurship			10	
00005	Developing and Managing Customer Relationships			10	
		60	60	60	30

A029 INITIATION OF PROFESSIONAL GROWTH, 60 cr

Description:

Students are able to recognise one's learning style orientation, conduct studies independently and develop one's learning strategies adopting LbD method. Students map the core competences of the business information technology and ICT sectors. Students are able to apply the basic principles and methods of research and development and able to conduct small-scale research and development projects. Students are also adopts an initiative and proactive approach to work and capable of problem solving and decision making at one's work.

The student will be able to:

- self-evaluate one's competences and define his/her development and learning needs
- create a personal learning objectives and plans
- focus and apply Learning by Developing(LbD) in learning process.
- map the one's field competence according to regional and community needs.
- apply collaborative learning and sharing knowledge in teams and working communities
- apply the principles of group and teamwork and is able to work together with others in multidisciplinary teams
- take responsibility of one's own actions and works according to the jointly agreed principles and measures
- communicate effrctively in writing, speaking, listening and observing using different communicative style
- retrieve and analyse information of business and ICT field, to critically evaluate it and to perceive entities in a holistic way
- know the principles of project work and is able to work in projects
- to apply the basic principles and methods of research and development
- know the methods of working life and is able to operate in work communities
- plan and organise activities in multicultural and international community

Content:

The competency gained in the initial annual courses forms the basis of professional growth in business information and ICT field.

Learning process:

Learning process is based on Laurea's Learning by Developing(LbD) learning model.

A0181 Integration in the Global ICT Field, 5 cr

The student is able to:

- outline the significance of computing technology, the Internet and the World Wide Web in the modern global business
- explain how and to what extent ICT has changed various application domain
- initiate life-long learning and continued development as an ICT professional
- define, choose and evaluate personal competence development objects and targets
- implement a personal study plan
- work in cross-cultural teams and environment
- promote interaction and cooperation in working environment

Contents of the study unit:

- Core competences of the computing, information technology, information systems and ICT
- Computers, the Internet and the World Wide Web, wired and wireless communication, types of business applications
- Global competence needs in the ICT field
- Cross-cultural competences in multicultural teams
- LbD as working and studying model in Laurea
- Personal study plans based on student's own and regional competene analysis

Study unit description:

The competence gained in the study unit forms the basis and integration process of student into the global ICT field.

The students apply the value of their own competence as a success factor and enabler. The study unit further describes the influence and importance of new competence in a multicultural value network and in regional development. The study incorporates the Finnish and the international ICT degree programme students.

A0182 Becoming an ICT Professional, 5 cr

The student is able to:

- explain why knowledge of information and communication systems is important for business professionals
- apply the use of technology to assist with business issues
- apply the research idea into commercial projects
- define, choose and evaluate critical thinking in project work
- use general methods, tools and devices of the ICT field

Contents of the study unit:

- Foundation of Information Systems in Business
- Competing with Information and communication technologies
- Projects in computing, information and communication technologies and information systems
- Generating research ideas into projects
- Turning research ideas into research or commercial projects
- Information sourcing
- Research philosophies and approaches
- Writing project proposals and reports, and presenting a project
- Effective oral presentation
- Office tools and technologies.

Study unit description:

The course offers students to map the core competences of the business information technology and ICT sectors. It provides an overview of the discipline of ICT projects and describes how it relates to other business disciplines, and begins to instill an ICT mindset. The goal is to help students to learn practical skills of office tools, writing and oral presentation, finding and using quality sources, basic research methods and working in ICT projects.

A0203 Basic Finnish 1, 5 cr

The student is able to:

- learn the main principles of the Finnish language
- understand and use the most common expressions in Finnish in everyday situations

Contents of the study unit:

- everyday situations (e.g. requesting and giving information, travelling by public transport, using a post office)
- discussions about everyday subjects (oneself, family, living conditions, etc.)
- basic grammar, vocabulary and pronunciation

Study unit description:

The course provides an introduction to the Finnish language. Students will reach level A1 in accordance with the Common European Framework.

01137 Swedish in the ICT field, 5 cr

The student is able to:

- communicate in Swedish in IT-jobs
- communicate in an interactive, customer-orientated manner
- obtain and make use of information related to IT

Contents of the study unit:

- essential IT- and company terminology
- oral and written professional communication
- introducing oneself, education and work experience

Study unit description:

Students attain at least skill level B1.2 as defined in the Common European Framework. In addition, students receive grades of good or satisfactory in oral and written language skills in accordance with the language skill requirements of civil servants.

A0105 Designing ICT Systems, 5 cr**The student is able to:**

- understanding of the principles, methods, strengths and difficulties of object-oriented system development
- understanding the strategy for using modern methods and techniques in development of object-oriented systems
- understand modelling and designing of object-oriented system using the industry standard systematically and effectively
- critically evaluate and apply object-oriented techniques in object-oriented system development

Contents of the study unit:

- introduction of System Development Life Cycle
- principles of object-oriented analysis and designing
- methods and Techniques in development of object-oriented systems
- modelling and designing an object-oriented system

Study unit description:

The course introduces students to the design process of ICT systems. It introduces design patterns for reusability in object-oriented systems and discusses how they can enhance reusability in system design and coding. Construction of object-oriented systems with new system development methods and techniques such as model-driven architecture (MDA) is also discussed with the aim of developing systems systematically and effectively.

01117 Data Networks, 10 cr**The student is able to:**

- know the basic theory behind data networks
- describe the concepts of LANs, WANs and WLANs
- describe and define operation and active equipment of a LAN
- justify solutions and purchases related to data networks
- work responsibly in a company's data network

Contents of the study unit:

Section-1 (6 CR)

- network architectures in current data networks
- technologies and practices in current data networks
- data network design and implementation

Section-2 (4 CR)

- planning and implementing a network system initiative or project
- working as a member of data networks development team
- individual exercises in laboratory environment

Study unit description:

The study unit provides skills in determining the requirements of data networks and consequently defining, designing and implementing the operation and structure of a network system.

A9011 Principles of Accounting, 5 cr

The student is able to:

- explain the difference between management and financial accounting
- know the principles of business profitability
- analyse the financial status of a company using key figures

Contents of the study unit:

- key accounting concepts
- basics of management and financial accounting
- cost-volume-profit analysis
- cost accounting
- bookkeeping process and accounting documents
- income statement and balance sheet
- financial reporting and ratio analysis

Study unit description:

The students learn the basic accounting concepts. They learn to analyse the profitability of an organisation and calculate key financial ratios. They will learn how an accounting system works and how it can help the management in making decisions.

Previous studies:

Business Operations in a Changing Market or equivalent knowledge

A0147 Business Communication Skills, 5 cr

The student is able to:

- understand and use key business and financial terminology
- create written reports using a formal style
- give effective oral presentations on business topics
- actively participate in business meetings and negotiations
- understand and follow stylistic recommendations for business correspondence

Contents of the study unit:

- articles, exercises, cases related to business topics
- structural, linguistic, source and layout requirements of a formal written report
- factors of language and meta-communication in oral presentation work
- effective language skills for meeting and negotiation situations
- practice in writing emails and producing documents for job applications

Study unit description:

The purpose of this study unit is to provide a basic introduction to the various skills needed in business English, particularly in relation to other study units of the first semester. English is applied to business situations requiring written and oral communication skills.

A0204 Basic Finnish 2, 5 cr

The student is able to:

- communicate in simple situations and routine tasks
- write simple texts
- understand the main points in messages and Finnish speech at normal speed about familiar subjects.

Contents of the study unit:

- everyday life, work, studying, daily and weekly routines
- everyday situations (shopping for food & clothes, going to a restaurant, etc.)
- grammar (e.g. past tense, local cases, question words, words describing time)

Study unit description:

Students will deepen their knowledge of the basics of the Finnish language and culture in order to reach level A2 in accordance with the Common European Framework.

A0107 Developing ICT Systems, 10 cr**The student is able to:**

- analyze and explain the behaviour of simple programs involving the fundamental programming constructs covered by this unit
- design, implement, test, and debug a program that uses each of the following fundamental programming constructs: basic computation, simple I/O, standard conditional and iterative structures, and the definition of functions
- choose appropriate conditional and iteration constructs for a given programming task
- implement object-oriented programming in working life projects.
- analyze to differentiate and use key terms such as: information, data, database, database management system, metadata, and data mining
- explain the role of data, information, and databases in organizations
- describe and interpret Entity Relationship and Object Modeling
- formulate and test SQL queries
- design, develop and manage the database system
- describe the structure of the World Wide Web as interconnected hypertext documents

Contents of the study unit:**Section-1: Fundamentals of programming(5 CR)**

- information technology: purpose, use, value
- programming basics including variables, operators, expressions, statements and modifier
- control/Block structures
- class and methods
- Object-oriented programming - overloading, encapsulation, constructors, inheritance, exception and IO

Section-2: Relational Database Design and Development (5 CR)

- introduction to Database Systems
- data models and Object modeling
- relational database model and ER modeling
- advance data modeling and normalization of database tab
- structure Query Language
- create and manage Databases

Study unit description:

This course is designed to give students a solid foundation in the development process of ICT systems. The course provides in-depth coverage of fundamental and object-oriented programming along with database design, demonstrating that the key to successful database implementation is in proper design of databases to fit within a larger strategic view of the data environment. With a strong hands-on component that includes real-world projects, this course will help students to develop ICT systems that have valuable and meaningful application in the real world

Previous studies:

Designing ICT Systems

A9064 ICT Network Infrastructure, 5 cr

The student is able to:

- describe and demonstrate the concepts of IP networks including routing, LANs, WANs and IP subnetting
- analyse the project tasks related to building, expanding, managing and maintaining networks, independently and in groups
- justify solutions related to ICT data network projects

Contents of the study unit:

The study unit consists of the following modules.

Introduction to Laurea projects and elective network studies (opening lecture)

- overview of technology in Laurea projects
- infrastructure project management basics
- electives: Interconnecting Networks and Developing Network Services

Routing basics (2cr):

- routing related IP protocols
- operation and maintenance of a router
- the principals of subnetting IP networks

WAN core and access (2cr):

- operator networks
- LAN Interconnection
- wired and wireless access methods and characteristics
- network interoperability and convergence

Network services and applications (1cr):

- network security basics
- network management basics, protocols
- setting up a network server or service

Study unit description:

The study unit provides learners with the skills to determine and describe the methods of connecting to, managing, utilizing and developing modern IP networks. The student is able to contribute to developing IP infrastructure in Laurea projects, and to acquire deeper expertise through elective study units.

Previous studies:

Data Networks or equivalent knowledge

A030 DEVELOPMENT OF CORE COMPETENCES IN THE FIELD, 60 cr

Description:

The annual study emphasizes knowledge combined with practical, hands-on expertise of business, ICT and mainly applied information system. This emphasis is well matched to the challenge of successfully applying information technology and specifically business information systems in organizational and communal contexts. The courses are designed with significant experts' input, which represents the latest developments in information systems analysis, design and implementation – the main areas of competency development in the business and ICT sector.

The student will be able to:

- apply knowledge of business and ICT, appropriate to the discipline
- assist in the creation of an effective project plan and an understanding of best practices and standards and their application in the field of ICT

- apply principles of ICT systems and information security
- implement and evaluate a computer-based system, process, component, or program to meet desired aim and objective based on requirements
- use and apply current technical concepts and practices in the core information communication technologies effectively integrate ICT-based solutions into the user environment
- apply cutting edge ICT technology like Oracle and Service-Oriented Architecture

Content:

The core annual courses broaden and deepen students' understanding of the current business and ICT field and enhance their skills base with modern and employable relevant skills. Technically-oriented courses will enable students to focus on developing and fine-tuning technical skills such as ICT Systems, Information Security and mainly creating and developing innovative ICT solutions for organisations. Students will have an opportunity to use the variety of cutting edge ICT applications used in modern businesses.

Learning process:

The studies are organised by Laurea as blended learning. Work methods include group work and independent study. Development initiatives and projects are very important in the instruction, learning and guidance process.

A0111 Managing Information Security, 5 cr

The student is able to:

- Apply the basic principles of information security
- Use risk management methods in developing information security
- Protect organisations from information risks
- Plan a comprehensive information risk management system for an organisation, applying technical and administrative measures
- Formulate continuity plans for information systems

Contents of the study unit:

- Basic concepts of information security
- Information security management system
- Information security standards
- Information security policy
- Information risk management
- Implementation of information security safeguards
- Personnel security and information security awareness
- Continuity planning
- Privacy protection and related legislation

Study unit description:

This study unit presents the central aspects of information security and principles of information security management. The themes include information risk management, information security management and development and practical implementation of information security in an organisation. The objective is to build competence to manage information risks of an organisation.

A0153 Corporate Social Responsibility, 5 cr

The student is able to:

- Develop a wider approach to ethical questions and organisational values
- Combine CSR with business actions and strategy
- Discuss social responsibility issues

Contents of the study unit:

- Ethics and organisational values

- Sustainable guidelines on economic, environmental and social performance
- Responsible leadership
- Product safety
- Occupational safety and health
- Equality at work
- Diversity and multicultural issues
- Current issues on sustainability reporting and CSR standards

Study unit description:

This study unit introduces the students to the basic concept of corporate social responsibility. Organisational responsibility is seen from three viewpoints: economic, environmental and social responsibility. The critical thinking of the students is enhanced through discussions.

A0109 Implementing ICT Systems, 5 cr

The student is able to:

- describe the structure of the World Wide Web as interconnected hypertext documents
- create and validate HTML/XHTML documents
- show how to display such documents in Web applications
- demonstrate an understanding of dynamic web application development with markup languages.
- describe the issues involved in developing a web interface
- discuss and contrast data entry and validation techniques in client-side vs. server-side programming

Contents of the study unit:

- web 2.0 rich internet application development methodologies
- web-markup and display languages
- web interfaces, Visual Elements and Graphics
- web design, layouts and validation
- web development, implementation and integration

Study unit description:

The course introduces students to the developing and implementing process of ICT systems. Students are further deepens the knowledge of innovative rich internet applications(RIAs) development methodologies from the technical, business and social perspective. The goal of the study unit is to design, develop, and publish an innovative rich internet application using recommended design practices.

Previous studies:

Developing ICT Systems

A9063 Innovative Web Development, 5 cr

The student is able to:

- demonstrate how the Web as a platform enhances creativity, information sharing and functionality
- identify the role of advanced technologies and tools used in the business world, and understand how they deliver value
- select the appropriate technologies and tools that best suit the needs of a specific development project
- setup a development environment associated with a selected technology
- deal with the challenges associated with new technologies and innovation
- learn independently and participate in development projects where the selected technology is used

Contents of the study unit:

- Introduction to advanced web development technologies
- Installation and configuration of a development environment of a selected technology
- Web 2.0 tools such RSS, podcast, wikis, blogs, mash-ups

- Learning the programming/scripting languages associated with a selected technology in development projects

Study unit description:

The study unit is designed to introduce students to cutting-edge and innovative technologies and tools such as Web Development Frameworks, Content Management Systems, Web Services and Interactive Web Development. Students will learn the concepts and development principles of a selected technology. After completing the study unit, the student should be able to actively investigate the technologies, methods and practices of developing new innovations, such as interactive web applications, and know how this knowledge and these skills are applied to reengineer business processes and development projects.

Previous studies:

Developing ICT Systems or equivalent knowledge

A9062 SOA: Principles of Service Design, 5 cr

The student is able to:

- understand the key concepts and principles of Service Oriented Architecture and service design
- analyze and explain the service-orientation design paradigm
- document specific design characteristics realized by the application of individual design principles
- understand the link between the design characteristics realized by service-orientation and the strategic goals associated with SOA and service-oriented computing
- demonstrate an understanding of the origins of service-orientation and identify the ways in which this paradigm differs from other design approaches

Contents of the study unit:

- Introduction to Service-Oriented Computing and Service-Oriented Architecture
- Goals and benefits of SOA
- Effects of Service-Oriented Computing on enterprises
- SOA and web services
- Standardization and Design - Service Contract
- Intra-service and consumer dependency – Service Coupling
- Service abstraction and reusability
- Service autonomy and statelessness
- Service discoverability and composition
- Service-Oriented and Object-Oriented: Comparison of concepts

Study unit description:

This study unit intends to provide comprehensive and in-depth coverage of the service-orientation design paradigm, which encompasses the eight key principles of service design. The main aim of the study unit is to learn how and where design principles can and should be applied with the ultimate goal of producing high quality services.

Previous studies:

Designing ICT Systems or equivalent knowledge

A9065 ICT Network Infrastructure Project, 5 cr

The student is able to:

- formulate and justify the project aims and objectives
- prepare and present project plan
- participate and manage project work related to building, expanding, managing and maintaining networks, independently and in groups
- demonstrate and deliver project results

Contents of the study unit:

- Review of working life ICT Network projects
- Implementation of project management basics
- Analyzing an IP infrastructure challenge
- Preparing a project plan
- Implementation and delivery (if applicable)
- Documentation and presentation of results

Study unit description:

The study unit focuses on working life ICT network projects. Students plan and review project aims and objectives and collectively or independently conduct project work and demonstrate project results.

Previous studies:

Data Networks or equivalent knowledge

A0112 Information Security Technologies, 5 cr

The student is able to:

- understand the importance of information security technologies
- understand the significance of encryption and how to utilise its features
- identify and analyze vulnerabilities of information systems
- evaluate and apply technical information security measures

Contents of the study unit:

- Security of IP-networks
- Principles and applications of encryption
- Public Key Infrastructure
- Protection of confidentiality and integrity of information in private and public networks
- Information security of information systems and applications
- Information system vulnerability management
- Information system intrusion detection and prevention

Study unit description:

Study unit presents technical safeguards related to information security and application of those safeguards. Central themes include encryption and its applications, and information security issues related to information networks. Objective is to learn to utilize technical information security measures while implementing organisation's information security.

Previous studies:

Managing Information Security

A9013 Managing Business Performance , 5 cr

The student is able to:

- understand how management accounting can support the strategy of an organisation
- analyse the profitability, liquidity and capital structure of an organisation
- analyse financial statements and calculate key figures of business operations
- create plans and forecasts for an organisation
- discuss budgeting and its role in planning, control and decision making
- analyse the profitability of investments

Contents of the study unit:

- management and control: linking strategy, budgeting, planning and control
- financial analysis and key performance indicators
- financial reports

- cash flows and investment profitability
- business-related information systems

Study unit description:

This study unit provides tools for measuring and providing operational and financial information. This information is essential to guide the management and motivate the employees in order to achieve the strategic objectives of an organisation. This study unit looks into the process of measuring, collecting, reporting, interpreting and presenting financial information to managers.

Previous studies:

Business Information Technology: Operating Environments, Clusters and Business Models (2009) or Business Environments (2010) or Principles of Accounting (2011) or equivalent knowledge.

Security Management: Business Operations in a Changing Market and Principles of Accounting or equivalent knowledge

Facility Management: Business Operations in a Changing Market and Financial and Management Accounting (2010) Principles of Accounting (2011) or equivalent knowledge

A0115 Planning and implementing SOA solutions using Oracle, 10 cr

The student is able to:

- explain the basic concepts of Service Oriented Architectures and related technology using Oracle SOA Suite
- work with the components of SOA Suite
- create and deploy Web Services with Oracle SOA Suite - Develop a Java Web service
- modify a BPEL process to invoke a Web service
- deploy and execute an BPEL Process to Oracle SOA Suite
- manage and monitor an BPEL Process
- configure Oracle Enterprise Service Bus(ESB) services
- integrate services through Adapters
- define Oracle rules and observe their behaviour - Transform messages in ESB and BPEL
- secure a BPEL process and services
- work with components of Oracle Web Services Manager (OWSM)

Contents of the study unit:

Section-1 : Oracle SOA Suite : SOA Essentials (5 CR)

- introducing the SOA Concepts and Oracle SOA Suite
- creating Web Services with Oracle SOA Suite
- configuring an Enterprise Service Bus
- introducing Business Process Execution Language (BPEL)

Section- 2 : BPEL process and services(5 CR)

- orchestrating services with BPEL
- implementing decision services with rules
- integrating services through adapters
- transforming message data in ESB and BPEL
- securing services with Oracle Web Services Manager

Study unit description:

In the course, students will learn the concepts of Service-Oriented Architectures and how Oracle SOA Suite can meet the requirements for organizations implementing a SOA strategy. The study unit covers the foundations of SOA-enabled applications, and standards that enable SOA implementations, Web Services, Adapters, Business Process Execution Language (BPEL) for process orchestration, Oracle Enterprise Service Bus (ESB), Oracle Rules for implement Decision Services, Oracle Web Services Manager.

Previous studies:

Service Oriented Architecture (SOA):Principles of Service Design

A0113 Information Security Development Project I, 5 cr

The student is able to:

Conducting an information security development project compose and describe a development process for information security based on a proper, applicable information security standard.

Contents of the study unit:

Compose and describe a development process for information security based on an information security management methodology.

Study unit description:

Students work in teams to create an information security development plan for a target organisation.

Previous studies:

Managing Information Security

A0110 ICT Project Management, 5 cr

The student is able to:

- understand basic concepts of project management: project organisation, roles and responsibilities
- follow good project practices and preparations of project management
- apply appropriate tools to support the project management process
- understand and utilise the principles of ICT project management models and methods within the IT/IS environment
- control the project work, schedule and finance, and effectively communicate project data while utilising appropriate methodologies and software
- understand the importance of management & leadership and monitoring & control as success factors for successful project management
- recognize projects success factors and possible pitfalls of project management

Contents of the study unit:

- Key concepts of project management
- Why some of the projects succeed and others fail
- The role of project manager and leadership
- Project management essentials - Initiation and planning to closing projects
- Modern ICT project models
- Project Management tools

Study unit description:

Project Management is a vital to the successful delivery and completion of different size of projects. Nowadays complex and large ICT or IS projects are notorious for being delivered over budget, late and failing to satisfy customers' requirements. Good project management practices, methods and tools help project managers to successfully confront different challenges and overcome difficulties during project management. This study unit aims to address the key themes of project management.

Previous studies:

Managing Business Performance and Implementing ICT Systems

A0132 Creating Innovation through Service Design, 10 cr

The student is able to:

- carry out an innovation project applying the newest existing knowledge and service innovation and design methods
- carry out creative problem solving and development of working methods
- know the prerequisites for profitable and customer-oriented operations
- work in a diversified project

Contents of the study unit:

- service innovations
- innovation process in practice
- SID methods
- planning, conducting and evaluating an innovation project

Study unit description:

The aim of the study unit is to acquaint the students with multidisciplinary knowledge in service innovation and design by carry out a service innovation project. It also covers studies of different service innovation methods and their implications for service innovation and design practice.

Previous studies:

Developing ICT Systems or equivalent knowledge.

A0164 Applied Innovative ICT Service Systems, 10 cr**The student is able to:**

- facilitate the alignment of ICT service systems with business objectives by applying skills in business awareness, design and consultancy
- assist in the creation of an effective project plan in the field of ICT
- use tools and techniques of project management to conduct a project in the field of ICT
- analyze, design, develop, implement, and evaluate an ICT system, process, component, or program to meet desired needs
- collaborate in an international value network as learners and developers

Contents of the study unit:

- Key concepts of project management
- Systems planning
- Systems analysis
- Systems design
- System implementation
- System support and security
- Tools and techniques to create and maintain innovative ICT service systems

Study unit description:

The competence gained in the study unit relates to designing, developing and maintaining innovative ICT Service Systems as members of an international R&D project team. Students will use their existing skills in business awareness, system analysis and design, programming, and databases to collaborate in a R&D project. During the collaboration process the students will deepen existing skills and learn new skills in technical subjects, project management, and team work.

Previous studies:

Innovative Web Development or equivalent knowledge.

A0119 Information Security Development Project II, 5 cr**The student is able to:**

- Conducting an information security development project. The project focuses on technical protection of the target organisation's information systems and networks.

Contents of the study unit:

- Design and describe technical information security safeguards for information systems and networks
- Conduct a development process for information security based on a chosen information security management methodology

Study unit description:

Students work in teams to create an information security development plan for a target organisation. The content of the project is more technical in nature than in the study unit Information Security Development Project 1

Previous studies:

- Managing Information Security (or equivalent)
- Information Security Technologies (or equivalent)

A0169 Job placement in Information and Communication Technologies - I, 15 cr**The student is able to:**

- analyse and structure their work contents and methods
- analyse their actions by discussing targets and how well they have been met in the work community
- critically evaluate current and emerging practices and technologies for ICT workplace project.
- construct a comprehensive project plan for a ICT project including effort and risk assessment and making detailed provision for scheduling, monitoring and controlling work.
- demonstrate an understanding of a broad range of relevant managerial and technical skills and be able to recognize situations where these are applicable.
- contribute to developing the host company's practices/business processes

Contents of the study unit:

- Setting objectives for the job placement
- Acquiring and completing a job placement
- Reporting in writing on the placement
- Drawing up a development report
- Feedback meeting with own mentor
- Evaluating competence and complementing career plans
- Making a presentation on the placement and providing mentoring for other students according to plan

Study unit description:

The practical study unit is designed to enable students to demonstrate their ability to present sustained rational arguments and independent conclusions based on a body of workplace requirement and personal research. Student demonstrates a broad and integrated knowledge and understanding of the objectives and techniques of industrial project with a detailed and critical knowledge of regional development and measurement.

Previous studies:

Consult Job Placement Coordinator

0335 WORKPLACE DEVELOPMENT AND RENEWAL, 30 cr**Description:**

Students apply and increase their competence in workplace business information system tasks by analysing and developing a host organisation's data processing environment or practices.

The student will be able to:

- apply and develop their competence in workplace business information technology tasks
- participate fully in a work community
- independently acquire new skills required for the job placement
- observe and critically analyse the data processing environment of the host organisation
- formulate well-founded development proposals regarding the host organisation's data processing environment or practices
- outline the effects of proposed changes on the host organisation's value network
- evaluate their own competence in business information technology
- evaluate their career opportunities in business information technology

Content:

This theme focuses on developing practical issues in the workplace and the related competence.

A0170 Job placement in Information and Communication Technologies - II, 15 cr**The student is able to:**

- evaluate their professional competence and the demands of the workplace
- to apply knowledge of business ICT appropriate to the discipline
- to analyze a problem, and identify and define the requirements appropriate to its solution
- to design, implement, and evaluate a computer-based ICT system, process, component, or program to meet desired needs of modern businesses
- to function effectively on teams to accomplish a common goal
- understand and apply professional, ethical, legal, security and social issues and responsibilities
- to communicate effectively with a range of audiences
- to analyze the local and global impact of computing and ICT field on individuals, organizations, and society
- recognise of the need for and an ability to engage in continuing professional development
- to use current techniques, skills, and tools necessary for IT practice
- to use and apply current technical concepts and practices in the core information communication technologies
- to identify and analyze user needs and take them into account in the selection, creation, evaluation and administration of computer-based ICT systems and solutions
- to effectively integrate ICT-based solutions into the user environment
- create personal links with the world of work and operate in networks

Contents of the study unit:

- Setting objectives for the job placement
- Acquiring and completing a job placement
- Reporting in writing on the placement
- Drawing up a development report
- Feedback meeting with own mentor
- Evaluating competence and complementing career plans
- Making a presentation on the placement and providing mentoring for other students according to plan
- Presenting workplace report

Study unit description:

Students acquire ability and skills to design, implement, and evaluate a computer-based ICT system(core systems, network or information security), process, component, or program to meet desired needs. They deepen their professional competence by participating in the application of innovative ICT solutions. They manage and evaluate their practical work process in relation to their personal targets.

Previous studies:

Consult Job Placement Coordinator

A0159 Thesis, 15 cr**The student is able to:**

- describe development objectives from the perspectives of the labour market and regional development
- participate in development projects producing new competence and innovations
- develop work in the field and their own competence through critical evaluation and by generating new information
- participate in a partnership network
- work effectively in a team and act as an opinion leader in a community of experts
- evaluate their own and others' competence, work and results in accordance with development objectives
- use the tools and methods of applied R&D in development work
- carry out and report on an objective-oriented development project
- complete the maturity test

Contents of the study unit:

- determining development needs
- creating a context and knowledge base
- planning, implementing and evaluating the development process
- making the research design based on the research problem
- making the thesis plan
- applying chosen research methods
- working in a shared expertise group
- network leadership and development
- generating new data and sharing results
- publishing the thesis
- maturity test

Study unit description:

Theses form part of Laurea's research and development work. They help students to grow professionally and are linked to the employment sector and to regional development. Theses develop workplace practices and contain new descriptive, explanatory and investigative information on the labour market, as well as new know-how produced for the workplace.

The study unit forms an object-oriented development project, where the competence gained is that of a developer using investigative research methods. The study unit results in the student publishing a thesis and completing a maturity test.

127 LAUREA'S COMMON STUDIES, 0 cr**00521 Initial Test in Finnish, 0 cr****00636 Written skills in Finnish, 0 cr****00637 Oral skills in Finnish, 0 cr****00506 Initial Test in Swedish, 0 cr****The student is able to:**

At the beginning of their studies, all students who have English and/or Swedish qualifications on prior certificates required for studies at Laurea, or who have received previous instruction in English and/or Swedish take initial tests in these languages. The initial tests are the same for all fields of study and may only be taken once. Students who transfer between degrees within Laurea do not have to retake the test. The test is used to check the students' starting level before language studies begin. Students who fail the test must take preparatory studies in the language at the start of their studies. Having passed the preparatory studies, students obtain credits for inclusion in elective studies.

Study unit description:

At the beginning of their studies, all students who have Swedish qualifications on prior certificates required for studies at Laurea take initial test in Swedish, with the exception of those whose mother tongue or language of education is Swedish.

00635 Written skills in Swedish, 0 cr**Study unit description:**

This study unit is for evaluating written skills in Swedish.

00634 Oral skills in Swedish, 0 cr

Study unit description:

This study unit is for evaluating oral skills in Swedish.

00488 Maturity test (in English), 0 cr

The student is able to:

Students must complete maturity tests in accordance with legal requirements. Maturity tests are based on the thesis and are intended for students

to demonstrate their knowledge of the field and their skills in Finnish or Swedish. Students taking degree programmes in English may take the maturity test in English, if they have received their schooling outside of Finland or in a language other than Finnish or Swedish.

00489 Maturity test (in Finnish), 0 cr

The student is able to:

Students must complete maturity tests in accordance with legal requirements. Maturity tests are based on the thesis and are intended for students

to demonstrate their knowledge of the field and their skills in Finnish or Swedish. Students taking degree programmes in English may take the maturity test in English, if they have received their schooling outside of Finland or in a language other than Finnish or Swedish.

00490 Maturity test (in Swedish), 0 cr

The student is able to:

Students must complete maturity tests in accordance with legal requirements. Maturity tests are based on the thesis and are intended for students

to demonstrate their knowledge of the field and their skills in Finnish or Swedish. Students taking degree programmes in English may take the maturity test in English, if they have received their schooling outside of Finland or in a language other than Finnish or Swedish.

00202 Initial Test in English Skills, 0 cr

Study unit description:

At the beginning of their studies, all students who have English and/or Swedish qualifications on prior certificates required for studies at Laurea, or who have received previous instruction in English and/or Swedish take initial tests in these languages. The initial tests are the same for all fields of study and may only be taken once. Students who transfer between degrees within Laurea do not have to retake the test. The test is used to check the students' starting level before language studies begin. Students who fail the test must take preparatory studies in the language at the start of their studies. Having passed the preparatory studies, students obtain credits for inclusion in elective studies.

00569 Initial test in English, 0 cr

The student is able to:

At the beginning of their studies, all students who have English and/or Swedish qualifications on prior certificates required for studies at Laurea, or who have received previous instruction in English and/or Swedish take initial tests in these languages. The initial tests are the same for all fields of study and may only be taken once. The test is used to check the students' starting level before language studies begin. Students who fail the test must take preparatory studies in the language at the start of their studies. Having passed the preparatory studies, students obtain credits for inclusion in elective studies

Previous studies:

The initial Swedish and English tests for all new students will take place in the beginning of studies.

154 ELECTIVE STUDIES, 0 cr**Description:**

Students use elective studies to deepen and broaden their competence in various themes and generic competences. Students should choose study units to align the content of their studies with their own personal interests and career objectives.

Students learn to analyse and develop their leadership competence and to work as experts. Also students learn to manage work groups and networks in line with a strategy. They can build and develop competences and skills with a basis in applied research and development. They will recognise business opportunities in a business operating environment. They will be able to create a business model suitable for the business idea and to set up a business. They can design innovative products and/or services and commercialise them.

The student will be able to:

-  ethically and productively manage work communities and networks
-  manage and develop competence
-  evaluate, lead and develop teamwork
-  promote creativity in a work community
-  manage and develop multicultural work-related communication
-  act as developers in data network implementation, processes and management
-  responsibly develop their data network competence in diverse operating environments
-  determine the performance and service level requirements for a data network
-  describe the operation and network structures of a system
-  understand the cultural impact in marketing
-  assess their own possibilities to become an entrepreneur
-  analyse the opportunities in the business operating environment

Content:

The electives are common course pool offered in the degree programme. Students are free to choose any offered courses to compensate their elective credits required during degree programme. Students use elective studies to deepen and broaden their competence in professional and generic competences. Students should choose study units to align the content of their studies with their own personal interests and career objectives.

Learning process:

The learning process is based on Laurea's learning model - Learning by Developing(LbD), action and applied research methods. Laurea's common elective course pool have variety of offering to align the content of students' studies.

01261 Preparatory Studies in English, 5 cr**The student is able to:**

- englannin perusrakenteet
- käyttää opinnoissaan ja työelämässä tarvittavaa perussanastoa
- kirjallisen ja suullisen viestinnän perustaidot
- hyödyntää monipuolisesti erilaisia menetelmiä kielitaitonsa kehittämisessä

Contents of the study unit:

- englannin kielen keskeiset rakenteet
- sanaston laajentaminen
- suulliset ja kirjalliset oppimistehtävät
- erilaiset oppimisstrategiat

Study unit description:

Opiskelija harjoittaa viestintätaitojaan englannin kielessä kehittääkseen valmiuksiaan opintoihinsa ja työelämään.

Previous studies:

A0205 Intermediate Finnish, 5 cr

The student is able to:

- communicate in more formal situations
- develop her/his Finnish skills for work-related purposes

Contents of the study unit:

- vocabulary relating to studying and working life
- grammar (all tenses, adjective comparison etc.)

Study unit description:

The course mainly concentrates on developing communication skills (speaking and understanding Finnish). Grading is based on an oral exam, a written exam, and attendance and activeness during teaching.

00471 Research Methods, 5 cr

The student is able to:

- identify the differences between qualitative and quantitative approaches
- acquire information necessary for the research process critically from various sources
- use various methods of data gathering and analysis
- read and report on research data and findings
- apply the skills acquired on the course to research and development projects

Contents of the study unit:

- Qualitative research methods
- Quantitative research methods
- Statistical methods

Study unit description:

The students demonstrate competence by comprehending and distinguishing different qualitative and quantitative research methodologies. S/he further becomes capable in using statistical methods in analyzing quantitative and qualitative data

Previous studies:

470 Basics of research and Project learning

A0141 Organisational Management and Leadership, 10 cr

The student is able to:

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A9010 International Leadership, 10 cr

The student is able to:

- understand how motivation can be
- understand how results are achieved through leading people
- know what good leadership is
- communicate in various leadership situations

- know how to manage people in various situations through out employment

Contents of the study unit:

- Leadership & what makes a good leader
- Leading with and toward goals
 - o taking into account the needs of both the group and its individuals
 - o motivation
 - o leading experts
 - o leading competences and knowledge
 - o leadership in a multicultural environment
- Communication
 - o between leader and subordinate/ team members/ Leaders and team /
 - o team leaders/ leader and people / within a team
- The life cycle of employment
 - o recruitment,
 - o introduction,

A0198 Organisational Communication, 5 cr

The student is able to:

- understand an organization as a communication network
- plan, implement and evaluate an organization's communications
- enhance personal communication skills in English

Contents of the study unit:

Basics of organizational communication Planning and implementing strategic and operative communication, Communication environments, stakeholders, channels and media, tools (including social media and new forms of collaborative communication platforms) Measuring and evaluating communication, Enhancing personal communication skills
·&nbs

Study unit description:

ICT professionals are developing systems and networks to support business and effective communication within the organization and with its external stakeholders. During this study unit the students will understand an organization as a communication network and the need of supporting the organization's strategic activities with effective communication by using various platforms, channels or tools. Students will also be able to deepen their personal communication skills to meet the requirements of the modern business environment and online platforms.

00103 Interconnecting Networks, 10 cr

The student is able to:

- be learners and developers in an international value network
- participate in an internationally benchmarked learning process
- handle data network building in practice
- manage and maintain selected data network equipment
- design and implement network environments in lab work
- describe and define the workings, characteristics and components of WANs
- test and diagnose network connections

Contents of the study unit:

- content and materials of an internationally benchmarked, employer-driven study unit
- facilitating lifelong learning as participants in a value network
- lab work

Study unit description:

The competence gained in the study unit relates to using and managing telecommunications equipment made by a chosen manufacturer. Students master the practical use of chosen equipment and deepen their competence as

experts in data networks.

Previous studies:

Data Networks at Work or equivalent knowledge.

00104 Developing Data Network Services, 10 cr

The student is able to:

- apply new network technologies and develop data network services
- implement and analyse chosen network server environments
- implement, change, combine and program network-based services
- implement and develop information security solutions
- implement name services in different network environments
- know about wireless network technologies and their practical bases
- know about IP phones and related new technologies in practice
- evaluate their own development work
- provide documentation related to development work

Contents of the study unit:

- network server systems
- programming network server systems
- shared services such as Windows Active Directory and LDAP
- selected firewall solutions and pointer-related services
- name services
- WLANs, support stations and their maintenance
- IP technologies such as VOIP
- LivingLab work and developing the field in practice
- network technologies of the future
- core competence of the future

Study unit description:

The deepening competence gained in the study unit relates to developing LAN services and their implementations. Knowledge of architectures, the solution to be implemented and the service forms the basis of development work and competence. The emphasis is on applying theory and new technologies to services and usability. Learning takes place through research and development in Laurea's learning environments. The study unit also generates evaluation competence.

Previous studies:

Data Networks at Work or equivalent knowledge.

00019 Service Innovations in Business Development, 10 cr

The student is able to:

- analyse the competence of the region and of organisations and set suitable development objectives
- carry out an objective-oriented development project
- generate new solutions, services and service systems
- assess their usefulness in terms of the profitability of either a start-up company or an existing business
- understand the effects of their own actions in an open network for the sector
- promote creativity with their actions

Contents of the study unit:

- familiarisation with major regional and national development strategies
- creating a context and knowledge base
- planning, implementing and evaluating the development process
- working in a shared expertise group as part of an innovation network
- analysing development and information needs
- evaluating the usefulness of generated solutions, services, products or systems
- copyright issues

Study unit description:

The competence gained in this study unit forms the basis of target-oriented developmental competence in promoting business operations. The framework is the promotion of innovations and related entrepreneurship. A development project is carried out to produce new competence for cluster interfaces and evaluate the added value generated by the competence for a network. Multidisciplinary teams are formed on the basis of the competence needs of each development project.

Previous studies:

Developing Service Innovations or equivalent knowledge.

00020 Innovation-Based Entrepreneurship, 10 cr**The student is able to:**

- evaluate their own opportunities for starting up an innovation-based service business
- formulate an appropriate business model for their business ideas
- formulate a realistic business plan
- start up a business
- interpret the financial reports of a small business

Contents of the study unit:

- business ideas, business models and business plans
- planning the finances and funding of a start-up company
- choosing a form of enterprise and the rules steering business activities
- authorities and official activities related to starting up a business
- product-specific expenses and pricing
- entrepreneurs as employers

Study unit description:

In this study unit, students evaluate their own opportunities for putting business ideas based on service innovations into practice through entrepreneurship. Students formulate a business plan for their business idea, including all the appropriate documentation, and become familiar with the practical obligations and responsibilities of planned business operations.

Previous studies:

Developing Service Innovations or equivalent knowledge.

00005 Developing and Managing Customer Relationships, 10 cr**The student is able to:**

- understand key trends of marketing
- analyse different customer relationships (consumer, business or public sector), customer needs and behaviours
- manage customer relationships and main customer relationship management (CRM) processes

Contents of the study unit:

- customer-orientation as a unifying factor for all company functions
- principles of customer behaviour and an organisations' purchasing behaviour
- competitive marketing methods
- basic processes of CRM, commercialisation, sales and customer relationship marketing
- analysing and developing customer relationships
- customer profitability
- significance of productisation and brand development
- selected research methods

Study unit description:

The competence gained in the study unit relates to continuous analysis, development and management of long-term and profitable customer relationships using market-appropriate methods. Customer relationship development and management are based on knowledge of the customer and management of customer information. It is essential to

understand the various challenges faced by CRM depending on the type of customer group, the stage of the value chain/network and the information-intensiveness of the business, each of which generates its own challenges.

Previous studies:

Operating Environments, Clusters and Business Models or equivalent knowledge.