

LAUREA UNIVERSITY OF APPLIED SCIENCES

Degree Programme in Business Information Technology, in English (Laurea leppävaara, tiko), NIA09SN

CURRICULUMS AT LAUREA

Learning Concept at Laurea

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. We also hope to produce research-based development initiatives for the competence required at work, with visible effects in our operating environments.

As members of an information society, we are caught in a flood of information. Information no longer has to be provided; the most important thing is to learn to process and filter it to obtain important data to use and apply to one's own learning and development projects. Laurea also places importance on ensuring that students grow into skilled experts. Participation in development projects allows students to handle real work processes and to learn to use tools as concepts and skills. The work-oriented development projects provide learning for individuals and for the target community. They also generate new knowledge for developing and reforming the labour market.

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Learning environment

Laurea's learning environment facilitates competence development for learners, organizations, region and partners. The learning environment is a physical and psychological space that expresses the current culture, nature, time, community and practices of development work. Thus, it forms a comprehensive operating environment for competence development. The aim of the learning environment is to facilitate the achievement of learning results while supporting the generation of new know-how and interaction within the operating environment. The learning environment is an implementation of Laurea's target-oriented development.

The learning environment utilizes internal and external networks and is in constant interaction with the world of work. New knowledge and skills are acquired in authentic problem-solving and development tasks, which make the complexity of the real world an object for competence development. Regional influence increases through enriching 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. The meeting points between the industry and the study units are significant in terms of the growth of expertise and competence development. Students grow into developers by carrying out development tasks and by interacting in competence networks.

Students make use of diverse information sources and tools in their studies. Interactive learning environments are used to create a framework for structuring learning so that it offers situations, challenges and tools that help learners to utilize their own thought resources. The learning process becomes a continuous problem-solving process, with a focus on research, development and generating new competence. Conscious and systematic development work is used to formulate ideas and practices that boost development, and to generate new know-how. The result is a creation, a new operating method, a model or a product.

The creation of innovative processes is easier in structures that allow space for informal creativity, innovation and the promotion of things that motivate different participants internally. This work is characterised by communality and a socio-cultural environment for learning. It is important to create a spirit of development.

Development work takes place in projects that combine competences from various fields of study. Project teams consist of students, trainees, lecturers and workplace experts whose competences interact at the practical level. Students use projects to complete study units, job placements or theses. Lecturers do not organize and set targets for the project teams' activities in advance; instead, the team members take joint responsibility for this. Students

receive experience of the culture of expertise and of working as equal experts. They increase their self-management and set their own targets. Thus projects facilitate an unlimited learning process, where no glass ceilings are set by curricula, textbooks or instruction. Learning by Developing enables individuality in learning.

Practical applications of innovative learning environments include initiatives and projects carried out as innovative environments in networks, as well as various operating spaces designed for learning and development, skill hubs and development labs. Work consists of collaboration based on shared expertise, which is supported by methods of sharing competence, such as tutoring, lecturing sessions, demonstrations, team meetings, feedback events and seminars.

Students

In Laurea's work-oriented research and development projects, the concept of partnership implies cooperation between lecturers, experts from the labour market and students. The cooperation is based on responsible commitment to the project. All participants are seen as learners, because the development projects aim to produce change and generate new things. Partnership also means mutual respect and appreciation for diverse skills. The progress of the development project depends on sharing competence and building new competence out of different areas of expertise. Students participate as partners who increase their competence by learning how to use new tools and by taking part in various research and development initiatives. Competence is founded on research-based knowledge, understanding the professional context, handling the necessary tasks and managing various workplace situations, to the extent that these skills are needed for each student's degree. In the development projects, students learn as individuals while also participating in shared learning and in producing new know-how.

Lecturers

The role of lecturers in development projects can be described as that of an expert, a participant and a pedagogical leader, who facilitates the students' growth and development into experts in their fields. Laurea's lecturers are in other words researchers and developers, influential players in regional development and teachers.

Published reports by those teachers that work as researchers demonstrate the effectiveness of development projects as reformers and developers of competence in the labour market. Some teachers act as developer and are responsible for identifying and refining the processes of development projects. The third role of lecturers is in workshops, which transmit and share cultural knowledge, and provide students with tools. Lecturership also involves partnerships with the labour market. The industry experts participating in development projects contribute the knowledge contained in workplace competence, while lecturers ensure that evidence-based data are available for explaining this competence. They join forces to produce new know-how for developing and reforming the labour market.

Competence evaluation

The evaluation of competence in Learning by Developing directs future choices and demonstrates how well targets have been met. Competence is seen on the one hand as knowledge of information, skills and values, and on the other hand as experiential competence, which includes individuals' and their community's know-how. Evaluation in a development project looks at individuals' and the project community's learning, the progress and significance of different processes, and the results achieved.

Evaluation is based on the objectives provided in the competence-based curriculum. These objectives define the requirements that students have to meet to achieve their degrees. The generic competences describe the competences shared by all Laurea students as meta-competence placed in a professional context. Themes, on the other hand, define the substance of subject-specific competence, which is deepened by the generic competences. The generic competences build a level of education needed at a higher education institution and at work; meanwhile, the themes build competence needed for employment. The generic competences are defined on three levels. Students choose the level they wish to achieve in each generic competence together with their tutors, and these desired levels are used as a basis for the study plan. Progress in the generic competences is measured qualitatively through portfolios. The study units are graded on a scale of 1 to 5. These grades are shown on the students' degree certificates.

LAUREA'S GENERIC COMPETENCES

Laurea's generic competences

In addition to core competence in the field, five general areas have been defined at Laurea which are important for professionals in all areas to master. These are called generic competences. The generic competences are developed during the studies, and the level of competence is also evaluated. The curriculum's generic competences have been determined by analysing shared competences needed in different employment sectors in the future. The shared generic competences for all degree programmes are:

- ethical competence
- globalisation competence
- innovative competence
- reflective competence
- network competence

Generic competences are closely linked to the contents of the study units.

The generic competences are structured through levels. Each competence has been categorized further, comprising the personal competence level, organisational competence level and social reform level. The targeted generic competence levels have been defined in the curriculum for each degree programme. All Laurea BA students must reach at least the personal competence level in all generic competences. In the case of many generic competences, the social reform level cannot be achieved until in connection with a Master's degree.

Ethical competence

Morals refers to an individual's conception of right and wrong, whereas ethics refers to moral choices to which the individual is consciously committed. Ethics is a systematic attempt to understand moral conceptions. It consists of ethical rules and principles, virtues and values. In the generic competence of ethical competence, morals and ethics are fundamentally linked together, because students' moral competence forms a basis for their ethical competence. Ethical competence consists of four components: (1) ethical sensitivity; (2) ethical motivation; (3) moral-ethical problem-solving; and (4) ethical implementation skills.

In order for student activities to be ethical, they must be sensitive to ethical problems contained in different situations. Ethical sensitivity refers to the ability to recognise the special characteristics, needs, rights and responsibilities of each party. It includes awareness of how one's own actions affect other people's well-being, and involves envisaging and anticipating various action plans and their consequences for each party. Empathy and the ability to put oneself in another's position form the core of ethical sensitivity. Students also need knowledge of the special characteristics of major customer groups and ethical problems in the sector. Ethical sensitivity is characterised by professional interaction skills, which are a target for active development throughout each degree.

Ethical motivation refers to committing to moral-ethical values and taking responsibility for one's own actions. The students' responsibility grows from the personal level to the communal and social levels. In order to develop their ethical motivation, they must also know the value bases of their fields and participate in discussions on values.

Moral-ethical problem-solving refers to the ability to solve ethical problems through critical argumentation. It requires consideration of various possible solutions, as well as knowledge and application of the ethical norms and approaches of the field. Continuously developing competence includes the skill to solve problems in interpersonal relationships, work communities, communities and the global environment, and the ability to justify these solutions.

Moral implementation skills refer to the ability to take target-oriented action to solve ethical problems (negotiation and conflict-solving skills), as well as the courage to act in accordance with ethical values, even in complex situations. In order for professional activities to be ethically sustainable, competence must be developed in all these areas of ethical competence..

Levels of ethical competence

At the personal competence level, students are able to:

- reflect on their own values and the consequences of their actions on other people's well-being
- work with a basis in the profession's values, following ethical principles
- apply the field's ethical norms to problem-solving

- examine situations from different parties' perspectives
- work in a tolerant and understanding way in multicultural networks
- apply ethical principles to R&D projects

At the organisational development level, students are able to:

- take into account the special characteristics, needs and rights of major customer groups in their work
- build customer-oriented interactions and work dialogically
- assume responsibility for the welfare of the community and the ethics of the work done
- examine ethical issues from the point of view of the organisation and the community
- develop fair methods of proceeding in their work

At the social reform level, students are able to:

- critically reflect on their own attitudes and prejudices
- actively participate in social debates on values
- assume responsibility at social and global levels
- make arguments in favour of fair social and global changes
- solve conflicts and influence issues

Globalisation competence

Globalisation refers to series of events and processes that cause the world to merge into a single, all-encompassing social system. In other words, globalisation refers to the processes by which things acquire worldwide scope. 'Globalised' refers to worldwide phenomena and the results of the globalisation process: a fully integrated world. Sustainable development in relation to globalisation is a globalised political programme, whose aim is to increase welfare with environmental responsibility, within the limits of environmental capacity.

Global interaction can be classified as **financial, cultural, political or social interaction**. The science of globalisation also includes questions of **ecology and biology**. Sustainable development brings all these dimensions together, with the aim of observing economic growth, cultural diversity, social welfare and ecology in politics and practice.

Levels of globalisation competence:

At the personal competence level, students are able to:

- make use of international sources of information in the field
- take into account the effects and opportunities of multiculturalism and internationalisation on their fields
- recognise the significance of their professional actions in relation to global interactions and sustainable development
- evaluate their own value bases from the point of view of sustainable development and globalisation, and apply them to their work

At the organisational development level, students are able to:

- take into account the effects of their own sector and its organisations on sustainable development, responsibility and international connections
- promote the values of environmental and social responsibility in organisations in the sector, taking into account global interactions
- apply responsibility for sustainable development to an organisation in the sector
- work in international networks

At the social reform level, students are able to:

- recognise the global nature of social issues and the characteristics of sustainable development
- critically evaluate social values and practices from the point of view of sustainable development, taking into account global interactions

- make arguments at social level, applying the principles of sustainable development and taking into account global effects

Innovative competence

All of the processes of our modern society are undergoing constant changes. Laurea has followed the examples of the EU and Finland in choosing a positive attitude towards change as one of its strategic operating methods. The aim is not just to cope with change but also to see it as an opportunity, which requires constant innovation in order to be embraced. According to these strategies, future professionals must have abilities in innovation, so it is essential to include innovative competence in Laurea's generic competences.

Innovation refers to a novelty that is implemented to generate added value productively. There are three separate elements to this definition: 1) novelty; 2) implementation; and 3) added value. In other words, an idea by itself is not an innovation, nor does a wealth of ideas make a person an innovator.

The innovation process can be divided into three stages: continuous evaluation of the situation; generating innovative ideas; and carrying out an implementation project. Innovation can take place on five levels: individual, team, organisation, network and societal level.

At the personal innovation competence level, students learn to be innovative reformers at individual and professional group levels. In addition, they should be able to participate in the implementation of change initiatives in their immediate work environments.

At the organisational innovator level, students can start up innovation work in their own teams and use all the innovation tools that exist in the organisation's framework. In the increasingly network-oriented operating models of the future, organisational innovators should also support active reforms as part of an informal network.

At the social innovator level, students can complete the tasks of the previous levels as well as continuously monitor and analyse the operation of networks and the society. They can take larger frameworks into account in all change processes and motivate people to work towards shared goals.

Levels of innovative competence:

At the personal competence level, students are able to:

- analyse their own thought processes, knowledge and actions
- plan, organise and develop their own work
- set targets and turn them into appropriate, concrete actions
- come up with new ideas, working creatively, expressing their thoughts and convincing others to participate in developing them
- use various ideation methods
- manage themselves, work during change and in diverse projects
- conduct intermediate and final evaluations of a project

At the organisational development level, students are able to:

- monitor and analyse an organisation's work processes and results
- use benchmarking in developing their work
- use diverse teamwork methods
- lead projects, processes and networks or participate in leading them in ways that inspire commitment in others
- link innovation to an organisation's strategic targets
- take into account the nature and demands of innovation work

At the social reform level, students are able to:

- gather ideas from a network, convince others of them and link them to the social framework
- ensure that participants in innovation work are sufficiently committed (guidance, encouragement)
- create and commercialise innovations
- participate productively in innovation networks, and identify and investigate innovation mechanisms

Reflective competence

Reflection constitutes critical analysis of the principles, starting points and consequences of one's actions. Reflection can target the present moment or the past.

In the reflection of earlier experiences, an individual gives meaning to events. A new meaning makes development possible. As cognitive skills and concepts develop, an individual is able to deal with broader entities, differentiate phenomena and observe new ones more clearly.

In reflection of the present moment, simple, previously unconscious routine actions become conscious activity. In critical reflection, an individual's whole meaning-producing perspective changes as tacit knowledge becomes visible, transforming learned matters into action. Critical reflection implies a relationship with communities, concepts and theories.

Thus reflection is a thought process. Reflection is dialogue and problem-solving based on proven arguments. In open dialogue between people, different perspectives provide new challenges. Learners participating in dialogue can look at different perspectives in order to create shared meanings. Deep thought gives time and space for solving encountered problems by examining and investigating them using research methods.

In order to extend their understanding of themselves in relation to other students, customers, work communities or writers, students need skills in self-examination, critical peer evaluation and analysis of their own resources. Self-management emphasises communality and shared participation. Critical awareness helps students to identify their own learning opportunities and the factors that affect them. Shared reflection on their own activities allows students to test their thoughts and share them with others. Reflection means professional growth and competence led by human metacognitive abilities. In the process of becoming an expert, reflection forms part of an investigative and developmental approach towards work.

Levels of reflective competence:

At the personal competence level, students are able to:

- evaluate their own learning and competence and formulate a personal development plan
- identify development challenges and understand problems
- develop their competence independently and with others, and share what they have learnt in a work community
- assume a role in a group/team
- acquire and analyse information systematically

At the organisational development level, students are able to:

- work dialogically, collaboratively and with self-evaluation
- evaluate their self-management and professional competence as part of a community
- evaluate their own work as part of a group, community or professional field
- work during change, identifying and making use of various opportunities for learning and action
- critically justify the principles of their work
- apply the concepts of development challenges appropriately

At the social reform level, students are able to:

- analyse their own actions in relation to social and historical backgrounds
- evaluate and develop the functionality of regional operating methods and models
- evaluate systematic information that has been structured, produced and written, and develop social activities on the basis of it

Network competence

The generic competence of network competence encompasses a broad range of competences, from individual communication skills to organisation networking and strategic network leadership. Communication is essential to communality and a functioning society. Only with communication can we create shared meanings. Networking and the development of network processes are fuelled by interpersonal and interorganisational communication. In order for social and economic structures to become networked, new kinds of skills and attitudes are needed in the network's participants. Dialogue and interaction are essential resources of a networked society. Laurea's aim is to promote and develop its students' network competence in diverse ways, creating innovative network competence models.

Network competence refers to time-based management of internal and external efficiency in order to significantly increase the efficiency of common practices. Network competence can include networking and network leadership. Network competence and strategic networks are often synonymous. **Networking**, on the other hand, is a cooperation model for companies and organisations, and may involve operators from various fields. **Network leadership** is the model used to manage a network.

Network competence is largely based on the communication skills of the people participating in the networks in question. Without communication and interaction, there can be no functioning networks. Organisations must be able to operate flexibly in a changing operating environment and also to influence the development of the environment. A learning organisation has communication and interaction skills as a central tool for creating functioning networks and developing network competence.

The generic competence examines network competence on three levels. **The personal competence level** (basic level) focuses on developing communication skills and participation in networks. This is the basic level of network competence, which must be mastered by all Laurea students. It is important for students to obtain good communication skills in order to communicate effectively in various situations. Students must also be able to take on active, target-oriented roles in networks.

The organisational developer level (intermediate level) centres on understanding the strategic significance of network competence and partnerships, as well as on analysing and reflecting on his or her own actions from the point of view of the company. Graduates must be able to identify strategic partnerships, promote the organisation's networking with their actions and create new network relationships. The most important thing is a proactive, developmental approach towards network operations.

The social reformer level (advanced level) requires the ability to analyse the operation of entire strategic networks in relation to their environment. This level is achieved by top experts in network competence. Graduates have the ability to lead strategic networks (orchestration) and to anticipate complex social development trends (visioning).

Levels of network competence:

At the personal competence level, students are able to:

- present things in writing, verbally and visually using various communication styles
- act in situations requiring professional communication and interaction
- identify various team work models and work in teams
- participate collaboratively and actively in a network
- take into account cultural differences and work with people with different cultural backgrounds

At the organisational development level, students are able to:

- participate in and manage negotiations
- participate in group communications
- communicate on topics related to their specialist fields to a lay audience
- develop the networked operations of a professional organisation
- take initiatives in developing a network

At the social reform level, students are able to:

- work as experts in communication situations
- plan communications from a strategic point of view, and work with the media

- initiate networked operations and lead a strategic network
- adopt a developmental and predictive approach to work, and influence the work environment
- monitor and analyse networks' operating models

European higher education area

LAUREA'S COMPETENCE-BASED CURRICULUM FORMS PART OF THE EUROPEAN HIGHER EDUCATION AREA

Finnish higher education institutions have reformed their curricula in accordance with the Bologna Process, i.e., the creation of the European Higher Education Area. The EU's strategic targets for education also apply to Finnish education. Each country has its own education system; this diversity is still taken into account, but cooperation and mobility are also needed to allow the citizens of different countries to benefit from the diversity, rather than turning it into a restriction. The Bologna Process started in 1999 at a conference of ministers responsible for higher education. After that, Ministerial Conferences have been arranged regularly, with the latest one in Leuven in 2009. Currently the process involves 46 countries, some from outside the EU. The aim of the Bologna Process is to establish a consistent, compatible and attractive Higher Education Area in Europe by 2010.

The objectives of the process are:

- adoption of easily readable degree structures
- adoption of comparable degree structures
- establishment of a system of credits
- promotion of European cooperation in quality assurance
- increasing mobility
- participation of higher education and students
- lifelong learning
- promotion of European dimensions in higher education
- cooperation between higher education and research

To promote the adoption of easily readable, 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 Bachelor's degree, after which they have the opportunity of obtaining a Master's degree. The requirement for Master's degrees is an undergraduate degree plus three years' work experience. The long-term objective is that approximately 20 per cent of Bachelor's-degree graduates will take a Master's degree.

The establishment of a system of credits refers to the ECTS (European Credit Transfer and Accumulation System). Most European countries are adopting this credit system based on the amount of work in each academic year. In the ECTS, one year of study produces 60 credits. The ECTS was adopted more than ten years ago; initially it applied primarily to student exchanges, but now all credit accumulation (previously *transfer*) measurements are made according to the system. Finnish universities of applied sciences adopted ECTS credits in 2005.

The ECTS is a student-centric system, based on the *student workload* needed to achieve the targets set for each degree. The students' learning process is intended to be the focal point of curricula, which define *learning outcomes* and *competences*. Curricula should move away from a focus on individual subjects and the starting points of teaching towards a model that observes the holistic development of students and supports professional growth. This model is referred to as the competence-based curriculum.

From the point of view of promoting 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 outcomes to concrete competence requirements and definitions in the labour market. These are the objectives of the "Tuning Educational Structures in Europe" project. It has defined a number of shared *generic competences* that are independent of subjects and fields of study, as well as *subject-specific* (professional) *competences* for certain degrees.

Laurea's competence-based curriculum takes into account the demands of the Common European Framework. Studies are accumulated in the form of credits, while study units are larger entities. Competence is defined in terms of the students' learning outcomes. The generic competences defined at Laurea correspond with the national and European learning outcomes considering the generic competencies and the objectives set for Bachelor-level degrees in the "Joint Quality Initiative" -network. Comparisons have shown globalisation and innovative competence in particular to be unique, so they are well suited to describing the competence produced at Laurea from the point of view of an international university of applied sciences specialising in service innovations. Laurea's innovative efforts in relation to the competence-based core curriculum are a proactive response to the challenges of international competitiveness in the Helsinki metropolitan area. Currently resources are being directed towards further enhancing the quality of the curriculum's implementations in generating new competence and innovations for Laura's operating environment.

Bologna Process

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

Tuning Educational Structures in Europe

http://europa.eu.int/comm/education/policies/educ/tuning/tuning_en.html

		1. year	2. year	3. year	4. year
OP	STUDIES	60	60	60	30
0327	FRAMEWORK OF PROFESSIONAL GROWTH, PROACTIVITY, CREATIVITY, MULTI CULTURAL				
01115	Becoming a Business Information Systems Professional	10			
01116	Operating Environments, Clusters and Business Models	10			
0328	ICT NETWORK				
01117	Data Networks	10			
01118	Data Networks in Operation	10			
0329	APPLIED ICT SYSTEMS				
01119	Developing ICT Systems: Fundamentals of programming and web development	10			
01120	Designing ICT Systems: Relational database with object-oriented analysis and design	10			
0330	BUSINESS MANAGEMENT AND COMMUNICATION				
01137	Swedish in the ICT field		5		
00305	Basic Finnish		5		
00463	Business Communication Skills		5		
01123	Managing Business Performance		10		
0331	ICT SECURITY				
01124	Managing Information Security		10		
01125	Security of Data Networks and Systems		10		
0332	APPLIED ICT & SERVICE DESIGN				
A0114	Service Oriented Architecture (SOA): Principles of Service Design		10		
A0115	Planning and implementing SOA solutions using Oracle		10		
0333	INNOVATIVE APPLIED SERVICE AND BUSINESS ORIENTATION				
01128	Developing Service Innovations			10	
01129	Designing and Managing Service Systems			10	
127	LAUREA'S COMMON STUDIES				
154	ELECTIVE STUDIES				
00352	Advanced Finnish				
00490	Maturity test (in Swedish)				
00489	Maturity test (in Finnish)				
00488	Maturity test (in English)				
00635	Written skills in Swedish				
00634	Oral skills in Swedish				
00637	Oral skills in Finnish				
00636	Written skills in Finnish				
01130	Responsible Leadership in a Work Community			10	
01131	Developing and Managing Customer Relationships			10	

00103	Interconnecting Networks			10	
01132	Developing Data Network Services			10	
00310	Intermediate Finnish			5	
0335	WORKPLACE DEVELOPMENT AND RENEWAL				
01133	Job placement in Business Information Technology			30	
107	THESIS				
00344	Thesis			15	
		60	60	60	30

Annual themes and competences

Study		Extent	Competences
01115	Becoming a Business Information Systems Professional	10	Eettisen osaamisen kuvaus (H), Globalisaatio-osaamisen kuvaus (H), Innovaatio-osaamisen kuvaus (H), Reflektio-osaamisen kuvaus (H), Verkosto-osaamisen kuvaus (O)
01118	Data Networks in Operation	10	Globalisaatio-osaamisen kuvaus (H)
01119	Developing ICT Systems: Fundamentals of programming and web development	10	Eettisen osaamisen kuvaus (H), Globalisaatio-osaamisen kuvaus (O), Innovaatio-osaamisen kuvaus (H), Reflektio-osaamisen kuvaus (H), Verkosto-osaamisen kuvaus (O)
01120	Designing ICT Systems: Relational database with object-oriented analysis and design	10	Eettisen osaamisen kuvaus (H), Globalisaatio-osaamisen kuvaus (O), Innovaatio-osaamisen kuvaus (O), Reflektio-osaamisen kuvaus (H), Verkosto-osaamisen kuvaus (H)

H - Personal competence level

O - Organisational development level

Y - Social reform level

0327 FRAMEWORK OF PROFESSIONAL GROWTH, PROACTIVITY, CREATIVITY, MULTI CULTURAL, 20 cr

Description:

Students learn the basics of investigative action in the workplace, and can use an anticipatory, investigative and developmental work method. Students understand the structure of the sector and its clusters, and achieve the basic abilities to develop company operations and processes.

The student will be able to:

-  outline targets for their personal development and choose development objects
-  understand and evaluate competence in the field through anticipatory research
-  participate in a social value network and a competence-enriching community
-  understand the significance of new solutions and services as success factors
-  commit and be motivated to be influential in a work community and a value network of the sector
-  examine a company's operating environment holistically, analysing its major dynamics
-  recognise different business models and earnings principles

Content:

The theme's study units form a learning module that allows students to examine business operations holistically as part of an operating environment. Instead of traditional sectors, business is defined in terms of clusters that transcend the boundaries between sectors.

01115 Becoming a Business Information Systems Professional, 10 cr

The student is able to:

- analyse future needs for competence in business information technology
- use general methods, tools and devices of the sector
- outline the core competences of the sector and their significance
- know the principles of development work
- make use of Finnish and English IT-information sources
- define, choose and evaluate personal competence development objects and targets
- implement their personal study plans
- work in cross-cultural teams and environment
- understand different cultures and identities
- promote interaction and cooperation with their work

Contents of the study unit:

- Laurea's learning model
- core competences of the computing, information technology, information systems and ICT
- projects in computing, IT and Information systems
- competence in tools, work methods and work stations
- main development strategies and targets in the industry and the region
- creating a personal study plan
- working in multicultural teams: culture and identity, cultural theories, intercultural communications, Managing diversity

Study unit description:

The competence gained in this study unit forms the basis of developmental competence. Students map the core competences of the business information technology and ICT sectors, as well as its future needs for competence. The study unit describes the effect and importance of new competence in a value network and in regional development. Students assess the value of their own competence as a success factor and enabler.

01116 Operating Environments, Clusters and Business Models, 10 cr

The student is able to:

-  understand the structure and dynamics of a business environment, and the related opportunities and

challenges

 understand the business through business models and earnings principles

 describe various value chains and networks

 determine the core functions of a company's operations

Contents of the study unit:

 structures of the operating environment

 central dynamics of the operating environment

 value chains and networks

 clusters in the operating environment

 different business models and earnings principles

 value generation for customers

 company's operations, core and support processes

 company stakeholders

Study unit description:

The competence gained in the study unit appears as a holistic view of business environments and clusters in the sector, and the role of an individual company within these. Competence is based on understanding different business models and earnings principles in general. From the viewpoint of individual companies, competence involves managing the business as a whole through separate functions and processes. It is important that students can generally determine who the company's customers are, how value can be generated for them, what the company's earnings mechanism is, what its operating models are, and who its partners are.

0328 ICT NETWORK, 20 cr

Description:

Students can maintain and develop modern data networks and network services. They can relate networking technologies and services to organisation's strategy and operational requirements. The theme emphasises usability, security and cost-effectiveness in networked services.

The student will be able to:

 install and configure networking equipment

 determine the performance and service level requirements for a data network

 plan and design the architecture and services for a network system

 develop their data networking competence in diverse operating environments

 embrace change and co-operate with various operators in the field

Content:

The theme's study units form a learning module that teaches students to act as innovating developers in the broad area of data networks and services. Students get to know the equipment, processes and application areas related to networking. They can also evaluate emerging technologies and solutions in networking area.

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.

01118 Data Networks in Operation, 10 cr

The student is able to:

 build or expand data networks according to plan
 understand the methods for connecting networks to other networks
 make use of the benefits of network management systems
 describe the opportunities and threats brought by emerging technologies
 solve problems related to building, expanding, managing and maintaining networks, independently and in groups
 work in an interdisciplinary development project as a networks designer

Contents of the study unit:

Section-1 (4 CR)
 main network connection methods and their theories
 wireless network connection methods
 managing and maintaining networks and network servers
 emerging network technologies
Section- 2 (6 CR)
 group assignment, genuine network development project and LivingLab work
 lab practice (network management, wireless technologies, IP phones)

Study unit description:

The competence gained in the study unit relates to designing, building and expanding data networks. The knowledge and skills acquired are put to use in authentic development projects. The emphasis is in being able to use networking solutions in efficient and cost-effective way in business environments.

Previous studies:

Data Networks

0329 APPLIED ICT SYSTEMS, 20 cr

Description:

In recent years, the field of computing and information technology has become increasingly complex. The pace of change in computing and ICT are such that the operating environment for business information technology will focus on applied technology in the future. The change is evident in industrial operating environment and methods.

Applied ICT System 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 technology in organizational and societal contexts. The programme was designed with significant experts' input, which represents the latest developments in information technology analysis, design and implementation – the main areas of competency development in the computing/IT sector.

The student will be able to:

 apply knowledge of computing and ICT, appropriate to the discipline
 design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs
 use current techniques, skills, and tools necessary for ICT practice
 use and apply current technical concepts and practices in the core information communication

technologies

• effectively integrate ICT-based solutions into the user environment

• 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

Content:

The core modules of the theme broaden and deepen students' understanding of the current IT field and enhance their skills base with modern, vocationally relevant skills. Technically-oriented themes will enable students to focus on developing and fine-tuning technical skills such as programming, database design and developing and creating IT solutions for organisations. Topics covered for the purpose include aspects such as fundamental programming and web development, relational databases with object-oriented analysis and design, object-oriented software implementation, and modern IT systems development. All students will have the opportunity to use a variety of up-to-date software applications used in modern businesses.

01119 Developing ICT Systems: Fundamentals of programming and web development, 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

• describe the structure of the World Wide Web as interconnected hypertext documents

• create and validate HTML/XHTML documents

• demonstrate and show how to display such documents in Web applications

• describe the issues involved in developing a web interface

• discuss and contrast data entry and validation techniques in Web 2.0

Contents of the study unit:

Section-1 (5 CR)

• information technology: purpose, use, value

• programming basics including variables, operators, expressions, statements and modifier

• control/Block structures

• class and methods

Section-2 (5 CR)

• web-markup and display languages

• client-side programming

• server-side programming

• web interfaces

• web site implementation and integration

Study unit description:

The course introduces students to the development process of ICT systems. Further deepens the knowledge of basics of programming and web technologies and systems, including programming basics, hypertext, self-descriptive text, web page design, web navigational systems, database integration and digital media. The goal of the study unit is to design, develop, and publish an innovative web application using recommended design practices.

01120 Designing ICT Systems: Relational database with object-oriented analysis and design, 10 cr

The student is able to:

• 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

 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:

Section-1 (5 CR)
 introduction to Database Systems
 modeling and Object modeling
 structure Query Language
 create and manage Databases
Section-2 (5 CR)
 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 study unit introduces students to the design process of ICT systems. The course begins with the current industry standard technology for database management system, SQL and object-oriented system modeling and design. It discusses the significance of using the standard in modern system development and demonstrates how it is used to support system development in practice through the development process. It also 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

0330 BUSINESS MANAGEMENT AND COMMUNICATION, 20 cr

Description:

Students will be able to acquire information on business operating environments, business operations and processes. They will understand the principles influencing business models and operations. They will also learn the necessary methods and tools of the field.

The student will be able to:

 evaluate the significance of a company's operations and processes as critical success factors and generators of added value for the customer
 use tools for directing and managing a company
 create a customer-focused and profitability-oriented business plan
 use appropriate work methods and tools
 justify things in writing
 work in multicultural teams and environments
 acquire, analyse and report information
 use relevant information in problem solving
 master basic IT and communication skills
 set objectives and plan studies for personal learning

Content:

The students' competence in and motivation for development is evident in a community-based, investigative and developmental work method. The starting point of the learning process is the development of the field and the region, and working in a value network. The students' targets and development objects are defined in their personal study plans.

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.

00305 Basic Finnish, 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.

00463 Business Communication Skills, 5 cr**The student is able to:**

- understand basic terminology used in business English, and be able to use this terminology in free discussion
- produce the key written documents belonging to the ordering process
- produce a formal written report based on external source material and using house style
- give an effective oral presentation on business topics

Contents of the study unit:

- articles, exercises, cases related to business topics
- business letters (inquiry, request for quotation, quotation, order, job application, C.V.)
- structural, linguistic, source and layout requirements of a formal written report, with special regard to Laurea's in-house standards
- factors of language, metacommunication and visual aids required in oral presentation work

Study unit description:

The competence gained in the study unit is the ability to apply English to business situations requiring written and oral communications skill.

01123 Managing Business Performance, 10 cr**The student is able to:**

- determine a company's critical success factors
- determine whether business targets are in line with strategy
- set company targets for finance, customer relationships, internal operations, competence and commitment
- interpret and make use of a company's financial analyses
- use information technology in managing operations

interpret rules that apply to business operations and understand their significance for a company's operations

Contents of the study unit:

critical success factors
balanced scorecard (BSC)
basics of internal and external accounting
profitability accounting
IT systems in functional management
business plan
main rules for business operations
basic ethical issues in business

Study unit description:

The competence gained in the study unit relates to the mastery of financial and non-financial business targets and indicators, and the use of business-related IT systems. It is essential that students understand the strategic nature of business targets, and the role of various analyses in managing a business as a whole. This forms a comprehensive foundation for the long-term development of business operations in changing circumstances. Students also develop competence in assessing the ethics of a business and in developing practices to be ethically, economically, socially and environmentally sustainable.

0331 ICT SECURITY, 20 cr

Description:

Students can develop and apply information security as an essential element of an organisation's operations, and have a broad conception of security as part of an organisation's strategy, operational security, competitiveness and image. Students can develop important information-related technological protection solutions, and promote information security related issues and services. This theme provides basic competence in information security and related technologies.

The student will be able to:

see applied information security as part of an organisation's strategy
determine the information security needs of organisations and seek solutions to them
develop and apply information security related technologies in organizations
implement and maintain an organisation's information security policy
evaluate technical security solutions and services
work as active players, manage change and promote security
observe, map and analyse information-related security risks
plan, implement and maintain information security solutions

Content:

The theme's study units form a development module based on the principles of developing organisations within the framework of a broad conception of information security. Students can analyse and evaluate an organisation's information security risks and their effects on an organisation's operations, and use these as the basis for the organisation's development. The gained competence also forms a basis for developing security in data networks and systems, as well as in related, new service products. It brings together data networks, information systems and technologies such as embedded systems. Students can deepen their competence in the field of information security technologies.

01124 Managing Information Security, 10 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 and assess the effects of these risks on operations
plan a comprehensive information risk management system for an organisation, using technical and administrative data protection solutions
apply legislation related to data protection, information security and data crime

Contents of the study unit:

Section-1 (5 CR)

-  elements and basic concepts of information security
-  duties of an information security officer in an organisation
-  internal and external information security risks, analysing and evaluating related information risks
-  protection from information risks using technical and non-technical methods
-  legislation related to data protection and information security
-  personnel security and information security awareness
-  security reports and confidentiality agreements
-  information security instructions and compliance-related issues
-  information risk management systems based on actual risks, planning an information security development programme
-  continuously planning and disaster recovery

Section-2 (5 CR)

-  individual assignment on given topic related to management of information security
-  group assignment, information security development project

Study unit description:

This study unit relates to students' development in applying information security competence. Competence is acquired particularly in analysing and evaluating an organisation's information risks, protecting it from them and evaluating their possible effects on operations. The aim is to learn to build a comprehensive information risk management system.

01125 Security of Data Networks and Systems, 10 cr**The student is able to:**

-  recognise and analyse the vulnerabilities of data networks
-  safeguard the functionality of information technology in various fault situations
-  apply technical information security solutions
-  determine security requirements in developing and purchasing information systems
-  formulate continuity and disaster recovery plans for systems

Contents of the study unit:

Section-1 (5 CR)

-  basics of IP networks and related information security issues
-  threats and risks related to information technology
-  technical protection from information risks
-  protecting the confidentiality and integrity of data in information technology and networks
-  encryption methods and applications - public key encryption and public key infrastructure
-  information security in networks
-  preventing intrusions into information technology

Section-2 (5 CR)

-  individual exercises on given topics
-  group assignment, information security development project

Study unit description:

This study unit relates to students' development in applying their competence in information technology and networks.

0332 APPLIED ICT & SERVICE DESIGN, 20 cr**Description:**

The study units under Applied ICT & Service Design provide unique training opportunity to the students for using the advance technology to provide better business solutions. Students learn to act as experts and developers in their fields while participating in an international value network. Authentic development projects are used to direct and

deepen the learning process. Laurea is the first University of Applied Sciences in Finland which offers Applied ICT & Service Design studies.

"Most enterprises have made extensive investments in system resources over the course of many years. Such enterprises have an enormous amount of data stored in legacy enterprise information systems (EIS), so it's not practical to discard existing systems. It's more cost-effective to evolve and enhance EIS. But how can this be done? Service Oriented Architecture (SOA) provides a cost-effective solution." Sun Microsystems

The student will be able to:

-  apply knowledge of SOA principles to provide better solutions for the modern business
-  understand the link between the design characteristics realized by service-orientation and the strategic goals associated with SOA for service design
-  plan, design, develop, implement, and evaluate next-generation software and service design
-  use and practice the Oracle SOA Suite 10g - SOA Essentials
-  practice Business Process Execution Language (BPEL) process and services and provide SOA solutions

Content:

In the 'Applied ICT & Service Design' competences student will learn - how to achieve benefits of Service Oriented Architecture (SOA) for service design. Service Oriented Architecture (SOA) offers a vision of IT flexibility enabling business agility. Service Oriented Architecture (SOA) has quickly become the industry standard for building next-generation software and services; service design is the successful trend in the modern business.

A0114 Service Oriented Architecture (SOA): Principles of Service Design, 10 cr

The student is able to:

- understand the key concept and principle of Service Oriented Architecture and service design
- clearly establish the criteria for solution logic to be classified as service-oriented
- analyze and explain – what is 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 – how this paradigm differs from other design approaches

Contents of the study unit:

Section-1: Fundamentals (5 CR)

- introduction to Service-Oriented Computing and Service-Oriented Architecture
- goals and benefits of SOA
- challenges using Service-Orientation
- effects of Service-Orientation on enterprises
- SOA and web services
- Business Process Management(BPM)
- Enterprise Application Integration(EAI)
- aspect-Oriented programming
- understanding Design Principles

Section- 2 : Design Principles (5 CR)

- 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-Orientation and Object-Orientation: Comparison of concepts

Study unit description:

The course introduces students to the principles and concepts of service-orientation in computing using service

oriented architecture for 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. This course intends to provide practical, comprehensive, and in-depth coverage of the service-orientation design paradigm, which encompasses the official definition and detailed explanation of eight key principles.

Previous studies:

Designing ICT Systems 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

0333 INNOVATIVE APPLIED SERVICE AND BUSINESS ORIENTATION, 20 cr

Description:

Students can innovatively develop and create service operations using methods of applied research and development. Also students can develop and maintain information systems, data-intensive service products and services founded on applied R&D. They know the necessary methods, description modes and tools related to developing and implementing systems.

The student will be able to:

Outline development objectives for a chosen object

- acquire, assess and use competence to achieve development targets
- recognise and disseminate good practice in a network
- generate plans and new solutions
- promote creativity with their actions
- analyse, apply and combine their knowledge using various research and development methods
- investigate the development of the sector and understand its links to strategic value networks
- responsibly develop their information system competence in diverse operating environments
- plan and create the architecture and data protection solutions of a system
- implement and test system programs and components
- adopt and maintain information systems

Content:

The theme's study units form a development module based on the principles of innovation work in the metropolitan area. The elective study unit examines the industry from the point of view of combining competences and producing competence for cluster interfaces. It links the development of new competence to examining the conditions of a new business.

01128 Developing Service Innovations, 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.

01129 Designing and Managing Service Systems, 10 cr

The student is able to:

- acquire and apply skills in business awareness, design and consultancy to facilitate the alignment of ICT systems and services to business objective.
- use their skills to understand principles in business and information systems analysis and design
- analyze, design, develop, implement, and evaluate an ICT system, process, component, or program to meet desired needs
- 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.
- acquire technical skills, through practical project work, to enable them to apply their knowledge of ICT System Analysis and Design and how it affects business competitiveness.
- apply tools and techniques of project management to enable them to lead the implementation of ICT projects at workplace.
- be learners and developers in an international value network
- participate in an internationally benchmarked learning process (e.g. Sun Academy, Oracle University)

Contents of the study unit:

- Content and materials of an internationally benchmarked, employer-driven study unit

- Opportunities and guidance for extending internationally certified learning
- Key concepts of Systems Analysis and Design
- Key concepts of project management
- 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 systems and services. Students know the operating principles of target systems, the structure of databases and the programming principles used in their development. They deepen their competence as experts in development and administration.

Previous studies:

- Implementing ICT Systems & Creating Innovation through Service Design or equivalent knowledge

127 LAUREA'S COMMON STUDIES, 0 cr

154 ELECTIVE STUDIES, 25 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.

00352 Advanced 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 will develop the students' Finnish language skills for professional purposes in order to reach level B1 according to the Common European Framework.

Previous studies:

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.

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.

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.

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.

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.

00637 Oral skills in Finnish, 0 cr

00636 Written skills in Finnish, 0 cr

01130 Responsible Leadership in a Work Community, 10 cr

01131 Developing and Managing Customer Relationships, 10 cr

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.

01132 Developing Data Network Services, 10 cr

00310 Intermediate Finnish, 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.

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.

01133 Job placement in Business Information Technology, 30 cr**107 THESIS, 15 cr****Description:**

- present justified proposals for developing business operations
- conceptualise business phenomena on the basis of existing research
- use suitable research and development methods to produce new knowledge
- work in an interactive and responsible manner in development projects with businesses and other partners
- critically analyse their own performance and solutions
- master larger entities
- present things in a logical and justified manner

The student will be able to:

In professional growth the theme forms part of deepening professional competences.

Content:

At a University of Applied Sciences, the thesis is part of research and development serving students' professional growth, businesses and regional development. Theses develop business practices and may produce significant innovations.

The basis for theses is a need for development. Writing a thesis means interaction with a workplace and adopting an investigative and development-oriented approach to work. The emphasis in the theses is on describing and analysing target-oriented performance and its results. Theses contain information describing businesses, existing research findings and new result data.

The theme includes a maturity test, in which students demonstrate that they have mastered the topic and the language.

Content

- getting acquainted with the thesis process and development project, topic selection
- research plan describing the background and objectives, essential research information on the topic, research and development methods used and implementation plan
- thesis implementation
- reporting and presentation
- maturity test

00344 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, applying the methods of Learning by Development and R&D, as well as

producing new competence and innovations

- develop work in the field and his/her own competence through critical evaluation and by generating new information as a welfare expert
- participate in a partnership network
- work effectively in a team and act as an opinion leader in a community of experts
- evaluate his/her 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
- designing a thesis
- thesis plan
- applying methods to projects
- working in a shared expertise group
- network leadership and development
- generating new data and sharing results
- publishing a thesis
- maturity test

Study unit description:

The study unit concentrates on the students' activities in work development projects, where they investigate, develop and generate new data. They also learn to recognise and evaluate achieved competence. The study unit starts by the student joining a development project where he/she can progress according to the thesis plan and fulfil his/her personal study plan.

The study unit forms an objective-oriented development project, where the competence gained is that of a developer using investigative research methods. The object of competence development is determined for each cluster by Laurea's research and development policy. The study unit results in the student publishing a thesis and completing a maturity test.