

LAUREA UNIVERSITY OF APPLIED SCIENCES
Degree Programme in Information Systems (Laurea Leppävaara, tiko), NYA10KJ

		1. year	2. year
OP	STUDIES	55	35
231	DEVELOPING INNOVATION AND MANAGEMENT		
00403	Innovation Management Methods		5
00404	Network Management		5
00416	Strategic Management		5
232	ADVANCED DATA NETWORK COMPETENCE		
00402	Methods of Workplace Development	5	
00706	Development of Service Information Technologies	15	
00405	Applied Information Security and Security Systems Management	5	
233	BUSINESS OPERATIONS		
00664	Development of Knowledge-Intensive Business		5
00665	Entrepreneurship		5
234	INFORMATION SYSTEMS		
00707	Topical Specialist Question	5	
235	INFORMATION SECURITY		
00412	Designing Secure Data Networks		5
236	DATA NETWORKS		
00408	Network Design	10	
125	ELECTIVE STUDIES		
237	THESIS		
00415	Thesis		30
		55	35

231 DEVELOPING INNOVATION AND MANAGEMENT, 0 cr

00403 Innovation Management Methods, 5 cr

The student is able to:

- participate innovatively in development networks and leading teams' development activities in a proactive, target-oriented way
- generate new ideas and implement them in a networked environment
- manage a process aimed at refining an innovation idea

Contents of the study unit:

- concept of innovation
- incremental and radical innovation
- the innovation process
- goods, service and process innovation, social innovation
- commercialising innovations
- leadership and organisation to support innovativeness

Study unit description:

The competence gained in the study unit relates to participating innovatively in development networks and leading teams' development activities in a proactive, target-oriented way. Core competences are creating new ideas and their practical implementation in a network environment. Competence is reflected concretely in the management of a project that aims to refine an innovation idea.

00404 Network Management, 5 cr

The student is able to:

- establish, influence and manage collaborative networks
- develop core competences, interaction and leadership skills needed in networking
- analyze a network's state, operations and objectives
- model competence and processes in networked collaboration

Contents of the study unit:

- management and leadership in networks
- interaction in networks
- establishment and development of networks
- network dynamics
- multicultural networks

Study unit description:

Students will develop their skills related to establishing, developing, analyzing, growing, and leading collaborative networks and networked processes.

00416 Strategic Management, 5 cr

The student is able to:

- know the main principles and methods of strategic planning
- evaluate a company's operating strategy and choices
- evaluate and situationally create alternative strategies for the achievement of a company's objectives
- analyse the effects of strategy renewals on CRM strategies, competence strategies and internal business processes, and initiate profitable, customer-oriented development functions
- listen to others and communicate with diverse target groups in writing, orally and visually
- analyse the operating culture of the market and participate in coordinating, developing and managing organisations' activities
- identify the socioeconomic links of organisations in their fields, know and can utilise social influencing opportunities, can apply the principles of sustainable development to their own work, and are aware of their

organisations' corporate social responsibility

- have general knowledge of the status and significance of their professional field in the international operating environment
- promote creativity and dialogue in projects and organisations, provide constructive feedback to project members, use different idea-generating methods in projects and motivate other project participants to work towards a shared objective
- analyse and evaluate project operations and work methods, model the tacit knowledge of experts and employees, and acquire information on an organisation and enrich it into a concrete plan
- know how to manage and, particularly, motivate, projects

Contents of the study unit:

- principles and methods of strategic planning
- radical strategy reforms
- strategies of the new economy
- effects of strategy renewals on CRM strategies, competence strategies and internal business processes

Study unit description:

The course familiarises students with the significance and methods of strategic planning and management. The emphasis is on strategy reforms, and on looking for and producing strategic innovations in a rapidly changing operating environment.

232 ADVANCED DATA NETWORK COMPETENCE, 0 cr

00402 Methods of Workplace Development, 5 cr

The student is able to:

- analyse future needs for competence in business information technology, in terms of workplace success
- outline the core competences of the sector and their significance
- define, choose and evaluate personal competence development objects and targets
- carry out workplace development
- use the methods and tools of the sector
- work in a value network in the field
- promote interaction and cooperation with their work

Contents of the study unit:

Learning by Developing model for optimal learning

- core competences in the sector, and analysing them
- main development strategies and targets in the industry and the region
- creating a personal study plan based on an analysis of research and knowledge needs
- applied research approaches; constructive and action research
- planning, implementing and evaluating an applied research and development process
- working independently, in groups and in networks
- tools and work methods
- argumentative writing based on reporting methods of applied research

Study unit description:

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

00706 Development of Service Information Technologies, 15 cr

The student is able to:

- use conceptualisation and concept analysis in system work
- model and describe the operation and structures of a system
- know the process of building a system and how to apply it

to a development target, and know how to analyse its impact

- describe and define the links and functions between information systems and the business processes under development
- plan and implement a system project in partnership with various operators
- create design models and test their operation

Contents of the study unit:

- applied research methods for information system development
- conceptualisation and concept analysis
- product development in knowledge-intensive business services
- information system development methods
- interaction in development work
- system design and implementation process
- planning a system initiative or project
- requirement specifications and business processes
- modelling and describing the operation of a system
- modelling and describing the information structure of a system

Study unit description:

The study unit lays the foundations for architecture-level requirement specification, the development of knowledge-intensive business services, and defining architectural functions and data structures, including concept analysis, design and analysis.

Previous studies:

00403 Workplace Development Methods, 5 cr, compulsory

00402 Innovation Methods, 5 cr, compulsory

00405 Applied Information Security and Security Systems Management, 5 cr

The student is able to:

- analyse the information security of open architectures
- form a general view of open systems
- develop information security solution for open environments
- understand the construction of information security in open environments and their special characteristics

Contents of the study unit:

- workplace-oriented Living Lab work
- research and development situation in open environments
- managing an open environment, and areas of focus within information security
- developing an open environment, e.g. Linux
- information security R&D work in a chosen open environment

Study unit description:

Students increase their competence in applied research and development within open systems. The focus is on developing the information security of open systems. The course includes both theory and practical development work in projects. The aim is to provide students with good opportunities for working and developing in an area of high demand in the industry.

Previous studies:

Basic knowledge of information security and previous experience of Unix/Linux are helpful.

233 BUSINESS OPERATIONS, 0 cr

00664 Development of Knowledge-Intensive Business, 5 cr

The student is able to:

understand the significance of a company's core functions and processes as critical success factors and producers

of added value for customers, and can use the tools for directing and managing companies

- comprehensively examine a knowledge-intensive company's operating environment, identifying its major change drivers, and define different business models and earnings principles
- develop knowledge-intensive business processes, define the objectives of development in a desired direction, and acquire, evaluate and use competence purposefully
- create a customer-oriented business plan that aims for profitability, examine the main processes of knowledge-intensive business operations, and understand the significance of information technology as a part of an organisation's operations and development
- be responsive to change and work in cooperation with diverse operators, produce plans and new solutions, and promote creativity with their actions

Contents of the study unit:

- knowledge-intensive business services (KIBS)
- innovation management
- knowledge management
- business information flows and processes
- knowledge and competence as business resources
- managing and developing intangible assets

Study unit description:

Students learn the issues of managing and developing knowledge-intensive business operations and related business services (KIBS). The study unit emphasises an analytical and developmental approach to organisations' knowledge and competence resources and the related processes. Students develop competence at both the strategic and the operational levels in order to manage a knowledge-intensive organisation's human, relationship-related and structural assets.

00665 Entrepreneurship, 5 cr

The student is able to:

- define the links between business processes, their development and information systems
- examine a company's operating environment holistically, analysing its major dynamics
- recognise different business models and earnings principles
- understand the significance of a company's core functions and processes as critical success factors and producers of added value for customers
- use tools for directing and managing a company
- create a customer-focused and profitability-oriented business plan
- examine the main processes of knowledge-intensive business operations, and understand the significance of information technology as a part of an organisation's operations and development
- develop business processes and find support for their solutions from IT
- understand the significance of contracts, bids, licences and copyrights in their work
- serve customers and evaluate the effects of service provision to the users of the service, from the point of view of the development of the field and the region
- be aware of the significance of responsible, reliable and high-quality operations for work communities, customer service, and the company's cost structure and image
- produce and utilise new services in information technology operations
- assume overall responsibility a company's operations

Contents of the study unit:

- business strategy
- customer benefits
- business models
- earnings principles
- product and service portfolio
- operating processes
- marketing functions
- sales and logistics
- procurement
- production
- cost calculations

- business support processes

Study unit description:

Students develop the business of an existing or planned business. They assume responsibility for developing the overall business operations with a view to maximising value. The study unit is implemented in the form of workshops and the students' own concrete development work.

234 INFORMATION SYSTEMS, 0 cr

00707 Topical Specialist Question, 5 cr

The student is able to:

Participate in a community of experts as applied R&D professionals and experts.

Study unit description:

Students analyse topical specialist questions. The questions relate to information systems, information security or information networks. Work methods are agreed with the tutor and work is conducted individually or in groups.

Previous studies:

00402 Workplace Development Methods, 5 cr, compulsory

00403 Innovation Methods, 5 cr, compulsory

235 INFORMATION SECURITY, 0 cr

00412 Designing Secure Data Networks, 5 cr

The student is able to:

Student will know the principles of designing secure data networks, independently of manufacturers. Secure data networks will become even more important in future, as networks play increasingly critical roles in businesses and society as a whole, and because attacks and hacking against networks constitute an unfortunate yet daily threat.

Contents of the study unit:

- reach of information networks
- purpose of data protection
- data protection requirements for systems
- threats for information network
- general threats, viruses, trojans, malware, attacks and abuse
- data protection policies and their implementation
- general network data protection design principles
- managing data protection
- most common data protection techniques and their application to different parts of a network
- user and equipment authentication, routers and their access management, switch solutions and data protection, firewalls, VPN solutions, IDS/IPS systems, fighting malware, filtering, data protection for mobile devices
- monitoring and controlling data protection
- gathering and analysing data
- reacting to data protection problems

Study unit description:

Students analyse several examples to learn to design safe information networks consisting of several manufacturers' equipment, to keep security solutions from leaning too heavily on any one manufacturer.

Previous studies:

Good basic knowledge of information networks or information security. Particularly suitable for students taking the Network Design and/or Data Network Security Competence study units.

236 DATA NETWORKS, 0 cr

00408 Network Design, 10 cr

The student is able to:

- plan, develop and create modern multiservice networks, used for producing diverse basic services, such as data transmission in a dynamic routing environment, Voice over IP and TV streaming
- work in a demanding and extensive network environment

Contents of the study unit:

Basic skills in designing multiservice networks

- applying a methodology to network design
- structuring and modularising the network
- designing basic campus-switched networks
- designing an enterprise WAN
- designing IP addressing for the network
- selecting routing protocols for a network
- evaluating security solutions for a network
- designing networks for voice transport
- applying basic network management design concepts
- LbD development project: authentic project using applied research

Study unit description:

The focus in the module is on management of overall architectures in a demanding information network environment. The study unit is designed in cooperation with officials from the sector. The study unit particularly takes into account the future needs of telecom operators and other managers of extensive networks.

Previous studies:

Good knowledge of information networks, for instance having specialised in the field in a previous degree or having completed a relevant certificate in the work-place.

All students' skills are mapped before the study unit begins.

125 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.

Content:

Each curriculum contains a theme consisting of elective studies. In the students' personal study plans, the theme should be made up of the study units chosen by the student from Laurea's language studies, Laurea's shared studies or another degree programme's curriculum. Any studies completed at another higher education institution (university of applied sciences, university, Online University of Applied Sciences, foreign institution) that cannot be recognised for the degree programme but that the student wishes to include in the degree should be classified under this theme. The number of credits from elective studies can be set separately for each degree programme, taking into account recommendations for the field of study. The aim is to have at least 15 cr of elective studies in each degree programme

237 THESIS, 0 cr

00415 Thesis, 30 cr