

LAUREA UNIVERSITY OF APPLIED SCIENCES**Specialisation Studies in Web Design (Laurea Leppävaara, tiko), NXA09KE**

		1. year	2. year
OP	STUDIES	15	15
NX10	SPECIALISATION STUDIES IN KNOWLEDGE MANAGEMENT		
00402	Methods of Workplace Development	5	
00408	Network Design	10	
00412	Designing Secure Data Networks		5
NX1000	Current issues in data networking		5
NX1001	Operational development project		5
		15	15

NX10 SPECIALISATION STUDIES IN KNOWLEDGE MANAGEMENT, 30 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.

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.

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.

NX1000 Current issues in data networking, 5 cr

NX1001 Operational development project, 5 cr