

Third semester info for IT-F18v

The choice

You need to choose between “**Network technology and IT security**” and “**Embedded technology and electronic in systems**” for the main part of your 3. Semester.

Network technology and IT security

Content

This subject element deals with networking technologies and systems, including server technologies, database systems and network security.

Learning objectives

Knowledge and understanding

The student will gain knowledge about:

- the practice and applied theory and methods in the field of server technologies and network security as well as IT security in general
- the practice, centrally applied theory and methods, and will also understand the industry’s use of theory and method in server technologies and network security and IT security in general.

Skills

The student will get the skills to:

- apply to key methodologies and tools in the field of server technologies and network security and IT security in general in connection with design, project management and the implementation of complex network solutions and can apply the skills related to employment in the field of network technology and IT security in connection with the construction, testing, maintenance, administration, operation and monitoring of complex network solutions
- evaluate the real-life problems as well as outline and select solution options within server technologies and network security and IT security in general
- communicate real-life network and IT security issues as well as possible solutions to business partners and users.

Competencies

The student will learn to:

- deal with development-orientated situations, including needs identification, analysis, solutions, design and implementation of safe and sustainable network based solutions

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- participate in academic and interdisciplinary collaboration on the development of an IT security strategy and policies with a professional approach
- in a structured context, acquire new knowledge, skills and competencies in relation to server technologies and network security as well as IT security in general.

ECTS weight

The subject element network technology and IT security is weighted 25 ECTS credits.

Topics

- Virtualization (ESXi - Client/Server & Storage)
- Business Continuity (Backup, UPS, Auditing, RAID))
- Scripting
- Routing
- Communication (VPN, xDSL)
- Security
- Server (Directory Services)

Embedded technology and electronics in systems

Content

This subject element deals with embedded technologies, electronic systems, as well as with the use of embedded and electronic components in complex solutions.

Learning objectives

Knowledge and understanding

The student will gain knowledge about:

- development-based knowledge about the practice and applied theory and methods in the field of production technique and management, electronic technology and design as well as embedded systems
- the practice, centrally applied theory and methods, and will also understand the industry's use of theory and method in electronic technology and design as well as embedded systems.

Skills

The student will get the skills to:

- apply to key methods and tools, including design, development, construction and can test prototypes as well as be able to apply the skills related to employment in the industry, this includes relevant simulation tools
- assess the real-life problems in the field of embedded technology and electronics in systems as well as run and select solutions

IT-Technology

- disseminate real-life issues and possible solutions within embedded technology and electronics in systems to business partners and users.

Competencies

The student will learn to:

- deal with development-orientated situations and how new components interact with existing solutions in order to optimize solutions
- participate in academic and interdisciplinary collaboration on needs identification, analysis, solutions, development, design and implementation of safe and sustainable embedded solutions with a professional approach
- in a structured context, acquire new knowledge, skills and competencies in relation to embedded technology and electronics.

ECTS weight

The subject element embedded technology and electronics in systems is weighted 25 ECTS credits.

Topics

- Embedded Systems
 - System design
 - DIY Development Platform (Solderino)
 - Embedded C/C++
 - Atmel Studio and ICE
- Sensor Technology
 - Signal conditioning
 - Filters active/passive
 - Diagram/Spice simulation
- Power Systems
 - Linear power supply
 - SMPS
 - Battery Management
- Electronic Production
 - PCB Layout
 - EMC
 - Sustainability

The last 5 ECTS will be A course in data processing.

Data Processing

Content: This subject element deals with data modelling, transforming the class diagram to a database model, using the database and how to combine data to more intelligent information including data mining.

IT-Technology

Learning objectives

Knowledge and understanding

The student will gain knowledge about:

- development-based knowledge about the practice and applied theory and methods in the field of data processing in terms of an IoT solution
- the practice, centrally applied theory and methods, and will also understand the industry's use of theory and method in IoT solutions.

Skills

The student will get the skills to:

- apply to key methods and tools, including design, implementation and creation of databases as well as be able to apply the skills related to employment in the use of data including ethical questions and testing of the solutions
- assess the real-life problems in the field of data processing in an IoT solution.
- communicate real-life data processing issues as well as possible solutions to business partners and users.

Competencies

The student will learn to:

- deal with development-orientated situations and how new data processing needs will interact with existing solutions in order to optimize it.
- participate in academic and interdisciplinary collaboration on needs identification, analysis, solutions, development, design and implementation of data processing with a professional approach
- in a structured context, acquire new knowledge, skills and competencies in relation to data processing

ECTS weight

The subject element embedded technology and electronics in systems is weighted 5 ECTS credits.

The Exam will be one written assignment for the data processing course and a project exam for the special direction.

The project will start after Easter.

