



## **ICT Module**

**Winter Term 2009/10**



**Language of instruction:**  
**English**

## ICT Module - Winter Term 2009/10

Language of instruction: English

Subject Code	Subject	Type*	Hrs./week	ECTS points
IS-3-WPF101	Cisco CCNP1	Seminar/ Lecture	2	2
IS-3-ITB201	Security Strategies for Distributed Systems	Lecture	2	2
IS-5-NWT403/4	Network Planning and Management	Lecture/ Lab	2	2.5
IS-5-ARB107	Interdisciplinary Project	Project	3	5
ET-3-GL303/4	Electronics	Lecture/ Lab	3	3.5
ET-3-GL305	Telecommunications	Seminar/ Lecture	2	3
CS-5-COM502/3	Mobile Communications	Lecture/ Lab	3	4
CS-5-FP501	Interdisciplinary Project	Project	2	4
	English <sup>1</sup>			
DSOEK	German Language and Austrian Culture	Exercise Course	4	7
<b>TOTAL</b>				<b>33</b>

<sup>1</sup> see Course Catalogue 2009/10: <http://www.fhstp.ac.at/international/incoming/course-catalogue>

## Course Descriptions

### Cisco CCNP1 (2 ECTS points)

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**Type:** Seminar & Lecture

**Prerequisites:** Cisco CCNA

**Lecturer:** Stefan Angerer



**Assessment:**

CCNP1 exam or oral course exam.

**Content:**

Preparation for the Cisco CCNP component examination 1 (642-901, BSCI)

EIGRP; OSPF; IS-IS; BGP; Multicasting; IPv6

Aim of the course: Understanding Cisco Routing Technologies

Methods: Ex-cathedra teaching, theoretical part, lab exercises, practical part

Literature: Handouts used.

### Security Strategies for Distributed Systems (2 ECTS points)

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**Type:** Lecture

**Prerequisites:** None

**Lecturer:** Wolfgang Haidegger

**Assessment:**

Written final exam.

**Content:**

Middleware and concrete implementations: CORBA, COM+, Java RMI; Application Frameworks: Microsoft-.NET. 2JEE and EJB and their safety concepts; web services and protocols: SOAP, WSDL, HTTP; Grid Computing.

### Network Planning and Network Management (2.5 ECTS points)

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**Type:** Lecture (1 ECTS point) & Lab (1.5 ECTS points)

**Prerequisites:** Basics of TCP/IP

**Lecturer:** Bernhard Fischer

**Assessment:** Written exam and progress reports.

**Content:**

The students are acquainted with the various tasks involved in managing a network, starting with the planning stage. They learn about configuration, accounting and performance management, logging, reporting, security management, user administration and error detection.

The underlying protocols and environments are discussed: SNMPv1/2/3 including security-relevant differences, MIBs, WBEM, WMI, and necessary organisational measures such as baselining and documentation.

In the lab students gain practical experience by mapping an exercise network with a commercial tool (e.g. HP OpenView, Tivoli, CA Unicenter, SNMPc, HP ProCurve Manager) and with an open-software tool (e.g. Nagios, MRTG, NetMRG).

## **Interdisciplinary Project (5 ECTS points)**

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**Type:** Project  
**Prerequisites:** None  
**Lecturer:** Project supervisors

**Assessment:**  
Project work

**Content:**  
The interdisciplinary project encourages students to work independently and prepares them for the tasks they will have to fulfil in the workplace.  
Projects are chosen from the fields of Network Technology, IT Operating Systems and Safety Technologies.

## **Electronics (3.5 ECTS points)**

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**Type:** Lecture (2 ECTS points) & Lab (1.5 ECTS points)  
**Prerequisites:** None  
**Lecturer:** Christian Fabian

**Assessment:**  
Final exam in the lecture, continuous assessment in the lab.

**Content:**  
Principles of Communications Engineering, Metrology, Transmission and Network Technology, Control and Feedback Control Systems.

## **Telecommunications (3 ECTS points)**

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**Type:** Seminar & Lecture  
**Prerequisites:** Electronics and Informatics  
**Lecturer:** Christian Fabian

**Assessment:**  
Continuous assessment and final exam.

**Content:**  
Cabling: Twiste Pair, Coaxial Cable, Fibre Glass  
Transmission Systems (fixed/wireline): Analogue/Digital (PCM; SDH)  
Radio-Relay Systems (especially Digital Radio-Relay Systems)  
Telecommunications and Switching Technologies: Principles of Telecommunications (OB, ZB, etc.), ISDN Processors  
Data Communication: X25] TCP-IP, LAN (Hubs; Switches; Routers), WLAN; WiFi; WiMax; VoIP  
Mobile Radio Systems: Analogue (e.g. Train Radio System; Analogue Trunked Radio), Digital Trunked Radio (TETRA), GSM; UMTS, Flash OFDM; CDMA  
Terrestrial and Satellite Locating: Positioning of Railway Systems, GPS  
Public Address Systems: Acoustics (Electroacoustics!), Indication Systems (TFT, Mosaik, etc.), DVB-T; DVB-H  
Video Surveillance: Analogue and Digital Camera, Transmission Technology and Recording Techniques, Video Detection  
Railway-Specific Telecommunications Systems (e.g. BASA)

## Mobile Communications (4 ECTS points)

**Type:** Lecture (2 ECTS points) & Lab (2 ECTS points)

**Prerequisites:** None

**Lecturer:** Heinz Polsterer

**Assessment:**

Final exam in the lecture, continuous assessment in the lab.

**Content:**

GSM/GPRS/EDGE/UMTS Architecture, WAP, GPRS, Supplementary Services, Intelligent Networks/CAMEL, Bearer Services, Tele Services, Parlay, Mobile Communications Channel, Modulation Process, Multiple-Access System, Duplex System, Link Budget, Distribution models and calculations, Usage of demographic data and land-use data, Frequency and parameter planning, SIM Cards Personalisation, Authentication, Authorisation, Cyphering, Charging, Rating, Clearing, Billing.

## Interdisciplinary Project (4 ECTS points)

**Type:** Project

**Prerequisites:** None

**Lecturer:** Christian Hölzl (and project supervisors)

**Assessment:**

Continuous assessment; project documentation and progress reports.

**Content:**

For their project students choose a task from Communications Technology or Simulation Technology. They learn to work independently in an interdisciplinary context.

## German Language and Austrian Culture (7 ECTS points)

**Type:** Exercise Course

**Prerequisites:** None

**Lecturers:** Doris Simhofer, Helma Spannagl-Schmoll



**Assessment:**

Continuous assessment; written end-of-term exam.

**Content:**

Students train their speaking, writing, reading and listening skills in the German language. Furthermore, they learn about Austrian culture, e.g. history and geography, political system, festivals, customs and traditions, food. The course is offered at two different levels. The students' level of German is ascertained in the first session.

