Mastermodule
inf005 - Software Engineering I

Module label: Software Engineering I
Module code: inf005
Credit points: 6.0 KP
Workload: 180 h

Used in course of study:
- Bachelor's Programme Business Informatics (Bachelor) > Aufbaucurriculum - Pflichtbereich
- Bachelor's Programme Computing Science (Bachelor) > Aufbaumodule
- Bachelor's Programme Mathematics (Bachelor) > Nebenfachmodule
- Dual-Subject Bachelor's Programme Computing Science (Bachelor) > Aufbaumodule (60 KP)
- Master of Education Programme (Vocational and Business Education) Computing Science (Master of Education) > Mastermodule
- Master's Programme Environmental Modelling (Master) > Mastermodule

Contact person:
Module responsibility:
- Andreas Winter
Authorized examiners:
- Andreas Winter
- Die im Modul Lehrenden

Entry requirements:
Skills to be acquired in this module:
The objective of the module is to convey the development and maintenance of large scale software systems. The complete software developing process including requirements collection, software architecture and quality control is observed. The basics of object oriented modeling and software development are enhanced.

Professional competence
The students:
- comprehend the different developmental phases of software (especially requirements engineering, software design, software implementation and quality control)
- name the tasks of each phase
- select appropriate methodical utilities
- select suitable methods and utilities for each project phase
- understand the advantages of the modelling process with UML
- model moderate tasks in UML
- understand and develop solutions for given problems by means of development environments

Methodological competence
The students:
- structure, document and evaluate problems and solutions with the tools of object oriented modelling
- apply methods and techniques of object oriented modelling purposefully

Social competence
The students:
- create, present and discuss solutions with modelling techniques -
- present and solve modelling problems in teams

Self-competence
The students: reflect their problem-solving behaviour with regard to the capabilities of software technology

Module contents:
The module introduces fundamental terms and concepts in software engineering. This includes: - need for software engineering - activities and process-models in software development - object-oriented modelling, meta modelling - Interdependencies between code and models - requirements elicitation - definition of software architectures - application of software patterns - software quality management - software maintenance, evolution and operation Software engineering tools are presented and applied in practical exercises.

Reader's advisory:

Links:
Language of instruction: German
Duration (semesters): 1 Semester
Module frequency: jährlich
<table>
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<tr>
<th>Module capacity</th>
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<tr>
<td>Modullevel / module level</td>
<td>AC (Aufbaucurriculum / Composition)</td>
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<td>Modullevel / module level</td>
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<td>Modulart / typ of module</td>
<td>Pflicht / Mandatory</td>
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<td>Modulart / typ of module</td>
<td>je nach Studiengang Pflicht oder Wahlpflicht</td>
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<tr>
<td>Lehr-/Lernform / Teaching/Learning method</td>
<td>V+Ü</td>
</tr>
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</table>
| Vorkenntnisse / Previous knowledge | - inf030  
- inf031 |
| Examination | Time of examination | Type of examination |
| Final exam of module | At the end of the lecture period or during the lecture period (portfolio) | Written exam or oral exam or portfolio (3 services) |
| Course type | Comment | SWS | Frequency | Workload attendance |
| Lecture | | 3.00 | WiSe | 42 h |
| Tutorial | | 2.00 | WiSe | 28 h |
| Total time of attendance for the module | | | | 70 h |
inf007 - Information Systems I

Module label
Information Systems I

Module code
inf007

Credit points
6.0 KP

Workload
180 h

Used in course of study
- Bachelor's Programme Business Informatics (Bachelor) > Aufbaucurriculum - Pflichtbereich
- Bachelor's Programme Computing Science (Bachelor) > Aufbaumodule
- Bachelor's Programme Economics and Business Administration (Bachelor) > Studienrichtung Wirtschaftsinformatik
- Master of Education Programme (Gymnasium) Computing Science (Master of Education) > Mastermodule
- Master of Education Programme (Vocational and Business Education) Computing Science (Master of Education) > Mastermodule

Contact person
Module responsibility
- Marco Grawunder

Authorized examiners
- Marco Grawunder
- Die im Modul Lehrenden

Entry requirements

Skills to be acquired in this module
This module introduces the core concepts, languages and architectures of databases. In software systems these concepts are important.

Professional competence
The students:
- name the core concepts of the languages and architectures of databases (especially)
- select data models
- integrate structuring concepts of information systems in their designs

Methodological competence
The students:
- design database systems appropriately
- analyse problems from the field of database-supported information systems and solve them appropriately

Social competence
The students:
- enhance their ability to work in a team

Self-competence
The students:
- reflect their problem-solving behaviour with regard to the information processing concepts

Module contents
- Relational data models
- Relational algebra and its implementation in SQL (the standard of databases)
- Database design on different abstractions (conceptual and logical design)
- Normalisation
- Database architectures
- Distributed and active databases
- Object-oriented, object-related and XML-based database systems

Reader's advisory

Links

Language of instruction
German
<table>
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<tr>
<th><strong>Duration (semesters)</strong></th>
<th>1 Semester</th>
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<tr>
<td><strong>Module frequency</strong></td>
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<td>V+Ü</td>
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**Vorkenntnisse / Previous knowledge**

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<th>Type of examination</th>
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<td><strong>Final exam of module</strong></td>
<td>At the end of the lecture period</td>
<td>Hands-on exercises and written or oral exam</td>
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<table>
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<td>Exercises</td>
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<td>WiSe</td>
<td>14 h</td>
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</table>

**Total time of attendance for the module** 56 h
### Module label
Computer Networks

### Module code
inf010

### Credit points
6.0 KP

### Workload
180 h

### Used in course of study
- Bachelor's Programme Business Informatics (Bachelor) > Aufbaucurriculum-Wahlbereich Praktische Informatik
- Bachelor's Programme Computing Science (Bachelor) > Aufbaumodule
- Master of Education Programme (Gymnasium) Computing Science (Master of Education) > Mastermodule
- Master of Education Programme (Vocational and Business Education) Computing Science (Master of Education) > Mastermodule

### Contact person
- Module responsibility
  - Oliver Kramer
- Authorized examiners
  - Oliver Kramer
  - Die im Modul Lehrenden

### Entry requirements

#### Professional competence:
The students:
- Identify the layers of the ISO/OSI model
- Recognise the main concepts and algorithms of each IOS/OSI layer
- Assign technical processes to the layers
- Classify new technologies to the main concepts of the ISO/OSI model
- Compare different methods and approaches of a layer (i.e. TCP and UDP)
- Characterise safety-critical aspects of each layer

#### Methodological competence:
The students
- Administer small networks
- Characterise safety-critical aspects of networks

#### Social competence:
The students work on exercises in small teams

#### Self-competence:
The students recognise their administraiton abilities

### Module contents
Contents of this lecture (cf. suggested reading Tanenbaum and Wetherall)

- Introduction to networks and the internet
- Physical Layer
- Data Link Layer
- MAC Sub-Layer
- Network Layer
- Transport Layer
- Session Layer
- Presentation Layer
- Application Layer
- Technologies (Cable and Co)
- Nyquist Shannon and Transmissions
- CDMA
- Hamming & CRC
- Stop & wait, go back n, selective repeat
- Aloha & CSMA
- Ethernet technologies
- Wifi
- Paket switchen & Dijkstra
- IP Adressing & Header
- TCP
- UDP
- Buckets & TCP-Reno
- DNS
- Flask
### Reader's advisory

- lecture notes

### Links

http://einstein.informatik.uni-oldenburg.de/20902.html

### Language of instruction

German

### Duration (semesters)

1 Semester

### Module frequency

jährlich

### Module capacity

unlimited

### Module level / module level

AM (Aufbaumodul / Composition)

### Modulart / typ of module

je nach Studiengang Pflicht oder Wahlpflicht

### Lehr-/Lernform / Teaching/Learning method

V+Ü

### Vorkenntnisse / Previous knowledge

### Final exam of module

- **Time of examination**: At the end of the lecture period
- **Type of examination**: Written or oral exam

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<th>Workload attendance</th>
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<tr>
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<td>SuSe</td>
<td>42 h</td>
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<tr>
<td>Exercises</td>
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<td>1.00</td>
<td>SuSe</td>
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### Total time of attendance for the module

56 h
inf016 - Internet Technologies

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<td>Module responsibility</td>
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<td></td>
<td>Susanne Boll-Westermann</td>
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<tr>
<td>Authorized examiners</td>
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<td>Die im Modul Lehrenden</td>
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<td>Entry requirements</td>
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<tr>
<td>Skills to be acquired in this module</td>
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<tr>
<td>The graduates of the module know different Internet concepts and technologies. They are able to evaluate the capability of the concepts and techniques to design internet-based applications. The students will apply these concepts and techniques in a project.</td>
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<tr>
<td>Professional competence</td>
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<tr>
<td>The students:</td>
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<tr>
<td>• Know basic concepts and technologies of the Internet and the web</td>
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<tr>
<td>Methodological competence</td>
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<tr>
<td>The students:</td>
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<tr>
<td>• Are able to use techniques in projects</td>
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<tr>
<td>Social competence</td>
<td></td>
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<tr>
<td>The students:</td>
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<tr>
<td>• Implement web-based projects in a team</td>
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<tr>
<td>Self-competence</td>
<td></td>
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<tr>
<td>The students:</td>
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<tr>
<td>• Reflect their own capability to develop web-based applications</td>
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<tr>
<td>Module contents</td>
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<tr>
<td>This module deals with the basic development concepts of internet-based applications. It covers the web languages: HTML, CSS, XML, XML-Schema, XPath, XSTL. It includes the relevant client technologies of web applications (Applets, AJAX, COMET) and server technologies (Forms, Servlets, Java Server Pages, STRUTS, Ruby on Rails). Additional topics are multimedia on the internet (SMIL, SVG, Flash), usability and accessibility.</td>
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<tr>
<td>The practical project of this module consists of the design, implementation and presentation of a comprehensive web application. The topics of the lecture will be applied and deepened in practice. The project is based on the web framework Ruby on Rails.</td>
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<tr>
<td>Reader's advisory</td>
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<tr>
<td>Reserve shelf in the library; extensive list of links in e-learning platform StudIP covering course topics.</td>
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<td><a href="https://www.uni-oldenburg.de/informatik/medieninformatik/lehre/">https://www.uni-oldenburg.de/informatik/medieninformatik/lehre/</a></td>
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<td>Duration (semesters)</td>
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<td>1 Semester</td>
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<td>Module frequency</td>
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<td>jährlich</td>
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<td>Module capacity</td>
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Complements with Software-Systementwurf
- Informationssysteme I
- Informationssysteme II
- Technologien des Wissensmanagement im Internet

<table>
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<tr>
<th>Module level / module level</th>
<th>AS (Akzentsetzung / Accentuation)</th>
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<td>Lehr-/Lernform / Teaching/Learning method</td>
<td>V+P</td>
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| Vorkenntnisse / Previous knowledge | - HTML
- Objektorientierte Programmierung |

**Examination**

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<th>Time of examination</th>
<th>Type of examination</th>
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<tr>
<td>Final exam of module</td>
<td>The practical projects will all be presented on a single project day, which will take place at the end of the lecture period. The oral exam takes place during the last two weeks of the lecture period. If necessary, re-examinations will take place at the end of the term. Find out more about the schedule on the websites of the department and in StudIP.</td>
<td>Project and oral exam or project and written exam</td>
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**Course type**

<table>
<thead>
<tr>
<th>Course type</th>
<th>Comment</th>
<th>SWS</th>
<th>Frequency</th>
<th>Workload attendance</th>
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<td>Lecture</td>
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**Total time of attendance for the module**

|                         | 56 h |
inf018 - Media Processing

<table>
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<td>Credit points</td>
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<td>Workload</td>
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Used in course of study

- Bachelor's Programme Biology (Bachelor) > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"
- Bachelor's Programme Business Administration and Law (Bachelor) > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"
- Bachelor's Programme Business Informatics (Bachelor) > Akzentsetzungsbereich Praktische Informatik und Angewandte Informatik
- Bachelor's Programme Business Informatics (Bachelor) > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"
- Bachelor's Programme Chemistry (Bachelor) > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"
- Bachelor's Programme Computing Science (Bachelor) > Akzentsetzungsbereich - Wahlbereich Informatik
- Bachelor's Programme Computing Science (Bachelor) > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"
- Bachelor's Programme Economics and Business Administration (Bachelor) > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"
- Bachelor's Programme Education (Bachelor) > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"
- Bachelor's Programme Engineering Physics (Bachelor) > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"
- Bachelor's Programme Environmental Science (Bachelor) > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"
- Bachelor's Programme Intercultural Education and Counselling (Bachelor) > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"
- Bachelor's Programme Mathematics (Bachelor) > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"
- Bachelor's Programme Physics (Bachelor) > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"
- Bachelor's Programme Physics, Engineering and Medicine (Bachelor) > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"
- Bachelor's Programme Social Studies (Bachelor) > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"
- Bachelor's Programme Sustainability Economics (Bachelor) > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"
- Dual-Subject Bachelor's Programme Art and Media (Bachelor) > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"
- Dual-Subject Bachelor's Programme Biology (Bachelor) > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"
- Dual-Subject Bachelor's Programme Chemistry (Bachelor) > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"
- Dual-Subject Bachelor's Programme Computing Science (Bachelor) > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"
- Dual-Subject Bachelor's Programme Computing Science (Bachelor) > Praktische Vertiefung (60 KP)
- Dual-Subject Bachelor's Programme Dutch Linguistics and Literary Studies (Bachelor) > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"
- Dual-Subject Bachelor's Programme Economic Education (Bachelor) > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"
- Dual-Subject Bachelor's Programme Economics and Business Administration (Bachelor) > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"
- Dual-Subject Bachelor's Programme Elementary Mathematics (Bachelor) > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"
- Dual-Subject Bachelor's Programme English Studies (Bachelor) > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"
- Dual-Subject Bachelor's Programme Gender Studies (Bachelor) > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"
- Dual-Subject Bachelor's Programme General Education (Bachelor) > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"
- Dual-Subject Bachelor's Programme German Studies (Bachelor) > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"
- Dual-Subject Bachelor's Programme History (Bachelor) > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"
- Dual-Subject Bachelor's Programme Material Culture: Textiles (Bachelor) > PP "Medieninformatik für
Studierende musisch-künstlerischer Fächer

- Dual-Subject Bachelor's Programme Mathematics (Bachelor) > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"
- Dual-Subject Bachelor's Programme Music (Bachelor) > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"
- Dual-Subject Bachelor's Programme Philosophy / Values and Norms (Bachelor) > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"
- Dual-Subject Bachelor's Programme Physics (Bachelor) > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"
- Dual-Subject Bachelor's Programme Politics-Economics (Bachelor) > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"
- Dual-Subject Bachelor's Programme Protestant Theology and Religious Education (Bachelor) > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"
- Dual-Subject Bachelor's Programme Slavic Studies (Bachelor) > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"
- Dual-Subject Bachelor's Programme Social Studies (Bachelor) > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"
- Dual-Subject Bachelor's Programme Technology (Bachelor) > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"
- Dual-Subject Bachelor's Programme Sport Science (Bachelor) > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"

Fach-Bachelor Pädagogisches Handeln in der Migrationsgesellschaft (Bachelor) > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"

Master of Education Programme (Gymnasium) Computing Science (Master of Education) > Mastermodule
- Master of Education Programme (Vocational and Business Education) Computing Science (Master of Education) > Praktische Vertiefung der Informatik

Master's Programme Business Informatics (Master) > Akzentsetzungsmodul der Informatik

Contact person
Module responsibility
- Susanne Boll-Westermann

Authorized examiners
- Susanne Boll-Westermann
- Die im Modul Lehrenden

Entry requirements

Skills to be acquired in this module
Professional competence:
The students:
- name the basic concepts and characteristics of digital media
- name the core concepts of encoding and compressing images, videos and audio files
- characterise the complexity of the analysis, classification and processing of unstructured media, using the examples of image analysis
- apply concepts of encoding, compression and image analysis independently

Module contents
Media processing technologies are presented in the lecture. One focus of the lecture is the encoding of digital images and the compression of an image, image enhancement and image processing. The lecture also deals with encoding and analysis of video and audio. This lecture is accompanied by simple practical tasks.

Reader's advisory
- Reserve shelf in the library; extensive list of links in e-learning platform StudIP covering course topics.

Links
https://www.uni-oldenburg.de/informatik/medieninformatik/lehre/

Language of instruction
German

Duration (semesters)
1 Semester

Module frequency
jährlich

Module capacity
unlimited

Modullevel / module level
AS (Akzentsetzung / Accentuation)

Modularität / typ of module
je nach Studiengang Pflicht oder Wahlpflicht

Lehr-/Lernform / Teaching/Learning method
V+P
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<tr>
<td>Final exam of module</td>
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<td>Course type</td>
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<tr>
<td>Lecture</td>
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<tr>
<td>Project</td>
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</table>

**Total time of attendance for the module**

| 56 h |
inf600 - Business Informatics I

Module label: Business Informatics I
Module code: inf600
Credit points: 6.0 KP
Workload: 180 h

Used in course of study:
- Bachelor's Programme Business Informatics (Bachelor) > Basiscurriculum
- Bachelor's Programme Computing Science (Bachelor) > Akzentsetzungsbereich - Wahlbereich Informatik
- Bachelor's Programme Economics and Business Administration (Bachelor) > Studienrichtung Wirtschaftsinformatik
- Bachelor's Programme Sustainability Economics (Bachelor) > Wahlpflichtbereich
- Master of Education Programme (Gymnasium) Computing Science (Master of Education) > Mastermodule
- Master of Education Programme (Vocational and Business Education) Computing Science (Master of Education) > Mastermodule

Contact person:
- Module responsibility: Axel Hahn
- Authorized examiners: Axel Hahn, Die im Modul Lehrenden

Entry requirements:
- Business informatics regards itself as an interdisciplinary subject. It connects business administration with computer science. Business informatics also includes information technologies as well as technical subjects and research topics. It is more than just an intersection of research fields and offers e.g. special methods to coordinate corporate strategies and information processing. The module introduces the entire scope of the field of business informatics.

Professional competence:
The students:
- Describe the key aspects of business informatics
- Differentiate business informatics as an interdisciplinary subject from other subjects
- Characterise the functionality of essential application systems and management structures, from the strategical to the tactical and operative level.
- Consider and evaluate case studies and layout options for the conception, development, implementation, usage and maintenance of operational sociotechnical applications systems

Methodological competence:
The students:
- Model technical and sociotechnical processes using suitable tools
- Analyse business processes and the demands on their modification and their technical assistance
- Abstract from complex systems in a suitable way to improve the manageability of models

Social competence:
The students:
- Present their solutions in front of other groups
- Discuss their outcomes

Self-competence:
The students:
- Develop solutions for case studies in groups
- Construct an argument based on acquired knowledge

Module contents:
The main topics of business informatics are the presentation and evaluation of configuration options to conceptualise, develop, implement, use and maintain operational sociotechnical application systems. The lecture focuses on information systems of the networked company. Technical, economic, organisational, and psychosocial aspects are considered. The understanding of these relations will be trained by means of case studies taken from Laudon et al. (cf. suggested reading). The lecture gives an overview of the following business informatics fields.
- Information systems, (object of BI)
- Application systems
- E-Commerce and E-Business
- Ethical, social and political aspects
- Business process integration
- Knowledge management
- Support of decision making
- Reorganisation of companies
- Economic evaluation

For a better understanding of each subject, it is recommended to take specific modules later in the course of studies.

Reader's advisory

- Frank, Gronau (2002), Systemanalyse im Unternehmen Oldenbourg (Gebundene Ausgabe - Juni 2002)

Links

Language of instruction | German
Duration (semesters) | 1 Semester
Module frequency | jährlich
Module capacity | unlimited
Module level / module level | AS (Akzentsetzung / Accentuation)
Moduleart / typ of module | je nach Studiengang Pflicht oder Wahlpflicht
Lehr-/Lernform / Teaching/Learning method | V+Ü

Vorkenntnisse / Previous knowledge

Examination | Time of examination | Type of examination
Final exam of module | At the end of the lecture period | Tasks and active partaking during the exercises / written exam or oral exam

Course type | Comment | SWS | Frequency | Workload attendance
Lecture | | 2.00 | WiSe | 28 h
Exercises | | 2.00 | WiSe | 28 h

Total time of attendance for the module | 56 h
**inf604 - Business Intelligence I**

<table>
<thead>
<tr>
<th>Module label</th>
<th>Business Intelligence I</th>
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<tbody>
<tr>
<td>Module code</td>
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<tr>
<td>Credit points</td>
<td>6.0 KP</td>
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<td>Workload</td>
<td>180 h</td>
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</table>
| Used in course of study | • Master of Education Programme (Vocational and Business Education) Computing Science (Master of Education) > Mastermodule  
                      | • Master's Programme Business Informatics (Master) > Akzentsetzungsmodule der Informatik  
                      | • Master's Programme Computing Science (Master) > Angewandte Informatik  
                      | • Master's Programme Engineering of Socio-Technical Systems (Master) > Embedded Brain Computer Interaction  
                      | • Master's Programme Engineering of Socio-Technical Systems (Master) > Human-Computer Interaction  
                      | • Master's Programme Engineering of Socio-Technical Systems (Master) > Systems Engineering |

**Contact person**

| Module responsibility | Jorge Marx Gomez  
                      | Die im Modul Lehrenenden |

| Authorized examiners | Jorge Marx Gomez  
                      | Die im Modul Lehrenenden |

**Entry requirements**

**Skills to be acquired in this module**

**Objective of the module/skills:**
Current module provides basics of business intelligence with focus on enterprises and strong emphasis on data warehousing technologies. Students of the course are provided with knowledge, which reflects current research and development in a data analytic domain.

**Professional competence**

The students:

- name and recognize the role of business intelligence as past of daily business process  
- being able to analyse advantages and disadvantages of different approaches and methods of the data analytics and being able to apply them in simple case studies  
- obtain theoretical knowledge about data collection and modelling processes, including most applicable approaches and best practices

**Methodological competence**

The students:

- being able to execute typical tasks of business intelligence, and also being able to deepen knowledge on different approaches and methods  
- gain a hands on experience and being able to understand advantages and disadvantages of different methods and being able to use obtained knowledge in most efficient ways

**Social competence**

The students:

- build solutions based on case studies given to the group, for example solving the issue of a factless fact table  
- discuss solutions on a technical level  
- present obtained case studies solutions as part of the exercises

**Self-competence**

The students:

- critically review provided data and information

**Module contents**

Data warehouse technology together with business intelligence are increasingly being used by business in order to get better decision support and enrich ongoing rocesses with data-rich decisions. Data warehouse technology enables an integration of data from heterogeneous sources, whether business intelligence builds data rocessing on top of it. For instance, business intelligence allows to build reporting on very large volumes of data (including historical) coming primary from data warehouse.

As part of the current module following contents are taught:
• Definition and scope of business intelligence.
• Procedures and objectives of data warehousing.
• Process of extracting, transforming and loading (ETL) of data.
• Phases of data modelling, data capturing and reporting in conjunction with a plausible case studies/scenarios.
• Prospects for further and evolving topics for business intelligence (e.g. Adaptive Business Intelligence, In-MemoryComputing, etc.)
• Introduction to Data Mining.
• Case studies based practical exercises and assessments in order to impart practical knowledge.

Reader's advisory

• Adamson (2010): The complete reference star schema.
• Marx Gómez, Rautenstrauch, Cissec (2008): Einführung in die Business Intelligence mit SAP NetWeaver 7.0.
• Müller, Lenz (2013): Business Intelligence.

Links
http://www.wi-ol.de

Languages of instruction
German, English

Duration (semesters)
1 Semester

Module frequency
jährlich

Module capacity
unlimited

Module level / module level
AS (Akzentsetzung / Accentuation)

Modulart / typ of module
Wahlpflicht / Elective

Lehr-/Lernform / Teaching/Learning method
V + Ü

Vorkenntnisse / Previous knowledge

<table>
<thead>
<tr>
<th>Examination</th>
<th>Time of examination</th>
<th>Type of examination</th>
</tr>
</thead>
<tbody>
<tr>
<td>Final exam of module</td>
<td>At the end of the lecture period</td>
<td>Written exam max. 120 minutes</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Course type</th>
<th>Comment</th>
<th>SWS</th>
<th>Frequency</th>
<th>Workload attendance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lecture</td>
<td></td>
<td>2.00</td>
<td>WiSe</td>
<td>28 h</td>
</tr>
<tr>
<td>Exercises</td>
<td></td>
<td>2.00</td>
<td>WiSe</td>
<td>28 h</td>
</tr>
</tbody>
</table>

Total time of attendance for the module
56 h
inf608 - eBusiness

Module label: eBusiness
Module code: inf608
Credit points: 6.0 KP
Workload: 180 h

Used in course of study:
- Bachelor's Programme Business Informatics (Bachelor) > Aufbaucurriculum - Pflichtbereich
- Bachelor's Programme Computing Science (Bachelor) > Akzentsetzungsbereich - Wahlbereich Informatik
- Bachelor's Programme Economics and Business Administration (Bachelor) > Studienrichtung Wirtschaftsinformatik
- Master of Education Programme (Gymnasium) Computing Science (Master of Education) > Mastermodule
- Master of Education Programme (Vocational and Business Education) Computing Science (Master of Education) > Mastermodule

Contact person
Module responsibility
Jorge Marx Gomez
Authorized examiners
Jorge Marx Gomez
Die im Modul Lehrenden

Entry requirements
The module provides an introduction to the "Electronic Business" (e-business). The graduates know the fundamental and current technologies, advanced concepts, applications and competitive strategies of the "Electronic-Commerce" (e-commerce).

Skills to be acquired in this module
The knowledge and abilities acquired in this module are directly applicable in study and business. They are deepening the basics from the module „Wirtschaftsinformatik II“. They provide a professional e-business consulting background and the skills to design software products for this area of business in practice.

Professional competence
The students:
- Name and discuss the eBusiness key challenges
- Discuss the chances of the added value and the changes of commercial models by the internet
- Define the concepts of e-business and e-commerce.
- Discuss the change of retail trade and the transactions between companies in e-business
- Name current payment systems and communication technologies
- Discuss the possibilities of the internet in order to simplify the administration and the coordination of internal and external business processes
- Characterise the challenges for the management caused by e-business and e-commerce
- Differentiate the concepts and conceptualities of e-business
- Assess applications with regard to economic points of view
- Practically learn how to handle core technologies of e-business

Methodological competence
The students:
- Assess the core technologies of e-business and e-commerce
- Apply methods in case studies

Social competence
The students:
- Develop case studies on basis of given problems in groups
- Present their solutions

Self-competence
The students:
- Learn about their own limitations while planning and developing e-commerce applications

Module contents
The module provides the following contents:
- The definition of the core e-business concepts and the technical conditions for the implementation
• Introduction of the variations of e-commerce, especially the Business-to-Consumer (B2C) and Business-to-Business (B2B) concepts and the current research in this field
• Discussion on the economic aspects of e-business based on the theory of informational added value
• Technological basics of the web and current development technologies for e-commerce web applications and security mechanisms with focus on online-shops and applications (hands-on exercise topics: HTTP, JSP and SQLInjection, PHP, XML, XML-Security, data modelling, Online-Shop development and Online-Shop administration)

Reader's advisory


Links
http://www.wi-ol.de/

Language of instruction
German

Duration (semesters)
1 Semester

Module frequency
jährlich

Module capacity
unlimited

Modullevel / module level
AS (Akzentsetzung / Accentuation)

Modulart / typ of module
je nach Studiengang Pflicht oder Wahlpflicht

Lehr-/Lernform / Teaching/Learning method
V+Ü

Vorkenntnisse / Previous knowledge

Exam Time of examination Type of examination
Final exam of module At the end of the lecture period Written or oral exam

Course type Comment SWS Frequency Workload attendance
Lecture 2.00 SuSe 28 h
Exercises 2.00 SuSe 28 h

Total time of attendance for the module 56 h
inf653 - ERP Technologies

Module label: ERP Technologies
Module code: inf653
Credit points: 6.0 KP
Workload: 180 h

Used in course of study:
- Master of Education Programme (Vocational and Business Education) Computing Science (Master of Education) > Mastermodule
- Master's Programme Business Informatics (Master) > Akzentsetzungsmodul der Informatik
- Master's Programme Computing Science (Master) > Angewandte Informatik

Contact person:
Module responsibility:
- Jorge Marx Gomez
- Die im Modul Lehrenden

Authorized examiners:
- Jorge Marx Gomez
- Die im Modul Lehrenden

Entry requirements:

Skills to be acquired in this module:
Learning objectives:
- Generation of understandings into the working approaches and tasks of ERP systems
- Examining components of ERP systems
- Generating knowledge about important aspects of the operation processes of ERP systems, such as data storage and processing, user management, and system maintenance.

Professional competence:
The students:
- describe ERP systems in compliance with functions and technologies
- identify state-of-the-art and future architectures of ERP systems
- discuss the usage of core technologies (also in practical case studies, for example with SAP NetWeaver)

Methodological competence:
The students:
- categorize fundamental technologies in combination with other enterprise-wide information systems
- apply the presented methods in practical contexts

Social Competence:
The students:
- construct solutions to given problems in groups
- present solutions to computing science problems before groups

Self-competence:
The students:
- recognize the limits of their capacity in implementing and customizing of business application systems

Module contents:
The module provides the following content:
- Overview of the components of ERP systems and their functionality and administration
- In-depth analysis of ERP system architecture under consideration of surface structures and user management in ERP systems, with focus on of data storage, particularly the used data models and database structures, backup and recovery strategies
- Deployment of ERP applications in form of application service providing, including the technical characteristics of this business model, especially Special Administration, delimitation and monitoring tasks for systems, which at the same time be provided several customers

Lecture will be accompanied by SAP case studies.
### Links
http://www.wi-ol.de

### Language of instruction
German

### Duration (semesters)
1 Semester

### Module frequency
jährlich

### Module capacity
unlimited

### Module level / module level
AS (Akzentsetzung / Accentuation)

### Modulart / typ of module
je nach Studiengang Pflicht oder Wahlpflicht

### Lehr-/Lernform / Teaching/Learning method
V+Ü

### Vorkenntnisse / Previous knowledge

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<th>Time of examination</th>
<th>Type of examination</th>
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<tbody>
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<td>End of lecture period</td>
<td>Practical Excercise and Portfolio</td>
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### Course type

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<th>SWS</th>
<th>Frequency</th>
<th>Workload attendance</th>
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<td>2.00</td>
<td>WiSe</td>
<td>28 h</td>
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<td>Exercises</td>
<td></td>
<td>2.00</td>
<td>WiSe</td>
<td>28 h</td>
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</table>

### Total time of attendance for the module
56 h
inf654 - Mobile Commerce

Module label: Mobile Commerce
Module code: inf654
Credit points: 6.0 KP
Workload: 180 h

Used in course of study:
- Master of Education Programme (Vocational and Business Education) Computing Science (Master of Education) > Mastermodule
- Master's Programme Business Informatics (Master) > Akzentsetzungsmodule der Informatik
- Master's Programme Computing Science (Master) > Angewandte Informatik

Contact person:
Module responsibility:
- Jorge Marx Gomez
- Die im Modul Lehrenden

Authorized examiners:
- Jorge Marx Gomez
- Die im Modul Lehrenden

Entry requirements:
Skills to be acquired in this module:

**Professional competence**
The students:
- define and encompass MC
- explain the development stages of MC
- are aware of the current developments within MC and are able to classify them
- get to know technical essentials, functionalities and standards of wireless ICT
- assess the fields of application and limitations of wireless ICT
- examine the relevant mobile devices and their respective operating systems, know their characteristics and evaluate their fields of application
- examine market participants, assess business models, optimize business processes
- gain insight into specifics via examples and exercises

**Methodological competence**
The students:
- get to know security aspects and specifics of mobile application design
- prototypically develop an Android application
- prepare and give presentations
- develop a concept of a business model for an Android application

**Social competence**
The students:
- work on their project in groups of three

**Self-competence**
The students:
- reflect their own group-dynamic activities in respect of a mutual goal (successfully finish their project)

Module contents:
See above

Reader's advisory:
- Also all materials provided within the lecture

Links:
http://vlba.wi-ol.de

Language of instruction: German
Duration (semesters): 1 Semester
Module frequency: jährlich
Module capacity: unlimited
<table>
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<td>je nach Studiengang Pflicht oder Wahlpflicht</td>
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<td>V+Ü</td>
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<td>2.00</td>
<td>WiSe</td>
<td>28 h</td>
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| Total time of attendance for the module     | 56 h                |
inf701 - Computer Science Education II

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<tr>
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<tr>
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<td>Workload</td>
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**Used in course of study**
- Master of Education Programme (Gymnasium) Computing Science (Master of Education) > Mastermodule
- Master of Education Programme (Hauptschule and Realschule) Computing Science (Master of Education) > Mastermodule
- Master of Education Programme (Vocational and Business Education) Computing Science (Master of Education) > Mastermodule

**Contact person**
- Module responsibility
  - Ira Diethelm
  - Die im Modul Lehrenden
- Authorized examiners
  - Ira Diethelm
  - Die im Modul Lehrenden

**Entry requirements**

**Skills to be acquired in this module**

**Professional competence**
The students:
- (re-)construct the knowledge of computer science by the method of didactical reduction
- differentiate the development of computer science and evaluate this development with current trends for class
- select computer science education approaches for lesson planning, organisation and implementation

**Methodological competence**
The students:
- (re-)construct core concepts of lesson planning for computer science education requirements

**Social competence**
The students:
- present self-developed lesson plans and lesson materials
- discuss lesson plans regarding computer science education concepts
- accept opinions and criticism
- provide constructive feedback

**Self-competence**
The students:
- adapt computer science education concepts for lesson planning
- reflect on their self-perception with regard to the conception of computer science education

**Module contents**
The lecture will focus on the requirements and challenges of computer science education in grammar school (German: Gymnasium). Main focus:
- Didactical (re-)construction of computer science knowledge, especially its didactical reduction
- Didactical categorisation of computer science and the development, importance and evaluation of computer science in school
- Scheduling, organisation and implementation of computer science in class

**Reader's advisory**
- Further literature will be announced in the lecture.

**Links**
- http://elearning.uni-oldenburg.de
<table>
<thead>
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<th>Language of instruction</th>
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<td>je nach Studiengang Pflicht oder Wahlpflicht</td>
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<td>Lehr-/Lernform / Teaching/Learning method</td>
<td>V+Ü</td>
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<tr>
<td>Vorkenntnisse / Previous knowledge</td>
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<td>Examination</td>
<td>Time of examination</td>
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<td>Comment</td>
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**inf702 - Computer Science Education II**

**Module label**
Computer Science Education II

**Module code**
inf702

**Credit points**
9.0 KP

**Workload**
270 h

**Used in course of study**
- Master of Education Programme (Vocational and Business Education) Computing Science (Master of Education) > Mastermodule

**Contact person**

- Module responsibility
  - Ira Diethelm
- Authorized examiners
  - Ira Diethelm

**Entry requirements**

**Skills to be acquired in this module**
Die Studierenden sollen sich mit vertiefenden Fragen der Didaktik der Informatik selbständig und fundiert auseinandersetzen können. Sie sollen die Grundlagen kennen und anwenden können um Informatikunterricht gezielt zu beobachten, zu analysieren, vorzubereiten und durchführen zu können.

**Module contents**

**Reader's advisory**

**Links**

**Language of instruction**
German

**Duration (semesters)**
1 Semester

**Module frequency**
jährlich

**Module capacity**
unlimited

**Reference text**
Das Modul besteht aus drei Veranstaltungen:
Einem Seminar, in dem aktuelle Fragen der Didaktik der Informatik behandelt werden und deren Bedeutung für den Informatikunterricht in der (Berufs-) Schule reflektiert wird; einem Seminar, in dem unterrichtspraktische Aspekte thematisiert werden und einem Unterrichtspraktikum an einer Berufsbildenden Schule.

**Modullevel / module level**
BC (Basiscurriculum / Base curriculum)

**Modulart / typ of module**
je nach Studiengang Pflicht oder Wahlpflicht

**Lehr-/Lernform / Teaching/Learning method**
S+PR

**Vorkenntnisse / Previous knowledge**

**Examination**

<table>
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**Total time of attendance for the module**
84 h
inf708 - Practicals in Computer Science (Vocational Schools)

<table>
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<tr>
<td>Workload</td>
<td>180 h</td>
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<tr>
<td>Used in course of study</td>
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</tr>
<tr>
<td>Contact person</td>
<td></td>
</tr>
<tr>
<td>Skills to be acquired in this module</td>
<td>Ziele des Moduls sind die Erweiterung und Vertiefung informatorischer Grundkonzepte in praktischen Kontexten.</td>
</tr>
<tr>
<td>Fachkompetenzen</td>
<td>Die Studierenden:</td>
</tr>
<tr>
<td></td>
<td>• analysieren und/oder implementieren Informatiksysteme bzw. Komponenten dieser in praktischen Kontexten</td>
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<tr>
<td></td>
<td>• wenden vorhandene Grundkenntnisse auf Problemstellungen der Informatik an</td>
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<tr>
<td></td>
<td>• konzipieren, realisieren, dokumentieren und präsentieren ein IT-Projekt</td>
</tr>
<tr>
<td>Methodenkompetenzen</td>
<td>Die Studierenden:</td>
</tr>
<tr>
<td></td>
<td>• benennen Techniken des wissenschaftlichen Arbeiten</td>
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<tr>
<td></td>
<td>• verfassen wissenschaftliche Texte und Präsentationen</td>
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<td></td>
<td>• strukturieren komplexe Problemstellungen</td>
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<td>• dokumentieren komplexe Problemstellungen und deren Lösungen geeignet</td>
</tr>
<tr>
<td>Sozialkompetenzen</td>
<td>Die Studierenden:</td>
</tr>
<tr>
<td></td>
<td>• entwickeln Lösungen von komplexen Problemstellungen in Gruppen</td>
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<tr>
<td></td>
<td>• bereiten Themen zielgerichtet auf und präsentieren diese in Gruppen</td>
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<tr>
<td></td>
<td>• definieren Arbeitsschnittstellen und übernehmen Verantwortung für diese</td>
</tr>
<tr>
<td>Selbstkompetenzen</td>
<td>Die Studierenden:</td>
</tr>
<tr>
<td></td>
<td>• charakterisieren und identifizieren Aufgaben und bearbeiten diese verbindlich</td>
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<tr>
<td></td>
<td>• erkennen ihre Fähigkeiten und nutzen diese im Problemlöseprozess</td>
</tr>
</tbody>
</table>

Module contents
Das Modul Praktische Vertiefung der Informatik besteht aus einem Praktikum (6 KP) und einem Proseminar (3 KP) und einem Seminar (3 KP) der Informatik.

Reader's advisory
wie in den Handbüchern der jeweiligen Veranstaltungen beschrieben

Links

Languages of instruction

Duration (semesters) 1 Semester
Module frequency halbjährlich
Module capacity unlimited
Modullevel / module level BC (Basiscurriculum / Base curriculum)
Modulart / typ of module je nach Studiengang Pflicht oder Wahlpflicht
Lehr-/Lernform / Teaching/Learning method 1 PR oder 2 SE

Vorkenntnisse / Previous knowledge

Examination Time of examination Type of examination
Final exam of module PF
Course type Seminar oder Praktikum
(2 Seminare oder 1 Praktikum)
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**inf712 - Aktuelle Themen aus dem Gebiet 'Didaktik der Informatik' I**

<table>
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<tr>
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<tr>
<td>Credit points</td>
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<td>Master of Education Programme (Vocational and Business Education) Computing Science (Master of Education) &gt; Mastermodule</td>
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<tr>
<td>Contact person</td>
<td>Ira Diethelm, Die im Modul Lehrenden</td>
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</table>

**Entry requirements**

**Skills to be acquired in this module**

**Professional competences**

The students:

- define and contrast a computer science part, in which they are specialised, in detail or evaluate computer science in general
- recognise and evaluate applied techniques and methods of their subject and are aware of their limits
- identify, structure and solve problems/tasks, also in new or developing subject areas
- apply state of the art and innovative methods to solve problems, if necessary from other disciplines
- are aware of the current limits and contribute to the development of computer science research and technology
- discuss and evaluate recent computer science developments

**Methodological competences**

The students:

- examine tasks with technical and research literature, write an academic article and present their solutions academically
- evaluate problems/tasks, including new or developing subject areas of their discipline and apply computer science methods for solutions and research
- schedule time processes and resources

**Social competences**

The students:

- communicate with users and experts convincingly

**Self-competences**

The students:

- pursue the overall and special computer science development critically
- develop and reflect self-developed hypotheses to theories independently

<table>
<thead>
<tr>
<th>Module contents</th>
<th>See assigned course description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reader's advisory</td>
<td>As announced in course</td>
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**Links**

**Language of instruction** German

**Duration (semesters)** 1 Semester

**Module frequency** unregelmäßig

**Module capacity** unlimited

**Modullevel / module level** AS (Akzentsetzung / Accentuation)

**Modulart / typ of module** je nach Studiengang Pflicht oder Wahlpflicht

**Lehr-/Lernform / Teaching/Learning** S oder V
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</table>
Abschlussmodul

mam - Master Thesis and Colloquium

Module label: Master Thesis and Colloquium
Module code: mam
Credit points: 24.0 KP
Workload: 720 h

Used in course of study:
- Master of Education Programme (Vocational and Business Education) Computing Science (Master of Education) > Abschlussmodul

Contact person:
- Module responsibility: Ira Diethelm
- Authorized examiners: Ira Diethelm

Entry requirements:

Module contents:
Entsprechendes Thema aus der Informatik

Reader's advisory:
Wird entsprechend des konkreten Themas spezifiziert

Links:
- Language of instruction: German
- Duration (semesters): 1 Semester
- Module frequency: halbjährlich
- Module capacity: unlimited
- Module level / module level: Abschlussmodul (Abschlussmodul)
- Modulart / typ of module: Pflicht
- Lehr-/Lernform / Teaching/Learning method: S

Vorkenntnisse / Previous knowledge:

Examination:
- Time of examination
- Type of examination:
  - Final exam of module: Seminar
  - Type of examination: G

Course type:
- Seminar

SWS:
- 2.00

Frequency:
- SuSe and WiSe

Workload attendance:
- 28 h
Praktische Vertiefung der Informatik

inf009 - Database Practical

<table>
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<tr>
<td>Module code</td>
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<td>Credit points</td>
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<td>Workload</td>
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**Used in course of study**
- Bachelor's Programme Business Informatics (Bachelor) > Akzentsetzungsbereich Praktische Informatik und Angewandte Informatik
- Bachelor's Programme Computing Science (Bachelor) > Akzentsetzungsbereich - Wahlbereich Informatik
- Dual-Subject Bachelor's Programme Computing Science (Bachelor) > Praktische Vertiefung (60 KP)
- Master of Education Programme (Vocational and Business Education) Computing Science (Master of Education) > Praktische Vertiefung der Informatik

**Contact person**
- Module responsibility
  - Marco Grawunder
- Authorized examiners
  - Marco Grawunder
  - Die im Modul Lehrenden

**Entry requirements**

**Skills to be acquired in this module**
The objective of this module is to gather practical experience on databases and information systems. The students get an overview of the technical realisation, implementation and optimisation of a professional database management system.

**Professional competence**
The students:
- Realise, implement and program data base systems
- Program and implement database-oriented system routines
- Implement optimisation goals in the modelling phase
- Administer professional database systems (installation, maintenance and adjustment)
- Recognise database systems' performance problems and are able to fix them with according methods
- Organise and control processes of database systems

**Social competence**
The students:
- Solve database system problems in a team

**Self-competence**
The students:
- Acknowledge the limits of their ability to cope with pressure during the implementation and are aware of failures
- Reflect their self-perception

**Module contents**
The module “Practical Course Databases” is a related practical course of the module “Information Systems I”. The objectives of this module are special technical concepts of a database system and practical solutions in database programming and optimisation.

Contents of this module are:
- System-oriented database management programming,
- Implementation of catalogue systems,
- Optimisation strategies based on parallelisation and partitioning requirements

**Reader's advisory**
Held Andrea (2005), Oracle 10g Hochverfügbarkeit Addison-Wesley.
Held Andrea (2015), Oracle 12c New Features Addison Wesley.
<table>
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inf014 - Operating Systems Practical

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<td>* Bachelor's Programme Computing Science (Bachelor) &gt; Akzentsetzungsbereich - Wahlbereich Informatik</td>
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<td></td>
<td>* Oliver Theel</td>
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<td>* Die im Modul Lehrenden</td>
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<tr>
<td>Entry requirements</td>
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<tr>
<td>Skills to be acquired in this module</td>
<td>The aim of this module is to get practical experience in the field of analysis, design, and implementation methods of components of operating systems and their interactions.</td>
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</tbody>
</table>

**Professional competence**

The students:

- Familiarise with complex software systems
- Implement hardware-related components of operating systems
- Describe parallel system operation executions
- Understand the basic concepts of the programming language C++
- Identify software errors systematically, especially regarding parallel software
- Work in teams
- Use UNIX standard software to solve problems
- Recognise the advantage of working with virtual machines

**Methodological competence**

The students:

- Are aware of the challenges in handling operating systems
- Transfer operating system concepts to a practical context
- Analyse different solutions to a problem wrt. their properties
- Select the most suitable solution

**Social competence**

The students:

- Solve problems in small teams
- Present their solutions to all teams
- Discuss their different solutions within their own team and among all teams

**Self-competence**

The students:

- Accept criticism
- Organise the workflows within their teams
- Question their potential solutions in the light of criticism received
- Identify own shortcomings in their initial ability to successfully transfer theory to praxis

**Module contents**

The contents of this module are:

- Analysis of a rudimentary operating system
- Design and implementation of a process management subsystem
- Design and implementation of process synchronisation mechanisms
- Design and implementation of a virtual memory management subsystem
Design and implementation of a file subsystem or dialog subsystem

Reader's advisory

Links

Language of instruction
German

Duration (semesters)
1 Semester

Module frequency
jährlich

Module capacity
unlimited

Reference text
Associated with the modules:
- Betriebssysteme I
- Betriebssysteme II
- Verteilte Systeme

Module level / module level
AS (Akzentsetzung / Accentuation)

Modulart / typ of module
je nach Studiengang Pflicht oder Wahlpflicht

Lehr-/Lernform / Teaching/Learning method
P

Vorkenntnisse / Previous knowledge
- Betriebssysteme I
- Betriebssysteme II
- Programmiersprachen: C, Assembler

Examination

Time of examination
At the end of the semester

Type of examination
Active participation / work report and oral exam

Course type
Practical

SWS
4.00

Frequency
WiSe

Workload attendance
56 h
inf018 - Media Processing

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**Used in course of study**

- Bachelor's Programme Biology (Bachelor) > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"
- Bachelor's Programme Business Administration and Law (Bachelor) > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"
- Bachelor's Programme Business Informatics (Bachelor) > Akzentsetzungsbereich Praktische Informatik und Angewandte Informatik
- Bachelor's Programme Business Informatics (Bachelor) > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"
- Bachelor's Programme Chemistry (Bachelor) > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer" more...
- Bachelor's Programme Comparative and European Law (Bachelor) > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"
- Bachelor's Programme Computing Science (Bachelor) > Akzentsetzungsbereich - Wahlbereich Informatik
- Bachelor's Programme Computing Science (Bachelor) > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"
- Bachelor's Programme Economics and Business Administration (Bachelor) > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"
- Bachelor's Programme Education (Bachelor) > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"
- Bachelor's Programme Engineering Physics (Bachelor) > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"
- Bachelor's Programme Environmental Science (Bachelor) > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"
- Bachelor's Programme Intercultural Education and Counselling (Bachelor) > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"
- Bachelor's Programme Mathematics (Bachelor) > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"
- Bachelor's Programme Physics (Bachelor) > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"
- Bachelor's Programme Physics, Engineering and Medicine (Bachelor) > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"
- Bachelor's Programme Social Studies (Bachelor) > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"
- Bachelor's Programme Sustainability Economics (Bachelor) > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"
- Dual-Subject Bachelor's Programme Art and Media (Bachelor) > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"
- Dual-Subject Bachelor's Programme Biology (Bachelor) > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"
- Dual-Subject Bachelor's Programme Chemistry (Bachelor) > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"
- Dual-Subject Bachelor's Programme Computing Science (Bachelor) > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"
- Dual-Subject Bachelor's Programme Computing Science (Bachelor) > Praktische Vertiefung (60 KP)
- Dual-Subject Bachelor's Programme Dutch Linguistics and Literary Studies (Bachelor) > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"
- Dual-Subject Bachelor's Programme Economic Education (Bachelor) > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"
- Dual-Subject Bachelor's Programme Economics and Business Administration (Bachelor) > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"
- Dual-Subject Bachelor's Programme Elementary Mathematics (Bachelor) > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"
- Dual-Subject Bachelor's Programme English Studies (Bachelor) > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"
- Dual-Subject Bachelor's Programme Gender Studies (Bachelor) > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"
- Dual-Subject Bachelor's Programme German Studies (Bachelor) > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"
- Dual-Subject Bachelor's Programme History (Bachelor) > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"
- Dual-Subject Bachelor's Programme Material Culture: Textiles (Bachelor) > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"
Citizens of musically artistic fields

- Dual-Subject Bachelor's Programme Mathematics (Bachelor) > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"
- Dual-Subject Bachelor's Programme Music (Bachelor) > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"
- Dual-Subject Bachelor's Programme Philosophy / Values and Norms (Bachelor) > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"
- Dual-Subject Bachelor's Programme Physics (Bachelor) > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"
- Dual-Subject Bachelor's Programme Politics-Economics (Bachelor) > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"
- Dual-Subject Bachelor's Programme Protestant Theology and Religious Education (Bachelor) > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"
- Dual-Subject Bachelor's Programme Slavic Studies (Bachelor) > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"
- Dual-Subject Bachelor's Programme Social Studies (Bachelor) > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"
- Dual-Subject Bachelor's Programme Special Needs Education (Bachelor) > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"
- Dual-Subject Bachelor's Programme Sport Science (Bachelor) > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"
- Dual-Subject Bachelor's Programme Technology (Bachelor) > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"

Master of Education Programme (Gymnasium) Computing Science (Master of Education) > Mastermodule

Master of Education Programme (Vocational and Business Education) Computing Science (Master of Education) > Praktische Vertiefung der Informatik

Master's Programme Business Informatics (Master) > Akzentsetzungsmodul der Informatik

Contact person
Module responsibility
- Susanne Boll-Westermann

Authorized examiners
- Susanne Boll-Westermann
- Die im Modul Lehrenden

Entry requirements

Skills to be acquired in this module
Professional competence:
The students:
- name the basic concepts and characteristics of digital media
- name the core concepts of encoding and compressing images, videos and audio files
- characterise the complexity of the analysis, classification and processing of unstructured media, using the examples of image analysis
- apply concepts of encoding, compression and image analysis independently

Module contents
Media processing technologies are presented in the lecture. One focus of the lecture is the encoding of digital images and the compression of an image, image enhancement and image processing. The lecture also deals with encoding and analysis of video and audio. This lecture is accompanied by simple practical tasks.

Reader's advisory
- Reserve shelf in the library; extensive list of links in e-learning platform StudIP covering course topics.

Links
https://www.uni-oldenburg.de/informatik/medieninformatik/lehre/

Language of instruction
German

Duration (semesters)
1 Semester

Module frequency
jährlich

Module capacity
unlimited

Module level / module level
AS (Akzentsetzung / Accentuation)

Modular / typ of module
je nach Studiengang Pflicht oder Wahlpflicht

Lehr-/Lernform / Teaching/Learning method
V+P
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<td>At the end of the lecture period</td>
<td>Project and oral exam</td>
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<td>Project</td>
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<td>2.00</td>
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<td>28 h</td>
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**Total time of attendance for the module**: 56 h
inf021 - Advanced Java Technology Practical

Module code: inf021
Credit points: 6.0 KP
Workload: 180 h

Used in course of study:
- Bachelor's Programme Business Informatics (Bachelor) > Akzentsetzungsbereich Praktische Informatik und Angewandte Informatik
- Bachelor's Programme Computing Science (Bachelor) > Akzentsetzungsbereich - Wahlbereich Informatik
- Dual-Subject Bachelor's Programme Computing Science (Bachelor) > Praktische Vertiefung (60 KP)
- Master of Education Programme (Vocational and Business Education) Computing Science (Master of Education) > Praktische Vertiefung der Informatik

Contact person:
- Module responsibility: Dietrich Boles
- Authorized examiners: Dietrich Boles, Die im Modul Lehrenden

Entry requirements:

Skills to be acquired in this module:
The objective of this practical course is to introduce advanced concepts and technologies of the Java Standard Edition. The students will be able to use the technologies to implement large-scale applications.

Professional competence:
The students:
- Name the essential packages of the JDK class library
- Structure large-scale programs properly and implement them extensively
- Set up Java class libraries
- Look up required classes in the JDK-Library and solve problems with these classes
- Structure their programs properly
- Understand and interpret large-scale programs
- Evaluate the quality of large-scale programs related to their maintainability, reuseability and expandability

Methodological competence:
The students:
- Search for solutions on the internet

Social competence:
The students:
- Discuss own and someone else's solutions

Self-competence:
The students:
- Reflect their problem-solving behaviour and take up new solutions, e.g. from the internet

Module contents:
A selection of the following subjects is presented during the practical course:
- GUI (AWT, Swing, JavaFX)
- Java-Basics and Collection-API
- Graphics and multimedia
- Events
- Model-View-Control (MVC)
- Threads
- Internationalisation, localization
- Reflection
- IO, Files
- Tools (compiler, classloader, printer, ...)
- Storage technologies (XML and serialisation)
- Distributed programming (sockets and RMI)
• Databases (JDBC)
• Compression
• Security concepts

The practical course is based on a large-scale project. This project is developed step-by-step relating to the subjects of the course.

**Reader's advisory**

• Christian Ullenboom: Java ist auch eine Insel, Rheinwerk Computing
• Christian Ullenboom: Java SE 8 Standard-Bibliothek, Rheinwerk Computing

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inf202 - Computer Engineering Practical

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**Used in course of study**

- Bachelor's Programme Biology (Bachelor) > Fachnahe Angebote Informatik
- Bachelor's Programme Business Administration and Law (Bachelor) > Fachnahe Angebote Informatik
- Bachelor's Programme Business Informatics (Bachelor) > Fachnahe Angebote Informatik
- Bachelor's Programme Chemistry (Bachelor) > Fachnahe Angebote Informatik
- Bachelor's Programme Comparative and European Law (Bachelor) > Fachnahe Angebote Informatik
- Bachelor's Programme Computing Science (Bachelor) > Fachnahe Angebote Informatik
- Bachelor's Programme Economics and Business Administration (Bachelor) > Fachnahe Angebote Informatik
- Bachelor's Programme Engineering Physics (Bachelor) > Fachnahe Angebote Informatik
- Bachelor's Programme Environmental Science (Bachelor) > Fachnahe Angebote Informatik
- Bachelor's Programme Intercultural Education and Counseling (Bachelor) > Fachnahe Angebote Informatik
- Bachelor's Programme Mathematics (Bachelor) > Fachnahe Angebote Informatik
- Bachelor's Programme Physics (Bachelor) > Fachnahe Angebote Informatik
- Bachelor's Programme Physics, Engineering and Medicine (Bachelor) > Fachnahe Angebote Informatik
- Bachelor's Programme Social Studies (Bachelor) > Fachnahe Angebote Informatik
- Bachelor's Programme Sustainability Economics (Bachelor) > Fachnahe Angebote Informatik
- Dual-Subject Bachelor's Programme Art and Media (Bachelor) > Fachnahe Angebote Informatik
- Dual-Subject Bachelor's Programme Biology (Bachelor) > Fachnahe Angebote Informatik
- Dual-Subject Bachelor's Programme Chemistry (Bachelor) > Fachnahe Angebote Informatik
- Dual-Subject Bachelor's Programme Computing Science (Bachelor) > Fachnahe Angebote Informatik
- Dual-Subject Bachelor's Programme Computing Science (Bachelor) > Praktische Vertiefung (60 KP)
- Dual-Subject Bachelor's Programme Dutch Linguistics and Literary Studies (Bachelor) > Fachnahe Angebote Informatik
- Dual-Subject Bachelor's Programme Economic Education (Bachelor) > Fachnahe Angebote Informatik
- Dual-Subject Bachelor's Programme Economics and Business Administration (Bachelor) > Fachnahe Angebote Informatik
- Dual-Subject Bachelor's Programme Elementary Mathematics (Bachelor) > Fachnahe Angebote Informatik
- Dual-Subject Bachelor's Programme English Studies (Bachelor) > Fachnahe Angebote Informatik
- Dual-Subject Bachelor's Programme Gender Studies (Bachelor) > Fachnahe Angebote Informatik
- Dual-Subject Bachelor's Programme German Studies (Bachelor) > Fachnahe Angebote Informatik
- Dual-Subject Bachelor's Programme History (Bachelor) > Fachnahe Angebote Informatik
- Dual-Subject Bachelor's Programme Material Culture: Textiles (Bachelor) > Fachnahe Angebote Informatik
- Dual-Subject Bachelor's Programme Mathematics (Bachelor) > Fachnahe Angebote Informatik
- Dual-Subject Bachelor's Programme Music (Bachelor) > Fachnahe Angebote Informatik
- Dual-Subject Bachelor's Programme Philosophy / Values and Norms (Bachelor) > Fachnahe Angebote Informatik
- Dual-Subject Bachelor's Programme Politics-Economics (Bachelor) > Fachnahe Angebote Informatik
- Dual-Subject Bachelor's Programme Protestant Theology and Religious Education (Bachelor) > Fachnahe Angebote Informatik
- Dual-Subject Bachelor's Programme Slavic Studies (Bachelor) > Fachnahe Angebote Informatik
- Dual-Subject Bachelor's Programme Social Studies (Bachelor) > Fachnahe Angebote Informatik
- Dual-Subject Bachelor's Programme Special Needs Education (Bachelor) > Fachnahe Angebote Informatik
- Dual-Subject Bachelor's Programme Sport Science (Bachelor) > Fachnahe Angebote Informatik
- Dual-Subject Bachelor's Programme Technology (Bachelor) > Fachnahe Angebote Informatik
- Fach-Bachelor Pädagogisches Handeln in der Migrationsgesellschaft (Bachelor) > Fachnahe Angebote Informatik
- Master of Education Programme (Gymnasium) Computing Science (Master of Education) > Mastermodule
- Master of Education Programme (Vocational and Business Education) Computing Science (Master of Education) > Praktische Vertiefung der Informatik

**Contact person**

Module responsibility

- Alfred Mikschl
- Die im Modul Lehrenden

Authorized examiners
Entry requirements
Empfehlung: int200 „Grundlagen der Technischen Informatik

Skills to be acquired in this module
Diese Veranstaltung versetzt die Studierenden in die Lage, informationstechnische Systeme zu analysieren, einzelne Komponenten von Rechnern zu verstehen, sie zu entwerfen und zu optimieren sowie qualifiziert über domänspezifischen Hardwareentwurf zu diskutieren.

Fachkompetenz:
Die Studierenden
- beschreiben einzelne Komponenten von Rechnern
- entwerfen und optimieren einzelne Komponenten von Rechnern
- entwerfen und optimieren Automaten
- spezifizieren und implementieren autonome Systeme

Methodenkompetenz
Die Studierenden
- synthetisieren Rechnerarchitekturen
- können Methoden des Hardwareentwurfs auf verschiedene Systeme transferieren

Sozialkompetenz
Die Studierenden
- diskutieren qualifiziert über Hardware

Selbstkompetenz
Die Studierenden
- sind dazu in der Lage, ihren Kenntnisstand klar gegen Fachkräfte verwandter Disziplinen abzugrenzen

Module contents
Dieses Modul ist der praktische Teil der Veranstaltung Einführung in die Technische Informatik

Reader's advisory
Skript zur Veranstaltung, Patterson, D.A., Hennesy, J.L.: Computer Organisation and Design: The Hardware/Software Interface

Links
Language of instruction
German

Duration (semesters)
1 Semester

Module frequency
Jedes Sommersemester

Module capacity
unlimited

Modullevel / module level
AC (Aufbaucurriculum / Composition)

Modulart / typ of module
Wahlpflicht / Elective

Lehr-/Lernform / Teaching/Learning method
P

Vorkenntnisse / Previous knowledge

Examination
Time of examination
Type of examination
Final exam of module
Am Ende der Vorlesungszeit
PK

Course type
Practical

SWS
4.00

Frequency
SuSe

Workload attendance
56 h
inf406 - Laboratory Real-Time Systems

Module label  Laboratory Real-Time Systems
Module code    inf406
Credit points  6.0 KP
Workload       180 h

Used in course of study
- Bachelor's Programme Computing Science (Bachelor) > Akzentsetzungsbereich - Wahlbereich Informatik
- Dual-Subject Bachelor's Programme Computing Science (Bachelor) > Praktische Vertiefung (60 KP)
- Master of Education Programme (Vocational and Business Education) Computing Science (Master of Education) > Praktische Vertiefung der Informatik

Contact person
Module responsibility
- Ernst-Rüdiger Olderog

Authorized examiners
- Ernst-Rüdiger Olderog
- Die im Modul Lehrenden

Entry requirements
Theoretische Informatik I und II

Skills to be acquired in this module
The students learn about methods and tools, and how to apply, specify, simulate, verify, and implement real-time systems (RTS). The students gain hands-on experience using tangible Mini-Robots (Lego Mindstorms).

Professional competence
The students:
- implement RTS with Lego Mindstorm Robots NXT
- simulate and verify RTS on the basis of real-time automata with the model checker UPFPAAL
- apply the tool Moby/RT to specify and simulate RTS on the basis of PLC-Automata, and to translate them into Java-Code for Lego Mindstorms NXT and into UPFPAAL

Methodological competence
The students:
- realise control tasks with Lego Mindstorms
- specify RTS as networks of real-time automata and verify them with UPFPAAL
- design RTS using Moby/RT
- realise systematically sophisticated time-dependent control tasks with Moby/RT, Lego Mindstorms, and UPFPAAL

Social competence
The students:
- solve tasks in a team
- present solutions and discuss them

Self-competence
The students:
- recognise (sub-)problems of RTS and are responsible for their realisation

Module contents
Real-time-systems are systems, where the time at which an output is generated or at which data are read is of importance. Compared to usual programming methods, RTS models are extended by the additional dimension of time. An example for a RTS is an airbag in a car, which needs to be triggered at the right moment of time, not too early and not too late, because the effect of the airbag is useful only for a few hundredths of seconds.

The course introduces methods and tools which are then practically applied to specify, verify, and implement RTS. The students gain hands-on experience using Mini-Robots (Lego-Mindstorms) to implement RTS.

Reader's advisory

Links

Language of instruction  German
Duration (semesters)   1 Semester
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inf800 - Proseminar in Computer Science

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<td>Module responsibility</td>
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<td></td>
<td>Oliver Theel</td>
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<td>Die im Modul Lehrenden</td>
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<tr>
<td>Entry requirements</td>
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</tr>
<tr>
<td>Skills to be acquired in this module</td>
<td>Supported by a lecturer the students familiarise with a given topic by literature research. They understand and evaluate the relevance of the literature. After this evaluation the students present and discuss their solutions academically.</td>
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<tr>
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<tr>
<td></td>
<td>The students:</td>
</tr>
<tr>
<td></td>
<td>Characterise and apply computer science basics (algorithms, data structures, programming, basics of practical, technical and theoretical computer science)</td>
</tr>
<tr>
<td></td>
<td>Define and describe essential mathematical, logical and physical basics of computer science</td>
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<tr>
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<td>Define and illustrate the core disciplines of computer science (theoretical, practical and technical computer science)</td>
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<td>The students:</td>
</tr>
<tr>
<td></td>
<td>Examine problems, use formal methods to phrase them and analyze them appropriately</td>
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<td></td>
<td>Evaluate problems by the use of technical and scientific literature</td>
</tr>
<tr>
<td></td>
<td>Reflect on a scientific topic and write a scientific seminar paper under guidance and present their findings</td>
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<td>Social competence</td>
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<tr>
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<td>The students:</td>
</tr>
<tr>
<td></td>
<td>Communicate considerately and appropriately with users and experts</td>
</tr>
<tr>
<td></td>
<td>Use presentation methods</td>
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<tr>
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<td>Self-competence</td>
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<td>The students:</td>
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<tr>
<td></td>
<td>Plan their informatical actions independently</td>
</tr>
<tr>
<td></td>
<td>Reflect their contributions critically and discuss them with users and experts</td>
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<tr>
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<td>Collect and update their knowledge independently</td>
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inf803 - Special Topics in Computer Science I

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<tbody>
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<td>This module integrates current computer science developments within appropriate study courses.</td>
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**Professional competence**

The students:

- Know recent technological or scientific computer science developments
- Transfer computer science methods and development models to IT application area requirements
- Evaluate the possibilities and limitations of computer science methods and tools and apply them appropriately

**Methodological competence**

The students:

- Review problems, formulate them with formal models and explore them appropriately
- Identify and present (one or more) computer science problem solutions
- Select and evaluate appropriate tools and methods
- Examine problems with technical and scientific literature

**Social competence**

The students:

- Work in a team

**Self-competence**

The students:

- Plan their informatical actions independently

<table>
<thead>
<tr>
<th>Module contents</th>
<th>According to the assigned task</th>
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</thead>
<tbody>
<tr>
<td>Reader's advisory</td>
<td>According to the assigned task</td>
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Vorkenntnisse / Previous knowledge
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inf804 - Special Topics in Computer Science II

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**Used in course of study**
- Bachelor's Programme Business Informatics (Bachelor) > Akzentsetzungsbereich Praktische Informatik und Angewandte Informatik
- Bachelor's Programme Computing Science (Bachelor) > Akzentsetzungsbereich - Wahlbereich Informatik
- Dual-Subject Bachelor's Programme Computing Science (Bachelor) > Praktische Vertiefung (60 KP)
- Master of Education Programme (Vocational and Business Education) Computing Science (Master of Education) > Praktische Vertiefung der Informatik

**Entry requirements**

**Skills to be acquired in this module**
This module integrates current computer science developments within appropriate study courses.

**Professional competence**
The students:
- Know recent technological or scientific computer science developments
- Transfer computer science methods and development models to IT application area requirements
- Evaluate the possibilities and limitations of computer science methods and tools and apply them appropriately

**Methodological competence**
The students:
- Review problems, formulate them with formal models and explore them appropriately
- Identify and present (one or more) computer science problem solutions
- Select and evaluate appropriate tools and methods
- Examine problems with technical and scientific literature

**Social competence**
The students:
- Work in a team

**Self-competence**
The students:
- Plan their informatical actions independently

**Module contents**
According to the assigned task

**Reader's advisory**
According to the assigned task

**Languages of instruction**
German, English

**Duration (semesters)**
1 Semester

**Module capacity**
unlimited

**Module level / module type**
je nach Studiengang Pflicht oder Wahlpflicht

**Lehr-/Lernform / Teaching/Learning method**
2 Veranstaltungen aus V, Ü, S, P, PR

**Vorkenntnisse / Previous knowledge**

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47 / 57
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inf808 - Current Topics in Computer Science

Module label: Current Topics in Computer Science
Module code: inf808
Credit points: 3.0 KP
Workload: 90 h

Used in course of study:
- Bachelor's Programme Business Informatics (Bachelor) > Akzentsetzungsbereich Praktische Informatik und Angewandte Informatik
- Bachelor's Programme Computing Science (Bachelor) > Akzentsetzungsbereich - Wahlbereich Informatik
- Dual-Subject Bachelor's Programme Computing Science (Bachelor) > Praktische Vertiefung (60 KP)
- Master of Education Programme (Vocational and Business Education) Computing Science (Master of Education) > Praktische Vertiefung der Informatik

Contact person:
Module responsibility:
- Die im Modul Lehrenden
Authorized examiners:
- Die im Modul Lehrenden

Entry requirements:

Skills to be acquired in this module:
This module integrates current computer science developments within appropriate study courses.

Professional competence:
The students:
- Know recent technological or scientific computer science developments
- Transfer computer science methods and development models to IT application area requirements
- Evaluate the possibilities and limits of computer science methods and tools and apply them appropriately

Methodological competence:
The students:
- Review problems, formulate them with formal models and explore them appropriately
- Identify and present (one or more) computer science problem solutions
- Select and evaluate appropriate tools and methods
- Reflect on a scientific topic and write a scientific seminar paper under guidance and present their findings

Social competence:
The students:
- Use presentation methods purposefully

Self-competence:
The students:
- Plan their informatical actions independently
- Reflect their contributions critically and discuss them with users and experts
- Collect and update their knowledge independently

Module contents: According to the assigned task
Reader's advisory: According to the assigned task

Language of instruction: German

Duration (semesters): 1 Semester
Module frequency: unregelmäßig
Module capacity: unlimited

Modullevel / module level: AS (Akzentsetzung / Accentuation)
Modulart / typ of module: je nach Studiengang Pflicht oder Wahlpflicht

Lehr-/Lernform / Teaching/Learning: 1 Veranstaltung aus V, Ü, S, P, PR
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inf809 - Current Topics in Computer Science II

**Module label**
Current Topics in Computer Science II

**Module code**
inf809

**Credit points**
3.0 KP

**Workload**
90 h

**Used in course of study**
- Bachelor's Programme Business Informatics (Bachelor) > Akzentsetzungsbereich Praktische Informatik und Angewandte Informatik
- Bachelor's Programme Computing Science (Bachelor) > Akzentsetzungsbereich - Wahlbereich Informatik
- Master of Education Programme (Vocational and Business Education) Computing Science (Master of Education) > Praktische Vertiefung der Informatik

**Contact person**
Module responsibility
- Axel Hahn
- Oliver Theel

**Entry requirements**

**Skills to be acquired in this module**
This module integrates current computer science developments within appropriate study courses.

### Professional competence
The students
- know recent technological or scientific computer science developments
- transfer computer science methods and development models to IT application area requirements
- evaluate the possibilities and limits of computer science methods and tools and apply them appropriately

### Methodological competence
The students
- review problems, formulate them with formal models and explore them appropriately
- identify and present (one or more) computer science problem solutions
- select and evaluate appropriate tools and methods
- reflect on a scientific topic and write a scientific seminar paper under guidance and present their findings

### Social competence
The students use presentation methods purposefully

### Self competence
The students
- plan their informational actions independently
- reflect their contributions critically and discuss them with users and experts
- collect and update their knowledge independently

**Module contents**
According to the assigned task

**Reader's advisory**
According to the assigned task

**Links**

**Languages of instruction**
German, English

**Duration (semesters)**
1 Semester

**Module frequency**
irregular

**Module capacity**
unlimited

**Module level / module level**
AS (Akzentsetzung / Accentuation)

**Module level / module level**
AS (Akzentsetzung / Accentuation)

**Modulart / typ of module**
Wahlmodul / Opportunity

**Modulart / typ of module**
Wahlmodul / Opportunity

**Lehr-/Lernform / Teaching/Learning method**
1 VA aus V, Ü, S, P, PR

**Lehr-/Lernform / Teaching/Learning method**
1 Event from lecture or seminar or exercise or project or internship
<table>
<thead>
<tr>
<th>Vorkenntnisse / Previous knowledge</th>
<th>Time of examination</th>
<th>Type of examination</th>
</tr>
</thead>
<tbody>
<tr>
<td>Final exam of module</td>
<td></td>
<td>PF</td>
</tr>
<tr>
<td>Course type</td>
<td>VA-Auswahl</td>
<td></td>
</tr>
<tr>
<td>SWS</td>
<td>2.00</td>
<td></td>
</tr>
<tr>
<td>Frequency</td>
<td>SuSe or WiSe</td>
<td></td>
</tr>
<tr>
<td>Workload attendance</td>
<td>28 h</td>
<td></td>
</tr>
</tbody>
</table>
### Recht und Gesellschaft

**inf851 - Computer Science and Society**

<table>
<thead>
<tr>
<th>Module label</th>
<th>Computer Science and Society</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Module code</strong></td>
<td>inf851</td>
</tr>
<tr>
<td><strong>Credit points</strong></td>
<td>6.0 KP</td>
</tr>
<tr>
<td><strong>Workload</strong></td>
<td>180 h</td>
</tr>
</tbody>
</table>

**Used in course of study**

- Bachelor's Programme Biology (Bachelor) > Säule "Überfachliche Professionalisierung"
- Bachelor's Programme Business Administration and Law (Bachelor) > Säule "Überfachliche Professionalisierung"
- Bachelor's Programme Business Informatics (Bachelor) > Säule "Überfachliche Professionalisierung"
- Bachelor's Programme Computing Science (Bachelor) > Säule "Überfachliche Professionalisierung"
- Bachelor's Programme Computing Science (Bachelor) > Säule "Überfachliche Professionalisierung" more...
- Bachelor's Programme Economics and Business Administration (Bachelor) > Säule "Überfachliche Professionalisierung"
- Bachelor's Programme Economics and Business Administration (Bachelor) > Studienrichtung Wirtschaftsinformatik
- Bachelor's Programme Education (Bachelor) > Säule "Überfachliche Professionalisierung"
- Bachelor's Programme Engineering Physics (Bachelor) > Säule "Überfachliche Professionalisierung"
- Bachelor's Programme Environmental Science (Bachelor) > Säule "Überfachliche Professionalisierung"
- Bachelor's Programme Intercultural Education and Counselling (Bachelor) > Säule "Überfachliche Professionalisierung"
- Bachelor's Programme Mathematics (Bachelor) > Säule "Überfachliche Professionalisierung"
- Bachelor's Programme Physics (Bachelor) > Säule "Überfachliche Professionalisierung"
- Bachelor's Programme Physics, Engineering and Medicine (Bachelor) > Säule "Überfachliche Professionalisierung"
- Bachelor's Programme Social Studies (Bachelor) > Säule "Überfachliche Professionalisierung"
- Bachelor's Programme Sustainability Economics (Bachelor) > Säule "Überfachliche Professionalisierung"
- Dual-Subject Bachelor's Programme Art and Media (Bachelor) > Säule "Überfachliche Professionalisierung"
- Dual-Subject Bachelor's Programme Biology (Bachelor) > Säule "Überfachliche Professionalisierung"
- Dual-Subject Bachelor's Programme Chemistry (Bachelor) > Säule "Überfachliche Professionalisierung"
- Dual-Subject Bachelor's Programme Computing Science (Bachelor) > Säule "Überfachliche Professionalisierung"
- Dual-Subject Bachelor's Programme Dutch Linguistics and Literary Studies (Bachelor) > Säule "Überfachliche Professionalisierung"
- Dual-Subject Bachelor's Programme Economics and Business Administration (Bachelor) > Säule "Überfachliche Professionalisierung"
- Dual-Subject Bachelor's Programme Education (Bachelor) > Säule "Überfachliche Professionalisierung"
- Dual-Subject Bachelor's Programme Elementary Mathematics (Bachelor) > Säule "Überfachliche Professionalisierung"
- Dual-Subject Bachelor's Programme English Studies (Bachelor) > Säule "Überfachliche Professionalisierung"
- Dual-Subject Bachelor's Programme Gender Studies (Bachelor) > Säule "Überfachliche Professionalisierung"
- Dual-Subject Bachelor's Programme General Education (Bachelor) > Säule "Überfachliche Professionalisierung"
- Dual-Subject Bachelor's Programme German Studies (Bachelor) > Säule "Überfachliche Professionalisierung"
- Dual-Subject Bachelor's Programme History (Bachelor) > Säule "Überfachliche Professionalisierung"
- Dual-Subject Bachelor's Programme Material Culture: Textiles (Bachelor) > Säule "Überfachliche Professionalisierung"
- Dual-Subject Bachelor's Programme Mathematics (Bachelor) > Säule "Überfachliche Professionalisierung"
- Dual-Subject Bachelor's Programme Music (Bachelor) > Säule "Überfachliche Professionalisierung"
- Dual-Subject Bachelor's Programme Philosophy / Values and Norms (Bachelor) > Säule "Überfachliche Professionalisierung"
- Dual-Subject Bachelor's Programme Physics (Bachelor) > Säule "Überfachliche Professionalisierung"
- Dual-Subject Bachelor's Programme Politics-Economics (Bachelor) > Säule "Überfachliche Professionalisierung"
<table>
<thead>
<tr>
<th>Contact person</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Module responsibility</strong></td>
</tr>
<tr>
<td>- Elke Wilkeit</td>
</tr>
<tr>
<td>- Die im Modul Lehrenden</td>
</tr>
<tr>
<td><strong>Authorized examiners</strong></td>
</tr>
<tr>
<td>- Elke Wilkeit</td>
</tr>
<tr>
<td>- Die im Modul Lehrenden</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Entry requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Skills to be acquired in this module</strong></td>
</tr>
<tr>
<td>Graduates of the module Informatik und Gesellschaft know the history of the development of Information technology and its impact on society and are familiar with issues of data protection. They will be able, individually or in a team, to analyze the ethical and socio-political implications of different areas and applications of computer science and develop a reasoned own position on this, in particular concerning their professional responsibilities as computer scientists. They have learned to present the results of their work convincingly and suitable for their target group using appropriate media and they are able to organize events such as workshops or small conferences for that purpose.</td>
</tr>
<tr>
<td><strong>Professional competence</strong></td>
</tr>
<tr>
<td>The students:</td>
</tr>
<tr>
<td>- reflect on the ethical and societal aspects of selected areas of computer science</td>
</tr>
<tr>
<td>- create and design websites</td>
</tr>
<tr>
<td>- create and manage documents in a team</td>
</tr>
<tr>
<td><strong>Methodological competence</strong></td>
</tr>
<tr>
<td>The students:</td>
</tr>
<tr>
<td>- explore methods of structured teamwork</td>
</tr>
<tr>
<td>- organize project work</td>
</tr>
<tr>
<td>- make presentations with different media</td>
</tr>
<tr>
<td><strong>Social competence</strong></td>
</tr>
<tr>
<td>The students:</td>
</tr>
<tr>
<td>- develop a subject area as a team</td>
</tr>
<tr>
<td>- teach a bigger audience to appreciate their knowledge</td>
</tr>
<tr>
<td>- discuss their observations and opinions with others</td>
</tr>
<tr>
<td><strong>Self-competence</strong></td>
</tr>
<tr>
<td>The students:</td>
</tr>
<tr>
<td>- reflect their role in a team</td>
</tr>
<tr>
<td>- reflect their role as computer scientists in society</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Module contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>In brief, topics like the following are covered:</td>
</tr>
<tr>
<td>- Computer Crime</td>
</tr>
</tbody>
</table>
Computer Games
- Data Protection
- Electronic Democracy
- Ethics in Computer Science
- History of Information Technology
- Use of information technology at school
- Internet - integration or division of society?
- Artificial Intelligence
- Manipulation by War Games
- Open Source Software
- Robots in Society
- Trustworthy Systems

Reader’s advisory

- See reference books Informatik und Gesellschaft in BIS.
- H. Klaeren u.a., (Eds.), 1999: Tübinger Studientexte Informatik und Gesellschaft. Universität Tübingen.

Links
http://www.informatik.uni-oldenburg.de/~iug

Language of instruction
German

Duration (semesters)
1 Semester

Module frequency
jährlich

Module capacity
unlimited

Reference text
The topics for the teams are assigned during the first week of the semester

Modullevel / module level
AS (Akzentsetzung / Accentuation)

Modulart / typ of module
Ergänzung/Professionalisierung

Lehr-/Lernform / Teaching/Learning method
S+P

Vorkenntnisse / Previous knowledge

Examination
Time of examination
Type of examination

Final exam of module
During semester and at the end
Portfolio (5-6 partial performances)

Course type
Comment
SWS
Frequency
Workload attendance

Seminar
2.00
WiSe
28 h

Practical
2.00
WiSe
28 h

Total time of attendance for the module
56 h
### wir806 - Information Technology Law

<table>
<thead>
<tr>
<th>Module label</th>
<th>Information Technology Law</th>
</tr>
</thead>
<tbody>
<tr>
<td>Module code</td>
<td>wir806</td>
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<tr>
<td>Credit points</td>
<td>6.0 KP</td>
</tr>
<tr>
<td>Workload</td>
<td>180 h</td>
</tr>
</tbody>
</table>

**Used in course of study**
- Bachelor's Programme Business Informatics (Bachelor) > Wahlbereich Informatik, Kultur und Gesellschaft
- Master of Education Programme (Gymnasium) Computing Science (Master of Education) > Mastermodule
- Master of Education Programme (Vocational and Business Education) Computing Science (Master of Education) > Recht und Gesellschaft
- Master's Programme Business Administration, Economics and Law (Master) > Mantelmodule
- Master's Programme Business Informatics (Master) > Module der Wirtschafts- und Rechtswissenschaften (Master)
- Master's Programme Computing Science (Master) > Nicht Informatik

**Contact person**
- Module responsibility
  - Jürgen Taeger
- Authorized examiners
  - Die im Modul Lehrenden
- Module counseling
  - Sebastian Louven

**Entry requirements**

**Skills to be acquired in this module**
Upon completion of the module, students will be able to:
- deal with all legal questions arising from the use of information and communication technology in all sectors of society,
- identify legal issues arising from the use of information and communication technology,
- draft solutions for these legal questions.

**Module contents**
- Internet law; IT contracts law

**Reader's advisory**
- Köhler, Fetzer, Recht des Internet, 8. Aufl., 2016
- Redeker, IT-Recht, 6. Aufl., 2017

**Links**
- Language of instruction: German
- Duration (semesters): 1 Semester
- Module frequency: jährlich
- Module capacity: unlimited
- Modullevel / module level: ---
- Modulart / typ of module: je nach Studiengang Pflicht oder Wahlpflicht

**Lehr-/Lernform / Teaching/Learning method**

**Vorkenntnisse / Previous knowledge**

<table>
<thead>
<tr>
<th>Examination</th>
<th>Time of examination</th>
<th>Type of examination</th>
</tr>
</thead>
<tbody>
<tr>
<td>Final exam of module</td>
<td>during term</td>
<td>presentation and handout, written exam or oral exam</td>
</tr>
</tbody>
</table>

**Course type**

<table>
<thead>
<tr>
<th>Course type</th>
<th>Comment</th>
<th>SWS</th>
<th>Frequency</th>
<th>Workload attendance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lecture</td>
<td></td>
<td>2.00</td>
<td></td>
<td>28 h</td>
</tr>
<tr>
<td>Seminar</td>
<td></td>
<td>2.00</td>
<td></td>
<td>28 h</td>
</tr>
</tbody>
</table>

**Total time of attendance for the module**
- 56 h