The objective of the module inf005 Software Engineering II is to deepen the subjects and skills of the module Software Engineering I. Special software engineering topics will be presented, deepened and discussed. The lecture deals with different software engineering methods and technology which will be discussed in the seminar. The discussions are contextualised by scientific research projects, practical projects and latest research findings.

**Professional competence**
The students:

- Deepen software engineering methods and techniques
- Use specific software engineering methods and techniques
- Differentiate developmental techniques of software systems
- Discuss software engineering topics
- Design software systems by using appropriate methods
- Solve software engineering problems independently
- Reflect self-designed software engineering solutions critically and present them appropriately

**Methodological competence**
The Students:

- Structure problems with modelling techniques
- Develop actual methods of software engineering
- Present software engineering solutions
- Write scientific papers independently

**Social competence**
The Students:

- Explain and discuss software development solutions in their practical use
- Accept criticism and see it as an asset

**Self-competence**
The Students:

- Reflect their problem-solving behaviour with regard to the possibilities of software technology
- Internalize the presented developmental methods and integrate them in their own actions

**Module contents**
The following subjects are provided:

- Concept of systems
- Iterative and agile process models of software development
- System development and cost estimation
- Methods, techniques and tools to collect requirements
- Techniques to develop and describe software architecture
- Measurement and evaluation of software systems
- Extended techniques of modelling, meta-modelling, domain specific languages
- Model based development
- Methods and techniques of software evolution

**Reader’s advisory**

- Helmut Balzert: Lehrbuch der Software-Technik, Spektrum Akademischer Verlag, 3. Auflage 2009
- Chris Rupp, Stefan Queins: UML 2 glasklar, Praxiswissen für die UML-Modellierung, Carl Hanser Verlag, 4. Auflage 2012

and actual papers from IEEE Software, IEEE Transactions on Software-Engineering, Informatik-Spektrum and conferences (z.B. ICSE, ICSM, WCRE, CSMR, ICPC, SLE, u.a.)

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

**Lern-/Lehrform / Type of program**
- Softwaretechnik I

**Vorkenntnisse / Previous knowledge**

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<th>Type of examination</th>
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<td>Final exam of module</td>
<td>At the end of the lecture period</td>
<td>Portfolio (30-minute presentation, 1 paper (4 pages, IEEE) and oral exam)</td>
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**Total time of attendance for the module**

56 h