

Module title		Module code
Operating Systems		
Person responsible for the module	Faculty	
Prof. Dr. Markus Kucera	Computer Science and Mathematics	

Semester taught according to the curriculum	Level of study	Module type	Credit value
3.	2.	mandatory	5

Mandatory requirements
At least 30 credits from the 1st study stage
Recommended previous knowledge
Programming 1 and Programming 2

Content
see next page

Assigned submodules

Nr.	Submodule title	Teaching hours	Credit value
1.	Operating Systems	4 SWS	5

Submodule		Submodule abbreviation
Operating Systems		OPS
Responsible person	Faculty	
Prof. Dr. Markus Kucera	Computer Science and Mathematics	
Lecturer	Availability of module	
N.N.	only in winter semester	
Teaching method		
Seminar-based teaching (2 SWS) with exercises and practical training (2 SWS). Exercises can also be offered virtually.		

Semester taught according to the curriculum	Teaching hours	Teaching language	Credit value
3.	4 SWS	english	5

Study hours required

Hours in attendance/lectures	Hours for self-study
60h	90h

Method of assessment
Written exam: 90 minutes

Content
<p>Introduction (history, operating system, layer model, interfaces and virtual machine) Processes (process states, scheduling, synchronisation, communication) Memory management (memory allocation strategies, virtual memory, page management, segmentation, cache) File management (file systems, file attributes, file functions, file organisation)</p>
Learning objectives: Subject competence
<p>After successful completion of the submodule, students are able to, deepen their knowledge also beyond the discipline and reflect on the epistemologically justified correctness of professional and practice-relevant statements in relation to the situation. These are seen in relation to the complex context and critically weighed up against each other. Students collect, evaluate and interpret relevant information and derive scientifically sound judgements. They develop approaches to solutions and realise solutions corresponding to the state of the art in science. They carry out application-oriented projects and contribute to the solution of complex tasks in a team. They independently design further learning processes. The students know the most important mechanisms of an operating system. They understand the basic concepts of a modern operating system and acquire skills in system-related programming.</p> <p>The competences are taught at level 3.</p>

Learning objectives: Personal competence

After successful completion of the submodule, students are able to, formulate subject-specific and factual solutions to problems within their actions and can justify them in discourse with subject representatives with theoretically and methodically sound argumentation. They communicate and cooperate with other subject representatives in order to solve a task responsibly. They also reflect on and take into account different perspectives and interests of other stakeholders.

Students develop a professional self-image that is oriented towards goals and standards of professional action in predominantly non-scientific professional fields. They justify their own professional actions with theoretical and methodological knowledge and are able to assess their own abilities, they autonomously reflect on factual design and decision-making freedoms and use these under guidance. Students recognise the framework conditions of professional action appropriate to the situation and justify their decisions responsibly and ethically. They critically reflect on their professional actions in relation to social expectations and consequences.

The competences are taught at level 3.

Teaching media

Blackboard, projector, slides

Literature

- Tanenbaum. Moderne Betriebssysteme
- Silberschatz et al: Operating System Concepts

The numbers in brackets indicate the levels to be reached: 1 - understanding 2 - ability 3 - understand and application