

Only the german version of the module description as part of the study regulations is legally binding.

Module name	Operating systems
Module number	INF-25-Ba-BS
Responsible lecturer	Prof. Dr. Horst Schirmeier horst.schirmeier@tu-dresden.de
Qualification objectives	Students have a deeper understanding of operating systems and are able to recognize and avoid phenomena in the operation of computers such as deadlocks. They are familiar with system-related and concurrent application programs and are able to develop these using modern programming paradigms in order to use system services efficiently. They will master the use of system resources and recognize the interaction of certain hardware properties with system components.
Content	The module covers the basics of the structure and functioning of operating systems, advanced concepts such as concurrency, virtualization, locality, system security and fault tolerance based on central abstractions such as process, thread and memory. This includes strategies for process and I/O allocation, buffering and main and background memory management as well as modern programming paradigms for dealing with concurrency based on the fundamentals of parallel programming, such as race conditions and system-related synchronization mechanisms.
Teaching and learning methods	The module comprises lectures of 2 SWS, exercises of 2 SWS and the self-study. The language of instruction for the lectures and exercises is German.
Prerequisites for participation	In the Diploma degree course in Computer Science, in the Bachelor's degree course in Computer Science and in the Bachelor's degree course in Applied Computer Science, the competences to be acquired in the modules INF-25-Ba-Prg Programming and RoboLab, INF-25-Ba-AuD Algorithms and Data Structures and INF-25-Ba-RA Computer Architecture and Hardware Laboratory, on the structure and organization of computer architecture and imperative programming, are required. In the Bachelor's degree course in Applied Computer Science, the competences to be acquired in the modules INF-25-Ba-Prg Programming and RoboLab and INF-25-Ba-AuD Algorithms and Data Structures, in particular on the structure and organization of the computer architecture and imperative programming, are required.
Applicability	The module is a compulsory module in the Diploma degree program in Computer Science in the foundation course. The module is a compulsory module in the Bachelor's degree course in Computer Science and in the Bachelor's degree course in Applied Computer Science. The module creates the prerequisites for the modules that name it among the prerequisites for participation.
Requirements for	The credit points are earned if the module examination is passed. The

earning credit points	module examination consists of a written examination lasting 90 minutes. A bonus achievement for the written examination is the completion of 15 hours of exercises aben. The examination language is German.
Credit points and grades	5 credit points can be earned through the module. The module grade corresponds to the grade of the examination.
Module frequency	The module is offered every winter semester.
Workload	The total workload is 150 hours.
Module duration	The module comprises one semester.