

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

Module name	Systems Engineering
Module number	INF-25-Ma-FSA-SE
Responsible lecturer	Prof. Dr. Christof Fetzer christof.fetzer@tu-dresden.de
Qualification objectives	Students are able to design distributed software platforms with the aid of modern hardware and software components. They understand the challenges that distributed systems pose in terms of programming and correct execution, can evaluate them and apply appropriate mechanisms. They are able to design highly scalable and distributed systems that can be operated in cloud environments and are familiar with approaches, principles and specific implementations relating to the correct operation of distributed applications.
Content	The module covers the design, construction and operation of software platforms as well as current topics in the architecture of distributed systems. These include parallel computing on current hardware, ensuring the composability and security of complex modules, test methods for the fastest possible error detection and the management of human resources to support collaboration. Further content includes concrete examples of some services with large distributed systems that enable cloud computing as well as the architecture, construction and operation of scalable systems.
Teaching and learning methods	The module comprises lectures of 2 SWS, exercises of 2 SWS and the selfbststudium. The language of instruction for the lectures and exercises is English.
Prerequisites for participation	In the Diploma degree course in Computer Science, the competencies to be acquired in the modules INF-25-Ba-BS Operating Systems, INF-25-Ba-RA Computer Architecture and Hardware Laboratory, INF-25-Ba-Prg Programming and RoboLab and INF-25-Ba-RN Computer Networks are required. The Master's degree course in Computer Science requires knowledge and skills in the fundamentals of operating systems, computer architecture and computer networks as well as knowledge of programming and software technology at Bachelor's level.
Applicability	The module is a compulsory elective module in the Diploma program in Computer Science in the main course in the subject area of Systems Architecture, which is to be selected in accordance with Appendix 2 to the examination regulations. ßgabe der Anlage 2 zur Prüfungsordnung zu wählen ist. In the Master's degree program in Computer Science, the module is a compulsory module in the Distributed Systems Engineering Track and a compulsory elective module in the Open Track in the subject area Systems Architecture and the supplement, which must be selected in accordance with Annex 2 to the Examination Regulations. The module can only be selected once in the Master's degree program in Computer Science . The module cannot be selected in the Master's degree program

	in Computer Science if this module or a module with substantially the same content from a degree program in which the admission requirements according to § 3 of the study regulations have already been fulfilled rde. The module fulfills the prerequisites for the modules listed under prerequisites for participation.
Requirements for earning credit points	The credit points are earned if the module examination is passed. The module examination consists of a written examination lasting 60 minutes. The examination language is English.
Credit points and grades	6 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 180 hours.
Module duration	The module comprises one semester.