

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

Module name	Software Fault Tolerance
Module number	INF-25-Ma-FSC-SFT
Responsible lecturer	Prof. Dr. Christof Fetzer christof.fetzer@tu-dresden.de
Qualification objectives	Students are able to develop fault-tolerant software systems so that their probability of failure is minimized and their security is increased. Students know the different types and classes of errors and can analyze and evaluate their probability of failure. Students can apply various principles relating to robustness in order to minimize the probability of system failure.
Content	The module covers the theoretical foundations of various fault-tolerant mechanisms and analysis methods that can be applied statically or dynamically. Furthermore, the module covers mechanisms that increase the robustness of distributed systems. In addition to reliability, aspects such as the attack security of such systems are also covered in the module.
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 program in Computer Science, the competencies to be acquired in the modules Programming and RoboLab, INF-25-Ba-BS Operating Systems, Computer Networks, INF-25-Ma-FSA-SE Systems Engineering and INF-25-Ba-SWT Software Technology n are required. The Master's degree course in Computer Science requires basic knowledge and skills in programming, a basic understanding of operating systems and network technologies as well as skills in complex and distributed software systems and cloud computing at Bachelor's level.
Applicability	The module is a compulsory elective module in the Diploma program in Computer Science in the main course of study in the subject area of Secure Computing, which must be selected in accordance with Annex 2 to the examination regulations. In the Master's degree program in Computer Science, the module is a compulsory elective module in the Open Track in the subject area of Secure Computing and the Supplement, which must be selected in accordance with Annex 2 to the Examination Regulations, and in the Distributed Systems Engineering Track, which must be selected in accordance with Annex 3 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 essentially the same content from a degree program in which the admission requirements according to Section 3 of the study regulations have already been met has already been completed. The module creates the prerequisites for the modules listed under prerequisites for participation hme.

Requirements for earning credit points	The credit points are earned if the module examination is passed. The module examination consists of a non-public oral examination as an individual examination lasting 30 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 summer semester.
Workload	The total workload is 180 hours.
Module duration	The module comprises one semester.