

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

Module name	Decentralized Systems
Module number	INF-25-Ma-FSA-Dec
Responsible lecturer	Prof. Dr. Florian Tschorsch florian.tschorsch@tu-dresden.de
Qualification objectives	Students are able to evaluate the functionality and use of decentralized approaches in various application areas.
Content	The content of the module is a comprehensive overview of decentralized systems and their design space. The focus is on the fundamental concepts, principles and applications of decentralized systems and the associated challenges and innovations. This includes protocols, algorithms and incentive systems for the fault-tolerant and secure functioning of distributed systems, in particular the design principles of blockchain technologies and, building on this, system properties such as decentralization, openness and distributed trust.
Teaching and learning methods	The module comprises lectures of 2 SWS, exercises of 2 SWS and the self bststudium. The teaching language of the lectures and exercises may be German or English and will be determined by the lecturer at the beginning of the semester and announced in the usual manner.
Prerequisites for participation	In the Diploma degree program in Computer Science, the competencies to be acquired in the modules INF-25-Ba-AuD Algorithms and Data Structures and INF-25-Ba-RN Computer Networks are a prerequisite. The Master's degree course in Computer Science requires basic knowledge of algorithms and data structures, distributed systems and computer networks 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 must be selected in accordance with Appendix 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 Systems Architecture 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 fulfills the prerequisites for the modules listed under 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 non-public oral examination lasting 30 minutes and an unspecified complex examination lasting 60 hours. The examination language of the oral examination and the complex assignment may be German or English and will be specified by the lecturer at the beginning of each semester and announced in the usual manner.
Credit points and grades	6 credit points can be earned through the module. The module grade is calculated from the unweighted average of the grades of the individual examinations, taking into account Section 15 (1) sentence 6 of the examination regulations.
Module frequency	The module is offered every winter semester.
Workload	The total workload is 180 hours.
Module duration	The module comprises one semester.