

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

Module name	Scalable Data Management
Module number	INF-25-Ma-FSA-SDM
Responsible lecturer	Prof. Dr. Dirk Habich dirk.habich@tu-dresden.de
Qualification objectives	Students are familiar with advanced concepts of scalable database technology. They have knowledge of concepts for linking several computer nodes to a large database management system and thus the realization techniques of distributed data management, especially with regard to scale-out architectures. They are familiar with various concepts ranging from close coupling via shared disk and shared-nothing to the synchronization of independent database systems via data propagation and data replication. Students will be able to evaluate different scale-in techniques at in terms of the resulting costs and benefits with regard to different usage requirements. They understand the characteristics of the different architecture approaches and can select these according to the requirements of the specific application.
Content	The module covers the concepts and methods of scalable database systems as a fundamental technology for analytical and transactional processing of usually large databases. This includes the two essential aspects of performance and consistency, which are set in relation to each other. The performance aspect focuses on scalability issues in the case of scale-out architectures. Further content on the aspect of consistency includes different methods for synchronizing concurrent read and write activities on replicated n databases.
Teaching and learning methods	The module comprises lectures of 2 SWS, exercises of 2 SWS and the self bststudium. The language of instruction for the lectures and exercises is English.
Prerequisites for participation	The competencies to be acquired in the module INF-25-Ba-DMF Data Management Foundations are a prerequisite for the Diploma program in Computer Science.
Applicability	The module is a compulsory elective module in the Diploma degree 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. 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 Section 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 non-public oral examination as an individual examination lasting 25 minutes. The examination language 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 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.
Accompanying literature	http://www.sdm.db-tu-dresden.de