

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

Module name	Efficient Parallel Algorithms
Module number	INF-25-Ma-FTI-EPA
Responsible lecturer	Prof. Dr. Wolfgang Nagel wolfgang.nagel@tu-dresden.de
Qualification objectives	Students are familiar with common algorithms, can describe them and implement them efficiently. They are able to evaluate algorithms according to their asymptotic time complexity and justify their statements.
Content	The contents of the module are concepts of parallel programming for the parallelization of algorithms and data structures. Further contents are search algorithms, sorting algorithms, graph algorithms as well as algorithms from linear algebra and their efficient implementation, parallelization as well as the design principles and evaluation criteria for parallel algorithms.
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, the Bachelor's degree course in Computer Science and the Bachelor's degree course in Applied Computer Science, the competences to be acquired in the modules INF-25-Ba-AuD Algorithms and Data Structures and INF-25-Ba-Prg Programming and RoboLab are a prerequisite.
Applicability	The module is a compulsory elective module in the subject area Computer Engineering and High Performance Computing in the Diploma degree program in Computer Science in the main course of study, which must be selected in accordance with Annex 2 to the examination regulations. In the Bachelor's degree program in Informatics, the module is a compulsory elective module in the subject area of specialization, which must be selected in accordance with the appendix to the examination regulations. In the Bachelor's degree course in Applied Computer Science, the module is a compulsory elective module in the specialization in Media Informatics and in the specialization in Medical Informatics, which must be selected in accordance with the annex 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 Computer Engineering and High Performance Computing as well as 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 chosen 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 § 3 of the study regulations have been fulfilled, has already been completed. 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 20 minutes. The examination language is German.
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.