

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

Module name	Real-Time Systems
Module number	INF-25-Ma-FSA-RTS
Responsible lecturer	Dr. Michael Roitzsch michael.roitzsch@tu-dresden.de
Qualification goals	Students are able to analyze the requirements of real-time systems. They can model and design time- and event-driven real-time systems, making targeted use of domain-specific modeling concepts, scheduling algorithms, and operating systems. They can understand the functional and non-functional properties of such systems.
Contents	The module covers conceptual foundations of real-time systems, key techniques for their implementation, basic modeling techniques for real-time systems, the differentiation between time- and event-driven real-time systems and associated scheduling algorithms, real-time communication, real-time capable hardware, real-time operating systems, synchronization methods, and the consideration of multiprocessor systems.
Teaching and learning methods	The module comprises lectures (1 semester hour per week), tutorials (1 semester hour per week), and self-study. The language of instruction for lectures and tutorials is English.
Requirements for participation	The diploma program in computer science requires the competencies to be acquired in the modules INF-25-Ba-RN Computer Networks, INF-25-Ba-BS Operating Systems and INF-25-Ba-RA Computer Architecture.
Applicability	In the Diploma program in Computer Science, this module is an elective module in the field of Systems Architecture, to be selected according to Appendix 2 of the examination regulations. In the Master's program in Computer Science, this module is an elective module in both the Open Track and the supplementary track within Systems Architecture, to be selected according to Appendix 2 of the examination regulations, as well as in the Distributed Systems Engineering Track, to be selected according to Appendix 3 of the examination regulations. This module can only be selected once in the Master's program in Computer Science. This module cannot be selected in the Master's program in Computer Science if this module, or a substantially equivalent module from a degree program that fulfills the admission requirements according to § 3 of the study regulations, has already been completed. This module fulfills the prerequisites for the modules listed under "Prerequisites for Participation."
Requirements for earning credit points	Credit points are awarded upon successful completion of the module examination. The module examination consists of a 30-minute, private oral examination. The examination language can be German or English and is determined by the lecturer at the beginning of each semester and announced in the usual manner.
Credit points and grades	Three credit points can be earned through this module. The module grade corresponds to the grade for the examination.

Frequency of the module	The module is offered every winter semester.
Workload	The total workload is 90 hours.
Module duration	The module lasts one semester.