

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

Module name	Digital signal processing
Module number	INF-25-Ba-W-DSP
Responsible lecturer	Prof. Dr. Martin Wollschlaeger martin.wollschlaeger@tu-dresden.de
Qualification objectives	Students know adequate model concepts for digital systems that are related to technical systems of a continuous nature. They can analyse and classify these models and know algorithmic ways to run them discretized on computers. Students know concepts with which computers can perceive the real world and influence it in a targeted manner and have the skills to transfer typical real applications into models, apply model interaction and thus establish the connection between real systems and the digital image in the computer world.
Content	The module covers the classification and description of signals and systems, the application and interpretation of correlations in the time domain and in the image domain, the conversion of physical quantities into digital representation, the basic concepts and algorithms for signal processing and the fundamentals of control and regulation.
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 German.
Prerequisites for participation	In the Bachelor's degree program in Computer Science and in the Bachelor's degree program in Applied Computer Science, the competences to be acquired in the modules INF-25-Ba-Ma1 Linear Algebra and Analysis, INF-25-Ba-Ma2 Discrete Structures, INF-25-Ba-Prg Programming and RoboLab as well as INF-25-Ba-GTI Fundamentals of Computer Engineering, in particular technical basics, elementary programming skills and basic knowledge of differential and integral calculus, are required.
Applicability	In the Bachelor's degree program in Computer Science, the module is a compulsory elective module in the specialization area, which must be selected in accordance with the annex to the examination regulations rdnung. In the Bachelor's degree program 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 appendix to the examination regulations n. The module creates 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 written examination lasting 90 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.