

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

Module name	Biomedical Engineering - Clinical specialization
Module number	INF-25-Ma-NVE-BMT
Responsible lecturer	Prof. Dr. Hagen Malberg hagen.malberg@tu-dresden.de
Qualification objectives	Students are familiar with basic life processes and their pathological changes, which are diagnosed and treated using biomedical technology. They are also aware of the key features of the various measurement methods used to obtain physiological information. They have a sound knowledge of medical terminology and thus possess the prerequisites for good interdisciplinary cooperation as engineers in a medical environment.
Content	The module covers the basics of anatomy, physiology and pathology for engineers, in particular the structure and function of cells, organs and organ systems, electro- and neurophysiological principles, the cardiovascular system, autoregulation of the organism, pathophysiological phenomena and clinical functional processes. The principles of action and technical realization of devices and procedures in the medical diagnostic process, for example X-ray diagnostics, CT, PET, SPECT, multi-modal data fusion, visualization and the quality assessment of diagnostic statements as a basis for the medical decision-making process, therapeutic measures and procedures in clinics are included.
Teaching and learning methods	The module comprises lectures of 4 SWS, practicals of 1 SWS and self study. The language of instruction for lectures and practicals is German.
Prerequisites for participation	In the Diploma degree program in Computer Science and in the Master's degree program in Computer Science, the competencies to be acquired in the module INF-25-Ma-NGR-BMT Biomedical Engineering Fundamentals are a prerequisite.
Applicability	The module is a compulsory module of the non-computer science supplement Biomedical Technik in the Diplom degree program in Computer Science. In the Master's degree program in Computer Science, the module is a compulsory elective module in the open track supplement, which must be selected in accordance with the appendix 2 to the examination regulations. The module can only be selected in the Master's degree program in Computer Science in combination with the module INF -25-Ma-NGR-BMT Biomedical Engineering Fundamentals. 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 were fulfilled in accordance with Section 3 of the study regulations has already been completed. The module creates 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 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 summer semester.
Workload	The total workload is 180 hours.
Module duration	The module comprises one semester.