

Module name	Medical Engineering Systems
Module number	Eul-BMT-C-MTS
Lecturer in charge	Prof. Dr.-Ing. habil. Hagen Malberg Lehre.IBMT@tu-dresden.de
Objectives	After completing the module, students will be able to classify medical technology procedures and systems in a clinical environment. Furthermore, they have basic knowledge of regulatory requirements along the life cycle of medical devices. They will be able to independently solve tasks in the application and development of medical technology in the training process.
Contents	The module covers the basic principles of medical measurement and sensor technology, therapeutic systems technology, in particular electromedical systems, detoxification, infusion technology and cardioassist systems. Based on medical questions and problems, technical solutions in the form of medical devices are considered. The content includes selected organ systems, such as the cardiovascular system, urinary system, respiratory system and nervous and muscular systems. Further, the content includes the basic legal requirements such as the Medical Device Regulation (MDR) and normative requirements for the development process of medical devices and their manufacture and monitoring.
Modes of teaching and learning	3 hours per week lectures, 1 hours per week seminars, 1 hour per week practical lab courses and self-study.
Prerequisites	The knowledge acquired in the modules Physico-chemical Fundamentals of Biomedical Engineering, Basics of Electrical Engineering, Fundamentals of Biomedical Engineering and Practical Basics of Biomedical Engineering are required.
Usability	The module is a compulsory module in the main studies of the degree programme Biomedical Engineering. It creates the prerequisites for the modules that list that module in the "Prerequisites" field.
Requirements for the award of credit points	The credit points are awarded when the module assessment is passed. The module assessment consists of a written exam of 90 minutes and a complex assignment of 30 hours. Both exam and complex assignment have to be passed.
Credit points and grades	6 credit points can be obtained by the module. The module grade is the weighted mean of the grades of the assessments. The written exam is weighted by 3/4 and the complex exam is weighted by 1/4.
Frequency	The module is offered every winter semester.

Workload	The total effort is 180 hours.
Duration	The module takes one semester.