

Module Name	Biomedical Engineering
Module Number	Eul-ET-C-BMT
Responsible Lecturer	Prof. Dr.-Ing. habil. Hagen Malberg lehre.ibmt@tu-dresden.de
Qualification Objectives	After completing the module, students are able to design systems for measuring physiological parameters, taking into account the complex interactions between organisms and technology. Furthermore, they can design automated systems for diagnosis and organ support and are familiar with the most important therapeutic medical engineering procedures. They are capable of transferring basic biological and physiological principles to technical applications.
Contents	The module covers the fundamentals of medical engineering for diagnosis and therapy, relevant physical, physiological, and biochemical principles, basic concepts and structure of medical devices, diagnostic data acquisition, automated processing of diagnostic signals and information, therapeutic procedures, organ support systems, structure and function of life-support systems, cardiovascular therapies, medical imaging, and physiological closed-loop control systems.
Teaching and Learning Forms	4 hours per week of lectures, 1 hour per week of seminars, and self-study.
Prerequisites for Participation	The competencies to be acquired in the module "Electronic Systems Design" are required.
Usability	The module is a compulsory module of the main study program in the field of Electronic Systems, Micro and Medical Technology in the diploma program Electrical Engineering. It creates the prerequisites for the modules that list this module in the field "Prerequisites for Participation."
Prerequisites for the Award of Credit Points	Credit points are awarded when the module examination is passed. The module examination consists of a written exam lasting 120 minutes.
Credit Points and Grades	7 credit points can be earned through the module. The module grade corresponds to the grade of the examination performance.
Frequency of the Module	The module is offered every academic year, starting in the winter semester.
Workload	The total workload is 210 hours.
Duration of the Module	The module spans two semesters.