

Module name	Biosignal Processing
Module number	Eul-BMT-C-BSV
Lecturer in charge	Prof. Dr.-Ing. habil. Hagen Malberg Lehre.IBMT@tu-dresden.de
Objectives	After completing the module, students will have knowledge, skills and abilities for IT-supported analysis of physiological signals. They are familiar with the functional principles and methodological tools for developing such systems.
Contents	The contents of the module are the basics of signal processing, in particular digital filtering, signal analysis in the frequency domain, including time-frequency analysis, transformations, linear prediction and methods for dimensional reduction; special biosignal processing, in particular the medical signal processing chain, artifact handling and principal component analysis, biosignal analysis in the time domain, biosignal analysis with non-linear and knowledge-based methods, medical statistics and study planning as well as the application of artificial intelligence in biomedical engineering, in particular knowledge-based systems and artificial neural networks.
Modes of teaching and learning	4 hours per week lectures, 1 hour per week seminars, 1 hour per week practical lab courses and self-study.
Prerequisites	The knowledge acquired in the modules Fundamentals of Biomedical Engineering and Systems Theory 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 120 minutes and a complex assignment of 25 hours.
Credit points and grades	7 credit points can be obtained by the module. The module grade is the unweighted mean of the grades of the assessments.
Frequency	The module is offered every winter semester.
Workload	The total effort is 210 hours.
Duration	The module takes one semester.