

§ 28 Master's Programme Biomedical Engineering

Please note: For information only – only the German original is legally binding.

- (1) The master's programme Biomedical Engineering consists of three semesters. A total of 90 ECTS credit points (CP) are required for successful completion of the programme.
- (2) The master's programme can be studied in part-time, if the regulations "Ordnung zur Regelung des individuellen Teilstudiums an der Hochschule Furtwangen" are taken into account.
- (3) Mandatory lectures and corresponding graded and non-graded assessments required for the successful completion of the master's programme are shown in Table 2 (Table 1 shows an overview).
- (4) Language of instruction and examination in all BME modules is English.
- (5) Elective lectures with technical-scientific content amounting to a total of 6 CP need to be taken. These elective lectures can be found in an approved catalog. Elective lectures which are not listed in that catalog, need to be approved by the Dean of Studies. Among the chosen elective lectures an amount of at least 3 CP must be finished with graded assessment.
- (6) In the module Management Competences an elective lecture amounting to 2 CP covering the field of management science or a language course with level GER A2 or higher need to be taken. The registration need to be approved by the Dean of Studies.
- (7) Students, who do not have sufficient German language skills at the beginning of their studies (at least GER B1), must provide such a certificate up to the end of their studies.

Table 1: General Structure of Modules

Module/ Semester	1	2	3	4	5
3	Thesis				
2	Advanced Medical Technologies	Research Internship	Medical Modeling	Signal Processing	Electives
1	Introduction to Medical Engineering	Management Competences	Measurement Technology	Modeling	Simulation

Table 2: Biomedical Engineering (1 - 3 Semester)

Module	Module Component	Delivery type	Contact hours (SWS)	Graded assessment	Non-graded assessment	Credit points
1st Semester						30
Introduction to Medical Engineering (6 CP)						
	Fundamentals of Medical Engineering	V/S	2	1K		3
	Medical Engineering Lab	P	2		1sbA	3
Management Competences (6 CP)						
	Project Management	V	2	1K		2
	Scientific Writing	S	2	1sbA		2
	1 Lecture with Management content or 1 Language course (see para. (6))		2	PL		2
Measurement Technology (6 CP)						
	Programming	V	2	1sbA		3
	Sensor Technology	V	2	1K		3
Modeling (6 CP)						
	Modeling	V	2			
	Systems Theory	V/P	2			
	Module examination Modeling	Pr		1sbH (50%), 1K (50%) ¹		6
Simulation (6 CP)						
	Computer Mathematics	V/P	2	1sbL (40%), 1A (60%) ²		3
	Simulation Technology	V	2	1K (50%), 1sbR (50%) ³		3
2nd Semester						30
Advanced Medical Technologies (6 CP)						
	Minimal Invasive Medicine & Technology	V/P	2			
	Artificial Organs: Membranes	V/P	2			
	Module examination Advanced Medical Technologies	Pr		1K		6
Research Internship (6 CP)						
	Research Internship Medical Engineering	P	6	1sbA (40%), 1sbR (20%), 1sbL (40%) ¹		6

Module	Module Component	Delivery type	Contact hours (SWS)	Graded assessment	Non-graded assessment	Credit points
Medical Modeling (6 CP)³						
	Physiological Modeling	V/P	2			
	System Identification	V	2			
	Module examination Medical Modeling	Pr		1K (50%), 1sbR (50%) ⁴		6
Signal Processing (6 CP)						
	Image Processing, Computer Graphics	S	2		1sbR	3
	Biosignalanalysis	V	2	1K		3
Electives (6 CP)						
	Electives with at least 6 CP (see para. (5))			PL	SL	6
3rd Semester						30
Thesis (30 CP)⁵						
	Master Thesis			1T		27
	Thesis Seminar	S			1PN	3
Total						90

¹ This graded assessment is only considered "passed", if the average grade is at least 4.0 (ausreichend). In case the examination is considered "failed", all parts have to be repeated.

² This graded assessment is only considered "passed", if all parts of the examination are graded with at least 4.0 (ausreichend). Passing the assessments which take place during the semester is prerequisite for being registered for the related examination during the normal examination period. In case the examination is considered "failed", only those parts of the examination, which were considered "failed", must / need to be repeated

³ This graded assessment is only considered "passed", if the average grade is at least 4.0 (ausreichend). In case the examination is considered "failed", only those parts of the examination, which were considered "failed", must / need to be repeated.

⁴ This graded assessment is only considered "passed", if all parts of the examination are graded with at least 4.0 (ausreichend). In case the examination is considered "failed", only those parts of the examination, which were considered "failed", must / need to be repeated.

⁵ In case the presentation is considered "failed", only the presentation need to be repeated; in case the master thesis is considered "failed", also the corresponding presentation need to be repeated.