Biomedical Engineering
RWTH Aachen University

Course of Studies

from WS 2025/2026

Semester	**1**				**2**				**3**				**CP**	**Exam**
Mandatory Courses	L	S	E	P	L	S	E	P	L	S	E	P		
Chemistry/Biochemistry	2	-	1	1									5.0	GR
Medical Biology	2	-	-	2									5.0	GR
Anatomy/Physiology	2	-	1	1									5.0	GR
Mechanics/Biomechanics/Fluid Mechanics	2	-	2	-									5.0	GR
Elective Mandatory Course 1	x	x	x	x									5.0	GR
Elective Mandatory Course 2	x	x	x	x									5.0	GR
Medical Imaging (Imaging Techniques)					2	-	-	2					5.0	GR
Control and Electrical Engineering					2	-	2	-					5.0	GR
Material Science and Processing					3	-	1	-					5.0	GR
Internship (min. 6 - 8 weeks)								x					10.0	GR
Elective Mandatory Course					x	x	x	x					5.0	GR
Image Guided Therapy and Theranostics									-	2	1	1	5.0	GR
Image Processing and Handling									-	2	2	-	5.0	GR
Art. Organs: Heart, Lung, Kidney, Liver support									-	2	-	2	5.0	GR
Advanced Biomaterials (Hard Tissue Implants and Prostheses & 3D Bioprinting)									-	2	-	2	5.0	GR
Cell Culture and Tissue Engineering									-	2	-	2	5.0	GR
Systems Biology									-	2	-	2	5.0	GR
Elective Mandatory Course*														
Ethics, Intellectual Property and Reg. Affairs	-	3	1	-									5.0	GR
Introduction to Mechanobiology	2	-	-	2									5.0	GR
Immunology and Microbiology	2	-	-	1									5.0	GR
MATLAB	2	-	2	-									5.0	GR
Unobstrusive Monitoring of Vital Signs	2	-	1	-									5.0	GR
Experimental Medicine (Biomed. Diagnostics)					-	2	1	-					5.0	GR
Biomechanics and Mechanobiology for Soft Biological Tissues					1	-	2	-					5.0	GR
Introduction to Biomedical Sensors					2	-	2	-					5.0	GR
Medical Statistics					2	-	2	-					5.0	GR
Optional Courses*														
Selected Topics of Inelasticity Theory									2	-	2	-	5.0	GR
Applied Physiology in Connection to Biomed. Devices	-	1	-	-					-	-	-	-	2.0	P/NP
Biomedical Products and Process Design	2	-	2	-					2	-	2	-	5.0	GR
Medical Statistics	2	-	2	-					2	-	2	-	5.0	GR
Introduction to Mechanobiology	2	-	-	2					2	-	-	2	5.0	GR
Immunology and Microbiology	2	-	-	1					2	-	-	1	5.0	GR
Bioinformatics	2	-	1	-					2	-	1	-	5.0	GR
Ethics/Intellectual Property and Reg. Affairs	-	3	1	-					-	3	1	-	5.0	GR
Unobstrusive Monitoring of Vital Signs	2	-	1	-					2	-	1	-	5.0	GR
Introduction to Molecular Biology (Cloning, Transgenesis, Genotyping & Fluorescent Microscopy in Zebrafish)	2	-	2	-					2	-	2	-	5.0	GR
MATLAB	2	-	2	-									5.0	GR
Pract. Course in Immunohistochem. Neuroscience	-	1	-	1	-	1	-	1	-	1	-	1	3.0	P/NP
Neuroscience					-	1	-	-					2.0	P/NP
Selected Topics in regard to Art. Organs					-	1	-	-					2.0	P/NP
Technical Organ Support in Intensive Care					-	0.5	-	0.5					2.0	P/NP
Experimental Medicine (Biomed. Diagnostics)					-	2	1	-					5.0	GR
Biomechanics and Mechanobiology for Soft Biological Tissues					1	-	2	-					5.0	GR
Entrepreneurship					4	-	-	-					5.0	GR
Introduction to Biomedical Sensors					2	-	2	-					5.0	GR
Master Thesis (4th Semester)														
Master Thesis													30.0	GR

*Elective Mandatory courses as well as Optional courses may be taken in the 1st or 3rd semester, except for courses with prerequisites.

Key: **L:** Lecture, **S:** Seminar, **E:** Exercise **P:** Practical Course, **P/NP:** passed /not passed **GR:** graded