

Quartile 1 = 1A

Quartile 2 = 1B

Quartile 3 = 2A

Quartile 4 = 2B

Table 1. Track Bioengineering Technologies

	Code	Course	1A	1B	2A	2B
1	201400285	Biostatistics		Compulsory		
2	201500222	Technology for Health	Compulsory			
3	201900088	Applied Cell biology		Compulsory		
4	201400284	Biomedical Membranes & Artificial Organs			Compulsory	
5	201600327	Tissue Engineering				Compulsory
6	201900123	Advanced Organic Chemistry			Compulsory	
7	201800288	Introduction to Bioengineering Technologies (note: only for students who didn't follow B-BMT)	Compulsory			
8	201700040	In Vitro Diagnostics	Elective			
9	193640020	Biophysical Techniques & Molecular Imaging	Elective			
10	201400283	Biomedical Materials Engineering		Elective		
11	202200254	Advanced Drug Delivery and Nanomedicine (combination of the old courses 201200220 Nanomedicine and 193740010 Controlled Drug and Gene Delivery)		Elective		
12	202001414	Physical Biology (don't sign up if you participated in the Soft and Biological Physics minor)	Elective			
13	191211120	Lab-on-a-chip (don't sign up if you already completed 201500054)		Elective		
14	193400111	Bionanotechnology			Elective	
15	193700050	AMM-project Organic Materials			Elective	
16	191210720	Biomedical Signal Acquisition			Elective	
17	193640050	Clinical Chemistry (max. 15 to 20 students, separate registration)				Elective
18	202200365	Topics in Human Anatomy, Physiology and Movement Disorders				Elective
19	202300081	Advanced Anatomy and Physiology	Elective			
20	202300079	Microphysiological systems				Elective
21	193740050	Biochemistry				Elective

*previous knowledge of [Applied Cell Biology](#) is required



Compulsory



Elective

Table 2. Track Imaging and In Vitro Diagnostics

	Code	Course	1A	1B	2A	2B
1	201700040	In Vitro Diagnostics				
2	201400285	Biostatistics				
3	193640020	Biophysical Techniques & Molecular Imaging				
4	201800114	Imaging Technology in Radiology				
5	201500222	Technology for Health				
6	191506001	Mathematical Methods				
7	202300029	Radiation Protection Expertise				
8	193572010	Physics of Bubbles				
9	191551150	Numerical Techniques for PDE				
10	193542070	Medical Acoustics				
11	201900260	Magnetic Methods in Medicine				
12	193810020	Advanced Techniques for Signal Analysis				
13	202200103	Image Processing and Computer Vision (was191210910 2a)				
14	193500000	Biomedical Optics				

Compulsory
 Elective

**5EC semester course

Table 3. Track Physiological Signals and Systems

	Code	Course	1A	1B	2A	2B
1	201500222	Technology for Health	■			
2	201400285	Biostatistics		■		
3	201400286	Clinical Research Methods	■			
4	193810020	Advanced Techniques for Signal Analysis			■	
5	191150700	Integrative Design of Biomedical Products	■			
6	201700071	Identification of Human Physiological Systems				■
7	193810010	Biological Control Systems	■			
8	201800156	Biomechanics of human movement			■	
9	191210720	Biomedical Signal Acquisition			■	
10	201400282	Bioelectromagnetics				■
11	191150480	Human Movement Control			■	
12	202200149	eHealth for Remote Patient Monitoring (was 201600028 Telemedicine and Data Analysis for Monitoring)		■		
13	193810100	Dynamic Behavior of Neuronal Networks				■
14	191506001	Mathematical Methods		■		
15	191560430	Nonlinear Dynamics	■			
16	202200106	Optimal Estimation in Dynamic Systems (was 191210920)			■	
17	202200111	System Identif. Parameter Estim. and ML (was 191131700 System Identification and Parameter Estimation 2a)				■
18	201600070	Machine Learning I	■			
19	191154740	Biophysical Fluid Dynamics: The Respiratory System	■			

■ Compulsory

■ Elective

Table 4. Track Medical Device Design

	Code	Course	1A	1B	2A	2B
1	191150700	Integrative Design of Biomedical Products				
2	201400285	Biostatistics				
3	201500222	Technology for Health				
4	202200070	Medical Certification & Human Factors (was 201400287 ergonomics)				
5	201800156	Biomechanics of Human Movement				
6	202001580	Early HTA during Medical Device Development				
7	201400286	Clinical Research Methods				
8	202200365	Topics in Human Anatomy, Physiology and Movement Disorders				
9	202001409	Development of Artificial Internal Organs				
10	201300004	Robotics for Medical Applications				
11	191150480	Human Movement Control				
12	191121720	Design, Production and Materials		**		
13	201700294	Engineering Project Management				
14	202300211	Medical device prototyping				

Compulsory
 Elective

**SEC semester course

Table 5. Track Biorobotics

	Code	Course	1A	1B	2A	2B
1	201400285	Biostatistics		■		
2	201300004	Robotics for Medical Applications		■		
3	201500222	Technology for Health	■			
4	202200104	Control system design for Robotics (was 202000255 Advanced Control Engineering 1a)		■		
5	202200108	Software Development for Robotics (was 201800335 Programming 2)			■	
6	201700071	Identification of Human Physiological Systems				■
7	201200133	Biomechanics				■
8	202200101	Modelling, Dynamics and kinematics (was 191211060 Modern Robotics 2a)	■			
9	191210910	Image Processing and Computer Vision	■			
10	191561620	Optimal Control		■		
11	201600070	Machine Learning I	■			
12	201900037	Flexible Multibody Dynamics		■		
13	191150480	Human Movement Control			■	
14	201800156	Biomechanics of Human Movement			■	
15	201400286	Clinical Research Methods	■			
16	191150700	Integrative Design of Biomedical Products	■			
17	193810020	Advanced Techniques for Signal Analysis			■	
18	202000248	Soft Robotics				■
19	202000256	Learning and adaptive control			■	

■ Compulsory

■ Elective

Note: the pre-approved electives are all allowed by the Board of Examiners to be part of your Masters BME. However, if you are as an individual eligible and thus allowed to follow a course depends on the entry requirements and/or required previous knowledge.

Table 6 pre-approved free electives Q1

Code	Course	1A	1B	2A	2B
201400103	3D Printing; Processes And Use				
201800083	Advanced Colloids & Interfaces you can't choose this course if you participated in the minor Soft and Biological Physics				
193810010	Biological Control Systems				
191154740	Biophysical Fluid Dynamics: The Respiratory System				
193640020	Biophysical Techniques & Molecular Imaging				
201400286	Clinical Research Methods				
191121720	Design, Production and Materials	**			
201400584	Design of Persuasive Health Technology				
201900074	Fundamentals of Numerical Methods				
202300081	Advanced Anatomy and Physiology				
202200103	Image Processing and Computer Vision (was 191210910 2a/q3)				
201700040	In Vitro Diagnostics				
191150700	Integrative Design of Biomedical Products				
201600070	Machine Learning I				
201200146	Maintenance Engineering & Management				
202200101	Modelling, Dynamics, and Kinematics (was 191211060 Modern Robotics 2a)				
191560430	Nonlinear Dynamics				
202001414	Physical Biology				
191158510	Programming in Engineering				
202300029	Radiation Protection Expertise				
202200100	Systems Engineering (was 191211080)				
** 5EC semester course					

Table 7 pre-approved free electives Q2

Code	Course	1A	1B	2A	2B
202200254	Advanced Drug Delivery and Nanomedicine (combination of the old courses 201200220 Nanomedicine and 193740010 Controlled Drug and Gene Delivery)				
201900091	Advanced Topics in Finite Element Methods				
201900088	Applied Cell biology				
201400283	Biomedical Materials Engineering				
201600273	Clinical Biotechnology				
202200104	Control System Design for Robotics (was 202000255 advanced control engineering 1a & 201900093 Control System Design for Mechatronics)				
201400174	Data Science				
201800177	Deep Learning - From Theory to Practice				
201900037	Flexible Multibody Dynamics				
191211120	Lab-on-a-chip				
201600071	Machine Learning II				
191506001	Mathematical Methods				
202200070	Medical Certification & Human Factors (replacement for 201400287 ergonomics)				
191551150	Numerical Techniques for PDE				
191561620	Optimal Control				
193572010	Physics of Bubbles				
201300004	Robotics for Medical Applications				
202200149	202200149 eHealth for Remote Patient Monitoring (was 201600028 Telemedicine and Data Analysis)				

Table 8 pre-approved free electives Q3

Code	Course	1A	1B	2A	2B
201900123	Advanced organic chemistry				
202200109	Adv. Software Development for Robotics (was 191211090 Real-Time Software Development)				
193810020	Advanced Techniques for Signal Analysis				
193700050	AMM-Project Organic Materials				
201800156	Biomechanics of Human Movement				
201400284	Biomedical Membranes & Artificial Organs				
191210720	Biomedical Signal Acquisition				
193400111	Bionanotechnology				
201400584	Design of Persuasive Health Technology				
191131360	Design Principles for Precision Mechanisms 2				
202001409	Developm.of Artificial Internal Organs				
201000159	Durability of Consumer Products				
193580020	Experimental Techniques in Physics of Fluids				
201400046	Experimental Methods				
191150480	Human Movement Control				
201900260	Magnetic Methods for Imaging				
193400121	Nano-Fluidics				
202200106	Optimal Estimation for Dynamic Systems (was 191210920 Optimal Estimation in Dynamic Systems)				
194121020	Optimization of Healthcare Processes				
202200108	Software Development for Robotics (was 201800335 Programming 2)				
202000248	Soft Robotics				
191551200	Scientific Computing				
202200110	Tele-presence Robotics				
191155730	Tribology				

Table 9 pre-approved free electives Q4

Code	Course	1A	1B	2A	2B
202100080	3D bioprinting				
201100254	Advanced Computer Vision and Pattern Recognition				
193740050	Biochemistry				
201400282	Bioelectromagnetics				
201200133	Biomechanics				
193500000	Biomedical Optics				
193640050	Clinical Chemistry (max. 15 participants)				
202000040	Design of Flexible and Soft Robotic Systems				
202100107	Deep Learning for 3D Medical Image Analysis				
193810100	Dynamic Behaviour of Neuronal Networks				
202001580	Early HTA during Med. Device Development				
201700294	Engineering Project Management				
192360501	E-health Strategies				
201700071	Identification of Human Physiological Systems				
201800114	Imaging Technology in Radiology				
202000256	Learning and adaptive control				
202300079	Microphysiological systems				
193542070	Medical Acoustics				
191211110	Modelling and Simulation				
193730040	Polymers and Material Science Practice				
202000248	Soft Robotics				
201000262	Surgical Navigation Technology				
202200111	System Identif. Parameter Estim. and ML (was 191131700 System Identification and Parameter Estimation)				
191622510	Technology and Social Order				
191571090	Time Series Analysis				
201600327	Tissue Engineering (assumed previous knowledge 201400330)				
202200365	Topics in Human Anatomy, Physiology and Movement Disorders				
202100252	Technology for assessment of performance in sports				

Table 10 pre-approved free electives all year

Code	Course	1A	1B	2A	2B
191158500	Advanced Programming in Engineering				
193640010	Capita Selecta BME				
201400267	Capita Selecta BW				
201800207	Capita Selecta RAM				
201400270	Capita Selecta BIOS				
201400269	Capita Selecta BSS				
201700367	Capita Selecta AST				
201400268	Capita Selecta BMPI				
201400266	Capita Selecta BST				
201400271	Capita Selecta CNPH				
201400272	Capita Selecta DBE				
201400275	Capita Selecta NBP				
201400273	Capita Selecta MCBP				
201400274	Capita Selecta MTG				
201400276	Capita Selecta NIM				
201600219	Capita Selecta POF				
202001596	Capita Selecta BioEE				