Biomedical Engineering

Study Year 1 (Mandatory Courses)

Course Code	Credits	Cycle	Language S.Ex. stud.		Course Name	Footnote	Links		17/18 sp1	17/18 sp2	17/18 sp3	17/18 sp4
EITA01	12	G1	-	S	Introduction to Biomedical Engineering		KS KE U W T		1	2		
FAFA65	7.5	G1	-	S	Thermodynamics, Waves and Optics		KS KE U W T		1	2		
FMAA01	15	G1	-	S	Calculus in One Variable		KS KE U W T		1	2	3	
KOKA20	7.5	G1	-	S	General and Organic Chemistry		KS KE U W T				3	
EXTA56	5	G1	-	S	Clinical Training in Biomedical Engineering		KS KE U T				3	4
EDAA50	7.5	G1	-	S	Programming, First Course		KS KE U W T				3	4
FMAB20	6	G1	-	S	Linear Algebra		KS KE U W T					4

Study Year 2 (Mandatory Courses)

Course Code	Credits	Cycle	Language S.Ex. stud.	Language	Course Name	Footnote	Links	17/18 sp1	17/18 sp2	17/18 sp3	17/18 sp4
EXTA70	7.5	G1	-	S	Biology of the Cell		KS KE U W T	1			
FMAB30	6	G1	-	S	Calculus in Several Variables		KS KE U W T	1			
FHLA05	7.5	G1	X	E	Engineering Mechanics		KS KE U W T		2		
EXTG50	7.5	G2	-	S	Human Physiology		KS KE U W T		2		
EEMA01	9	G1	-	S	Biomedical Design		KS KE U W T		2	3	
FAFF45	8	G2	-	S	Physics for Biomedicine		KS KE U W T			3	
EITF90	7.5	G2	-	S	Electromagnetics and Electronics		KS KE U W T				4

Course Code	Credits	Cycle	Language S.Ex.	Language stud.	Course Name	Footnote	Links	17/18 sp1	17/18 sp2	17/18 sp3	17/18 sp4
EITA50	7.5	G1	X	S	Signal Processing in Multimedia		KS KE U W T				4

Study Year 3 (Mandatory Courses)

Course Code	Credits	Cycle	Language S.Ex. stud.	Language	Course Name	Footnote	Links	17/18 sp1	17/18 sp2	17/18 sp3	17/18 sp4
FMSF70	7.5	G2	-	S	Mathematical Statistics		KS KE U W T	1			
EEMF15	7.5	G2	-	S	Sensors and Measurements		KS KE U W T	1			
EXTG05	5	G2	-	E1	Biomaterials - Interaction between Living Tissue and Synthetic Materials		KS KE U W T		2		
EEMF10	5	G2	X	E1	Clinical Chemical Diagnostics		KS KE U T		2		
FRTF01	5	G2	X	E	Physiological Models and Computations		KS KE U W T		2		
ETIF20	5	G2	-	S	E-health		KS KE U T			3	
MVKF20	5	G2	-	S	Transport Phenomena in the Human Body		KS KE U W T			3	

Course Code	Credits	Cycle	Language S.Ex. stud.		Course Name	Footnote	Links		17/18 sp1	17/18 sp2	17/18 sp3	17/18 sp4
EXTG01	5	G2	-	S	Medical Imaging Systems		KS KE U T					4

Specialisation bf - Biomedical physics

Course Code	Credits	Cycle	Mand./ Elect.	Year	From year	S.Ex. stud.	Language	Course Name	Footnote	Links	sp1	sp2	sp3	sp4
EEMN21	7.5	A	V	4	4	X	E1	Introduction to Microfluidics and Lab-on-a-chip Systems		KS KE U W T	1			
FAFF01	7.5	G2	V	4	3	X	E	Optics and Optical Design		KS KE U W T	1			
BMEF10	7.5	G2	V	4	4	-	S	Transducer Technology		KS KE U W T	1			
FKFN05	7.5	A	V	4	3	X	E1	Experimental Tools for Subatomic Physics		KS KE U W T		2		
FAFN01	7.5	A	V	4	3	X	E	Lasers		KS KE U W T		2		
FAFF20	7.5	G2	V	4	3	X	E	Multi-spectral Imaging		KS KE U W T		2		
EXTP45	7.5	A	V	4	4	-	S	Radiation Therapy Physics		KS KE U T			3	

Course Code	Credits	Cycle	Mand./ Elect.	Year	From year	S.Ex. stud.	Language	Course Name	Footnote	Links		sp1	sp2	sp3	sp4
EEMN15	7.5	A	V	4	4	X	E1	Ultrasound Physics and Technology		KS KE U W T				3	
FFFN20	15	A	V	4	4	X	E	Experimental Biophysics		KS KE U W T				3	4
EEMN26	7.5	A	V	4	4	X	E1	Lab-on-a-chip in Biomedical Applications		KS KE U W T					4
FAFN35	7.5	A	V	4	4	X	E	Medical Optics		KS KE U W T					4
FAFN25	7.5	A	V	5	4	X	E	Atomic and Molecular Spectroscopy		KS KE U W T		1			
EXTQ01	7.5	A	V	5	4	X	E	Theoretical Biophysics		KS KE U W T				3	

Specialisation br - Biomechanics and rehabilitation

Course Code	Credits	Cycle	Mand./ Elect.	Year	From year	S.Ex. stud.	Language	Course Name	Footnote	Links	sp1	sp2	sp3	sp4
BMEN05	7.5	A	V	4	4	X	E	Biomechanics		KS KE U W T	1			
FMAN20	7.5	A	V	4	4	X	E1	Image Analysis		KS KE U W T	1			
TNSF05	7.5	G2	V	4	4	-	S	Rehabilitation Engineering		KS KE U W T	1	2		
FMAN30	7.5	A	V	4	4	X	E1	Medical Image Analysis		KS KE U W T		2		
FHLN10	7.5	A	V	4	4	X	E	Modern Experimental Mechanics		KS KE U W T		2		
BMEN10	7.5	A	V	4	4	X	E	Tissue Biomechanics		KS KE U W T		2		
FMEN02	7.5	A	V	4	4	X	E	Multibody Dynamics		KS KE U W T			3	

Course Code	Credits	Cycle	Mand./ Elect.	Year	From year	S.Ex. stud.	Language	Course Name	Footnote	Links		sp1	sp2	sp3	sp4
MAMF35	7.5	G2	V	4	4	X	E	Human in Extreme Environments		KS KE U W T				3	4
TNSF10	7.5	G2	V	4	4	X	E1	Universal Design, Theory and Project		KS KE U W T				3	4
MAMF30	6	G2	V	4	4	-	S	Ergonomics		KS KE U W T					4
FHLF20	7.5	G2	V	4	3	X	E	Finite Element Method		KS KE U W T					4
FHLN05	7.5	A	V	5	4	-	S	Computational Inelasticity		KS KE U W T		1			
MAMN25	7.5	A	V	5	4	-	S	Interaction Design		KS KE U W T		1			
MAMN45	7.5	A	V	5	4	-	S	People, Technology, Organization and Risk Management		KS KE U W T			2		

Course Code	Credits	Cycle	Mand./ Elect.	Year	From year	S.Ex. stud.	Language	Course Name	Footnote	Links	sp1	sp2	sp3	sp4
FHLN01	7.5	A	V	5	4	X	E	Structural Optimization		KS KE U W T			3	

Specialisation sbh - Signals, images and e-health

Course Code	Credits	Cycle	Mand./ Elect.	Year	From year	S.Ex. stud.	Language	Course Name	Footnote	Links	sp1	sp2	sp3	sp4
FMAN20	7.5	A	V	4	4	X	E1	Image Analysis		KS KE U W T	1			
FMSF10	7.5	G2	V	4	4	X	E1	Stationary Stochastic Processes		KS KE U W T	1			
EDAA01	7.5	G1	V	4	2	-	S	Programming - Second Course		KS KE U W T	1	2		
FMSN45	7.5	A	V	4	4	X	E1	Mathematical Statistics, Time Series Analysis		KS KE U W T		2		
FMAN30	7.5	A	V	4	4	X	E1	Medical Image Analysis		KS KE U W T		2		
EITN60	7.5	A	V	4	4	X	E	Optimum and Adaptive Signal Processing		KS KE U W T		2		
FRTF05	7.5	G2	V	4	2	-	S	Automatic Control, Basic Course		KS KE U W T			3	

Course Code	Credits	Cycle	Mand./ Elect.	Year	From year	S.Ex. stud.	Language	Course Name	Footnote	Links		sp1	sp2	sp3	sp4
EITN65	7.5	A	V	4	4	X	E1	Measurement and Modeling of the Central Nervous System Function		KS KE U T				3	
BMEN01	7.5	A	V	4	4	X	E1	Biomedical Signal Processing		KS KE U W T					4
EXTP60	7.5	A	V	4	4	X	E1	Microscopy, Bio-Imaging		KS KE U W T					4
EXTQ20	7.5	A	V	5	4	-	E1	Biological Systems		KS KE U W T		1			
EITN55	7.5	A	V	5	4	X	E1	Signal Separation - Independent Components		KS KE U W T		1			
EDAF55	6	G2	V	5	3	X	E1	Concurrent Programming		KS KE U W T		1	2		
FRTN35	7.5	A	V	5	3	X	E1	System Identification		KS KE U W T		1	2		

Course Code	Credits	Cycle	Mand./ Elect.	Year	From year	S.Ex. stud.	Language	Course Name	Footnote	Links	sp1	sp2	sp3	sp4
EXTQ40	7.5	A	V	5	5	X	E1	Introduction to Artificial Neural Networks and Deep Learning	X	KS KE U W T		2		

EXTQ40 Introduction to Artificial Neural Networks and Deep Learning: *The course is offered every other academic year and will be given in 2017/18, 2019/20.*

Elective Courses - BME

Course Code	Credits	Cycle	Year	From year	S.Ex. stud.	Language	Course Name	Footnote	Links	sp1	sp2	sp3	sp4
EDAA25	3	G1	4	4	X	S	C Programming		KS KE U W T	1			
EITG05	7.5	G2	4	4	X	E	Digital Communications		KS KE U W T	1			
IYT000	15	G2	4	3	-	S	Engineering Training Course		KS KE U W	1			
MIOA12	6	G1	4	1	-	S	Managerial Economics, Basic Course		KS KE U W T	1			
FMSF15	7.5	G2	4	4	X	E1	Markov Processes		KS KE U W T	1			
FMAF01	7	G2	4	4	-	E1	Mathematics - Analytic Functions		KS KE U W T	1			
EXTN65	15	A	4	4	-	E	Neurobiology		KS KE U W T	1			

Course Code	Credits	Cycle	Year	From year	S.Ex. stud.	Language	Course Name	Footnote	Links	sp1	sp2	sp3	sp4
FMNN01	7.5	A	4	4	X	E	Numerical Linear Algebra		KS KE U W T	1			
EXTF90	7.5	G2	4	4	X	E1	Photon and Neutron Production for Science		KS KE U W T	1			
MMKN35	7.5	A	4	4	X	E1	Product Innovation		KS KE U W T	1			
ETSN05	7.5	A	4	4	-	S	Software Development for Large Systems		KS KE U W T	1			
FMSF60	7.5	G2	4	4	-	E1	Statistical Methods for Safety Analysis		KS KE U W T	1			
EIEF01	10	G2	4	4	X	E1	Applied Mechatronics		KS KE U W T	1	2		
EITF65	9	G2	4	4	-	S	Design of Digital Circuits – A Systems Approach		KS KE U W T	1	2		

Course Code	Credits	Cycle	Year	From year	S.Ex. stud.	Language	Course Name	Footnote	Links		sp1	sp2	sp3	sp4
FMIN25	7.5	A	4	4	-	S	Energy Systems Analysis: Energy, Environment and Natural Resources		KS KE U W T		1	2		
FMAN70	6	A	4	4	X	E1	Matrix Theory		KS KE U W T		1	2		
MVKN05	7.5	A	4	4	-	S	Project - Formula Student		KS KE U W T		1	2	3	4
EXTG55	15	G2	4	4	-	S	Biochemistry		KS KE U W T			2		
EEMF05	7.5	G2	4	4	X	E1	Biomedical Measurements		KS KE U W T			2		
EXTA65	4.5	G1	4	4	-	S	Cognition		KS KE U W T			2		
EEMN10	7.5	A	4	4	X	S	Computerised Measurement Systems		KS KE U W T			2		

Course Code	Credits	Cycle	Year	From year	S.Ex. stud.	Language	Course Name	Footnote	Links		sp1	sp2	sp3	sp4
EDAN10	7.5	A	4	4	X	E1	Configuration Management		KS KE U W T			2		
FMAA25	7.5	G1	4	4	X	E1	Discrete Mathematics		KS KE U W T			2		
IYT000	15	G2	4	3	-	S	Engineering Training Course		KS KE U W			2		
EITF25	6	G2	4	4	-	S	Internet - Techniques and Applications		KS KE U W T			2		
FMAN45	7.5	A	4	4	-	E	Machine Learning		KS KE U W T			2		
MIOA12	6	G1	4	1	-	S	Managerial Economics, Basic Course		KS KE U W T			2		
FMAF05	7	G2	4	4	-	E1	Mathematics - Systems and Transforms		KS KE U W T			2		

Course Code	Credits	Cycle	Year	From year	S.Ex. stud.	Language	Course Name	Footnote	Links		sp1	sp2	sp3	sp4
FMEN11	7.5	A	4	4	X	E	Mechanical Vibrations		KS KE U W T			2		
FMNN10	8	A	4	4	X	E1	Numerical Methods for Differential Equations		KS KE U W T			2		
FMAN60	6	A	4	4	X	E1	Optimization	X	KS KE U W T			2		
FMAN40	3	A	4	4	X	E1	Project in Applied Mathematics		KS KE U W T			2		
FRTN40	7.5	A	4	4	X	E1	Project in Automatic Control		KS KE U W T			2		
EXTN30	15	A	4	4	-	E	Sensory Biology		KS KE U W T			2		
FMSN20	7.5	A	4	4	X	E1	Spatial Statistics with Image Analysis		KS KE U W T			2		

Course Code	Credits	Cycle	Year	From year	S.Ex. stud.	Language	Course Name	Footnote	Links		sp1	sp2	sp3	sp4
ETIN80	7.5	A	4	4	X	E1	Algorithms in Signal Processors – Project Course		KS KE U W T				3	
EDAF70	7.5	G2	4	4	X	E	Applied Artificial Intelligence		KS KE U W T				3	
FMAF10	5	G2	4	4	-	S	Applied Mathematics - Linear systems		KS KE U W T				3	
EITA25	7.5	G1	4	4	X	S	Computer Security		KS KE U W T				3	
FMAN85	6	A	4	4	X	E1	Computer Vision		KS KE U W T				3	
IYT000	15	G2	4	3	-	S	Engineering Training Course		KS KE U W				3	
FMAF35	6	G2	4	4	X	E1	Linear and Combinatorial Optimization		KS KE U W T				3	

Course Code	Credits	Cycle	Year	From year	S.Ex. stud.	Language	Course Name	Footnote	Links				
										sp1	sp2	sp3	sp4
MIOA01	9	G1	4	4	-	S	Managerial Economics, Basic Course		KS KE U W T			3	
FMAF01	7	G2	4	4	-	E1	Mathematics - Analytic Functions		KS KE U W T			3	
FMSN50	7.5	A	4	4	X	E1	Monte Carlo and Empirical Methods for Stochastic Inference		KS KE U W T			3	
EDAF65	7.5	G2	4	4	-	S	Network Programming		KS KE U W T			3	
ETIA10	7.5	G1	4	4	X	E	Patent and Intellectual Property Rights		KS KE U W T			3	
FMSF05	7.5	G2	4	4	X	E1	Probability Theory		KS KE U W T			3	
MAMN35	7.5	A	4	4	-	S	Risk Analysis Methods for Health and Environment		KS KE U T			3	

Course Code	Credits	Cycle	Year	From year	S.Ex. stud.	Language	Course Name	Footnote	Links			sp1	sp2	sp3	sp4
EXTN85	7.5	A	4	4	X	E	Scattering Methods		KS KE U W T					3	
FMSN35	7.5	A	4	4	X	E	Stationary and Non-stationary Spectral Analysis	X	KS KE U W T					3	
EXTG45	7.5	G2	4	4	-	S	Technology Supported Communication		KS KE U W T					3	
EITN85	7.5	A	4	4	X	E	Wireless Communication Channels		KS KE U W T					3	
EDAF50	7.5	G2	4	3	X	S	C++ Programming		KS KE U W T					3	4
EDAF75	7.5	G2	4	4	X	S	Database Technology		KS KE U W T					3	4
EITA05	4.5	G1	4	1	-	S	History of Technology		KS KE U W T					3	4

Course Code	Credits	Cycle	Year	From year	S.Ex. stud.	Language	Course Name	Footnote	Links			sp1	sp2	sp3	sp4
FRTN15	7.5	A	4	4	X	E1	Predictive Control		KS KE U W T					3	4
FRTN01	10	A	4	4	X	E	Real-Time Systems		KS KE U W T					3	4
EXTG55	15	G2	4	4	-	S	Biochemistry		KS KE U W T						4
FMFN05	7.5	A	4	4	X	E1	Chaos		KS KE U W T						4
FMSF65	7.5	G2	4	4	X	E1	Design of Experiments		KS KE U W T						4
FMAA25	7.5	G1	4	4	X	E1	Discrete Mathematics		KS KE U W T						4
IYT000	15	G2	4	3	-	S	Engineering Training Course		KS KE U W						4

Course Code	Credits	Cycle	Year	From year	S.Ex. stud.	Language	Course Name	Footnote	Links				
										sp1	sp2	sp3	sp4
FHLN25	7.5	A	4	4	X	E	Fracture Mechanics, Advanced Course		KS KE U W T				4
EDAN40	7.5	A	4	3	X	E	Functional Programming		KS KE U W T				4
FMSN30	7.5	A	4	4	X	E1	Linear and Logistic Regression		KS KE U W T				4
MIOF20	6	G2	4	4	-	S	Management Organization		KS KE U W T				4
FMAF05	7	G2	4	4	-	E1	Mathematics - Systems and Transforms		KS KE U W T				4
EEMN01	7.5	A	4	4	X	E1	Micro Sensors		KS KE U W T				4
FMNF10	6	G2	4	4	X	E1	Numerical Analysis		KS KE U W T				4

Course Code	Credits	Cycle	Year	From year	S.Ex. stud.	Language	Course Name	Footnote	Links		sp1	sp2	sp3	sp4
FMAN40	3	A	4	4	X	E1	Project in Applied Mathematics		KS KE U W T					4
ETIF10	7.5	G2	4	4	X	E1	Signal Processing - Design and Implementation		KS KE U W T					4
EITF05	4	G2	5	4	-	S	Web Security		KS KE U W T		1			
EITN41	7.5	A	5	4	-	S	Advanced Web Security		KS KE U W T			2		
EEMN05	7.5	A	5	4	X	E1	EMC, Noise and Noise Reduction		KS KE U W T			2		
FHLN20	7.5	A	5	4	X	S	Finite Element Method for Non-linear Systems		KS KE U W T			2		

FMAN60 Optimization: *Written examination before Christmas so that exchange students may participate.*
FMSN35 Stationary and Non-stationary Spectral Analysis: *The course is offered every other academic year and will be given in 2017/18, 2019/20.*

Externally Elective Courses - BME

Course Code	Credits	Cycle	Year	From year	S.Ex. stud.	Language	Course Name	Footnote	Links	sp1	sp2	sp3	sp4
GEMA20	7.5	G1	4	1	-	E	English for Engineers	X	KS KE U W T	1	2		
GEMA25	7.5	G1	4	1	-	S	German for Engineers	X	KS KE U W T	1	2		
GEMA60	7.5	G1	4	1	-	S	Law for Engineers, Introductory Course in Business Law	X	KS KE U W T	1	2		
GEMA70	15	G1	4	1	-	S	Japanese for Engineers	X	KS KE U W T	1	2	3	
GEMA65	7.5	G1	4	1	-	S	Chinese for Engineers	X	KS KE U W T			3	4
GEMA20	7.5	G1	4	1	-	E	English for Engineers	X	KS KE U W T			3	4
GEMA01	7.5	G1	4	1	-	S	French for Engineers: Language, Culture and Society, First Course	X	KS KE U W T			3	4

GEMA20 English for Engineers: *LTH common courses (courses where the course code begins with GEM) counts as external elective courses in the degree requirements for students admitted autumn 2011 and later.*
GEMA25 German for Engineers: *LTH common courses (courses where the course code begins with GEM) counts as external elective courses in the degree requirements for students admitted autumn 2011 and later.*
GEMA60 Law for Engineers, Introductory Course in Business Law: *LTH common courses (courses where the course code begins with GEM) counts as external elective courses in the degree requirements for students admitted autumn 2011 and later.*
GEMA70 Japanese for Engineers: *LTH common courses (courses where the course code begins with GEM) counts as external elective courses in the degree requirements for students admitted autumn 2011 and later.*
GEMA65 Chinese for Engineers: *LTH common courses (courses where the course code begins with GEM) counts as external elective courses in the degree requirements for students admitted autumn 2011 and later.*
GEMA01 French for Engineers: Language, Culture and Society, First Course: *LTH common courses (courses where the course code begins with GEM) counts as external elective courses in the degree requirements for students admitted autumn 2011 and later.*

Bachelor's Projects - BME

The list contains the bachelor's projects that are included in the BME programme.

			Links
Course Code	**Credits**	**Course Name**	
EEML05	15	Bachelor Project in Clinical Innovation	KS KE U

Degree Projects - BME

The list contains the degree project courses that are included in the BME programme.

Course Code	Credits	Course Name	Links
FRTM01	30	Degree Project in Automatic Control	KS KE U W
BMEM01	30	Degree Project in Biomedical Engineering	KS KE U W
EDAM05	30	Degree Project in Computer Sciences for Engineers	KS KE U W
EITM01	30	Degree Project in Electrical and Information Technology	KS KE U W
BMEM05	30	Degree Project in Electrical Measurements	KS KE U W
MAMM10	30	Degree Project in Ergonomics	KS KE U W
MAMM01	30	Degree Project in Interaction Design	KS KE U W
FMSM01	30	Degree Project in Mathematical Statistics for Engineers	KS KE U W
FMAM05	30	Degree Project in Mathematics for Engineers	KS KE U
PHYM01	30	Degree Project in Physics	KS KE U W
TNSM01	30	Degree Project in Rehabilitation Engineering	KS KE U W
FHLM01	30	Degree Project in Solid Mechanics for Engineers	KS KE U W