

Biomedical Engineering

Study Year 1 (Mandatory Courses)

Course Code	Credits	Cycle	S.Ex. stud.	Language	Course Name	Footnote	Links	16/17	16/17	16/17	16/17
								sp1	sp2	sp3	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		
EMAA01	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
EDA011	7.5	G1	-	S	Programming, First Course		KS KE U W T			3	4
EMA420	6	G1	-	S	Linear Algebra		KS KE U W T				4

Study Year 2 (Mandatory Courses)

Course Code	Credits	Cycle	S.Ex. stud.	Language	Course Name	Footnote	Links	16/17	16/17	16/17	16/17
								sp1	sp2	sp3	sp4
TEK295	7.5	G1	-	S	Biology of the Cell		KS KE U W T	1			
EMA430	6	G1	-	S	Calculus in Several Variables		KS KE U W T	1			
EHL055	7.5	G1	-	E	Engineering Mechanics		KS KE U W T		2		
TEK015	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	
ETE115	7.5	G2	-	S	Electromagnetics and Electronics		KS KE U W T				4

Course Code	Credits	Cycle	S.Ex. stud.	Language	Course Name	Footnote	Links					
							16/17 sp1	16/17 sp2	16/17 sp3	16/17 sp4		
ETI265	7.5	G1	X	S	Signal Processing in Multimedia		KS	KE	U	W	T	4

Study Year 3 (Mandatory Courses)

Course Code	Credits	Cycle	S.Ex. stud.	Language	Course Name	Footnote	Links	16/17	16/17	16/17	16/17
								sp1	sp2	sp3	sp4
EMS086	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	
MVKE20	5	G2	-	S	Transport Phenomena in the Human Body		KS KE U W T			3	

Course Code	Credits	Cycle	S.Ex. stud.	Language	Course Name	Footnote	Links				
							16/17 sp1	16/17 sp2	16/17 sp3	16/17 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				
EAFN01	7.5	G2	V		4	3	X	E	Optics and Optical Design		KS KE U W T	1				
EEM031	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			
EAFN01	7.5	A	V		4	3	X	E	Lasers		KS KE U W T		2			
EAFN20	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
FAF150	7.5	A	V	4	4	X	E	Medical Optics		KS KE U W T				4
FAF080	7.5	A	V	5	4	X	E	Atomic and Molecular Spectroscopy		KS KE U W T	1			
TEK267	7.5	A	V	5	4	X	E	Theoretical Biophysics		KS KE U W T	1			

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				
EMAN20	7.5	A	V		4	4	X	E1	Image Analysis	KS KE U W T	1				
TNX097	7.5	G2	V		4	4	-	S	Rehabilitation Engineering	KS KE U W T	1	2			
EMAN30	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			
EMEN02	7.5	A	V		4	4	X	E	Multibody Dynamics	KS KE U W T				3	

Course Code	Credits	Cycle	Mand./ Elect.		Language			Course Name	Footnote	Links			
			Year	From year	S.Ex.	stud.	sp1			sp2	sp3	sp4	
MAMF35	7.5	G2	V	4	4	X	E	Human in Extreme Environments	KS KE U W T			3	4
TNX153	7.5	G2	V	4	4	X	E1	Rehabilitation Engineering and Design	KS KE U W T			3	4
MAMF30	6	G2	V	4	4	-	S	Ergonomics	KS KE U W T				4
FHL064	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			
MAM090	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		
EHLN01	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
EMAN20	7.5	A	V		4	4	X	E1	Image Analysis		KS KE U W T	1			
EMSE10	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		
FMS051	7.5	A	V		4	4	X	E1	Mathematical Statistics, Time Series Analysis		KS KE U W T		2		
EMAN30	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		
FRT010	7.5	G2	V		4	2	-	S	Automatic Control, Basic Course		KS KE U W T			3	

Course Code	Credits	Cycle	Mand./ Elect.		Language			Course Name	Footnote	Links	sp1 sp2 sp3 sp4			
			Year	From year	S.Ex.	stud.	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
TEK292	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			
EDA040	6	G2	V	5	3	X	E1	Concurrent Programming		KS KE U W T	1	2		
FRT041	7.5	A	V	5	3	X	E1	System Identification		KS KE U W T	1	2		
EXTP80	7.5	A	V	5	5	X	E1	Artificial Neural Networks	X	KS KE U W T	Course on hold			

[EXTP80](#) Artificial Neural Networks: *The course is offered every other academic year and will next be offered in 2017/18.*

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			
ETT051	7.5	G2	4	4	X	E	Digital Communications		KS KE U W T	1			
MIO012	6	G1	4	1	-	S	Managerial Economics, Basic Course		KS KE U W T	1			
EMSE15	7.5	G2	4	4	X	E1	Markov Processes		KS KE U W T	1			
EMAF01	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			
EMNN01	7.5	A	4	4	X	E	Numerical Linear Algebra		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
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			
FMS065	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		
EIT020	9	G2	4	4	-	S	Design of Digital Circuits – A Systems Approach		KS KE U W T	1	2		
EMI050	7.5	A	4	4	-	S	Energy Systems Analysis: Energy, Environment and Natural Resources		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
EMIF20	7.5	G2	4	4	X	E	Environmental Issues	KS KE U W T	1	2			
EMA120	6	A	4	4	X	E1	Matrix Theory	KS KE U W T	1	2			
VBR180	15	A	4	4	-	S	Risk Analysis Methods	KS KE U	1	2			
MVKN05	7.5	A	4	4	-	S	Project - Formula Student	KS KE U W T	1	2	3	4	
TEK287	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			
TEK210	4.5	G1	4	4	-	S	Cognition	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
EEMN10	7.5	A	4	4	X	S	Computerised Measurement Systems	KS KE U W T		2		
EDAN10	7.5	A	4	4	X	E1	Configuration Management	KS KE U W T		2		
EITF25	6	G2	4	4	-	S	Internet - Techniques and Applications	KS KE U W T		2		
EMAN45	7.5	A	4	4	X	E	Machine Learning	KS KE U W T		2		
MIO012	6	G1	4	1	-	S	Managerial Economics, Basic Course	KS KE U W T		2		
EMAF05	7	G2	4	4	-	E1	Mathematics - Systems and Transforms	KS KE U W T		2		
EMEN11	7.5	A	4	4	X	E	Mechanical Vibrations	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
EMNN10	8	A	4	4	X	E1	Numerical Methods for Differential Equations		KS KE U W T		2		
EMA051	6	A	4	4	X	E1	Optimization	X	KS KE U W T		2		
EMAN40	3	A	4	4	X	E1	Project in Applied Mathematics		KS KE U W T		2		
ERT090	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		
ETIN80	7.5	A	4	4	X	E1	Algorithms in Signal Processors – Project Course		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
EDA132	7.5	G2	4	4	X	E	Applied Artificial Intelligence	KS KE U W T				3
EMAF10	5	G2	4	4	-	S	Applied Mathematics - Linear systems	KS KE U W T				3
ETIN10	7.5	A	4	4	X	E	Channel Modelling for Wireless Communication	KS KE U W T				3
EIT060	7.5	G1	4	4	X	S	Computer Security	KS KE U W T				3
EMA270	6	A	4	4	X	E1	Computer Vision	KS KE U W T				3
EMA240	6	G2	4	4	X	E1	Linear and Combinatorial Optimization	KS KE U W T				3
MIOA01	9	G1	4	4	-	S	Managerial Economics, Basic Course	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	
EMAF01	7	G2	4	4	-	E1	Mathematics - Analytic Functions	KS KE U W T				3	
EMS091	7.5	A	4	4	X	E1	Monte Carlo and Empirical Methods for Stochastic Inference	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	
EMSF05	7.5	G2	4	4	X	E1	Probability Theory	KS KE U W T				3	
TEK280	7.5	G2	4	4	-	S	Technology Supported Communication	KS KE U W T				3	
EDA031	7.5	G2	4	3	X	S	C++ Programming	KS KE U W T				3	4
EDA216	7.5	G2	4	4	X	S	Database 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
EITA05	4.5	G1	4	1	-	S	History of Technology	KS KE U W T			3	4
ERTN15	7.5	A	4	4	X	E1	Predictive Control	KS KE U W T			3	4
ERTN01	10	A	4	4	X	E1	Real-Time Systems	KS KE U W T			3	4
TEK287	15	G2	4	4	-	S	Biochemistry	KS KE U W T				4
EMFN05	7.5	A	4	4	X	E1	Chaos	KS KE U W T				4
EMS072	7.5	G2	4	4	X	E1	Design of Experiments	KS KE U W T				4
FHL090	7.5	A	4	4	X	E1	Fracture Mechanics, Advanced Course	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	
EDAN40	7.5	A	4	3	X	E	Functional Programming	KS KE U W T					4
EMSN30	7.5	A	4	4	X	E1	Linear and Logistic Regression	KS KE U W T					4
MIO022	6	G2	4	4	-	S	Management Organization	KS KE U W T					4
EMAF05	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
EDA095	7.5	G2	4	4	-	S	Network Programming	KS KE U W T					4
FMN050	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
EMAN40	3	A	4	4	X	E1	Project in Applied Mathematics	KS KE U W T				4
EXTN85	7.5	A	4	4	X	E	Scattering Methods	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		
FHL066	7.5	A	5	4	X	S	Finite Element Method for Non-linear Systems	KS KE U W T		2		
EMSN35	7.5	A	4	4	X	E	Stationary and Non-stationary Spectral Analysis	X KS KE U W T				Course on hold

[FMA051](#) 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 next be offered in 2017/18.*

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

Course Code	Credits	Cycle		Language			Course Name	Footnote	Links								
		Year	From year	S.Ex. stud.	sp1	sp2			sp3	sp4							
GEMA60	7.5	G1	4	1	-	S	Law for Engineers, Introductory Course in Business Law	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.

Links

Course Code	Credits	Course Name	Links
FRT820	30	Degree Project in Automatic Control for Engineers	KS KE U W
BMEM01	30	Degree Project in Biomedical Engineering	KS KE U W
EDA920	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
EEM820	30	Degree Project in Electrical Measurements	KS KE U W
MAM920	30	Degree Project in Ergonomics for Engineers	KS KE U W
MAMM01	30	Degree Project in Interaction Design	KS KE U W
FMS820	30	Degree Project in Mathematical Statistics for Engineers	KS KE U W
FMA820	30	Degree Project in Mathematics for Engineers	KS KE U W
PHYM01	30	Degree Project in Physics	KS KE U W
TNS820	30	Degree Project in Rehabilitation Engineering	KS KE U W
FHL820	30	Degree Project in Solid Mechanics for Engineers	KS KE U W