

Biomedical Engineering

Study Year 1, Academic Year 2013/14 (Mandatory Courses)

Course Code	Credits	Cycle	S.Ex. stud.	Language	Course Name	Footnote	Links	13/14 sp1					13/14 sp2					13/14 sp3					13/14 sp4									
								F	O	L	H	S	F	O	L	H	S	F	O	L	H	S	F	O	L	H	S					
EITA01	12	G1	-	S	Introduction to Biomedical Engineering		KS KE U W T	38	28	0	0	104	28	28	0	1	88															
FAFA50	7.5	G1	-	S	Waves, Optics and Atomic Physics		KS KE U W T	10	6	2	0	25	32	20	14	0	100															
FMAA01	15	G1	-	S	Calculus in One Variable		KS KE U W T	30	20	0	0	83	36	18	0	0	79	36	18	0	0	79										
EXTA56	5	G1	-	S	Clinical Training in Biomedical Engineering		KS KE U T											0	0	0	0	20	0	0	0	0	140					
EDA011	7.5	G1	-	S	Programming, First Course		KS KE U W T											26	0	12	0	75	18	0	12	0	55					
FMA420	6	G1	-	S	Linear Algebra		KS KE U W T																40	24	0	0	96					
KOKA15	7.5	G1	-	S	Organic Chemistry		KS KE U T																46	22	12	12	100					

Study Year 2, Academic Year 2014/15 (Mandatory Courses)

Course Code	Credits	Cycle	S.Ex. stud.	Language	Course Name	Footnote	Links	14/15 sp1					14/15 sp2					14/15 sp3					14/15 sp4									
								F	O	L	H	S	F	O	L	H	S	F	O	L	H	S	F	O	L	H	S					
TEK295	7.5	G1	-	S	Biology of the Cell		KS KE U W T	55	30	25	0	90																				
FMA430	6	G1	-	S	Calculus in Several Variables		KS KE U W T	42	28	2	0	90																				
FHL055	7.5	G1	-	S	Engineering Mechanics		KS KE U W T						42	42	0	0	120															
TEK015	7.5	G2	-	S	Human Physiology		KS KE U W T						40	20	20	0	120															
EEMA01	9	G1	-	S	Biomedical Design		KS KE U W T						10	10	0	6	50	47	13	0	14	90										
FAFF36	8	G2	-	S	Physics for Biomedicine		KS KE U W T											30	34	10	0	140										
ETE115	7.5	G2	-	S	Electromagnetics and Electronics		KS KE U W T																34	28	4	0	134					
ETI265	7.5	G1	X	S	Signal Processing in Multimedia		KS KE U W T																28	28	14	0	120					

Study Year 3, Academic Year 2015/16 (Mandatory Courses)

Course Code	Credits	Cycle	S.Ex. stud.	Language	Course Name	Footnote	Links	15/16 sp1					15/16 sp2					15/16 sp3					15/16 sp4				
								F	O	L	H	S	F	O	L	H	S	F	O	L	H	S	F	O	L	H	S
FMS086	7.5	G2	-	S	Mathematical Statistics		KS KE U W T	28	28	12	1	120															
EEMF15	7.5	G2	-	S	Sensors and Measurements		KS KE U W T	14	14	20	0	120															
EXTG05	5	G2	-	E1	Biomaterials - Interaction between Living Tissue and Synthetic Materials		KS KE U T						32	0	0	12	40										
EEMF10	5	G2	X	E1	Clinical Chemical Diagnostics		KS KE U T						30	6	7	0	90										
FRTF01	5	G2	X	E	Physiological Models and Computations		KS KE U W T						20	20	0	20	70										
ETIF20	5	G2	-	S	E-health		KS KE U T											26	0	0	4	103					
MVKF20	5	G2	-	S	Transport Phenomena in the Human Body		KS KE U W T											14	14	0	0	105					
EXTG01	5	G2	-	S	Medical Imaging Systems		KS KE U T																48	0	12	0	60

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							
											F	O	L	H	S	F	O	L	H	S	F	O	L	H	S	F	O	L	H	S
EEMN21	7.5	A	V	4 - 16/17	4	X	E1	Introduction to Microfluidics and Lab-on-a-chip Systems		KS KE U W T	20	4	12	16	148															
FAFF01	7.5	G2	V	4 - 16/17	3	X	E	Optics and Optical Design		KS KE U W T	26	12	15	0	150															
EEM031	7.5	G2	V	4 - 16/17	4	-	S	Transducer Technology		KS KE U W T	42	0	12	0	146															
EKFN05	7.5	A	V	4 - 16/17	3	X	E1	Experimental Tools for Subatomic Physics		KS KE U W T						10	8	20	5	140										
FAFN01	7.5	A	V	4 - 16/17	3	X	E	Lasers		KS KE U W T						26	12	10	0	150										
FAFF20	7.5	G2	V	4 - 16/17	3	X	E	Multi-spectral Imaging		KS KE U W T						24	4	8	0	75										
EXTP45	7.5	A	V	4 - 16/17	4	-	S	Radiation Therapy Physics		KS KE U T											34	8	16	32	110					
EEMN15	7.5	A	V	4 - 16/17	4	X	E1	Ultrasound Physics and Technology		KS KE U W T											28	14	28	0	66					
FFFN20	15	A	V	4 - 16/17	4	X	E	Experimental Biophysics		KS KE U W T											14	16	0	0	100	0	10	20	20	200
EEMN26	7.5	A	V	4 - 16/17	4	X	E1	Lab-on-a-chip in Biomedical Applications		KS KE U W T																14	14	20	10	142
FAF150	7.5	A	V	4 - 16/17	4	X	E	Medical Optics		KS KE U W T																24	15	8	40	110
FAFN25	7.5	A	V	5 - 17/18	4	X	E	Atomic and Molecular Spectroscopy		KS KE U W T	36	4	15	0	145															
EXTQ01	7.5	A	V	5 - 17/18	4	X	E	Theoretical Biophysics		KS KE U W T											40	0	0	10	150					

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							
											F	O	L	H	S	F	O	L	H	S	F	O	L	H	S	F	O	L	H	S
BMEN05	7.5	A	V	4-16/17	4	X	E	Biomechanics		KS KE U W T	32	4	4	10	110															
EMAN20	7.5	A	V	4-16/17	4	X	E1	Image Analysis		KS KE U W T	32	0	0	2	166															
TNX097	7.5	G2	V	4-16/17	4	-	S	Rehabilitation Engineering		KS KE U W T	14	0	6	4	56	6	4	0	10	100										
EMAN30	7.5	A	V	4-16/17	4	X	E1	Medical Image Analysis		KS KE U W T						32	0	0	3	165										
FHLN10	7.5	A	V	4-16/17	4	X	E	Modern Experimental Mechanics		KS KE U W T						28	0	28	0	100										
BMEN10	7.5	A	V	4-16/17	4	X	E	Tissue Biomechanics		KS KE U W T						24	0	20	0	100										
FMEN02	7.5	A	V	4-16/17	4	X	E	Multibody Dynamics		KS KE U W T											42	14	0	0	144					
MAMF35	7.5	G2	V	4-16/17	4	X	E	Human in Extreme Environments		KS KE U W T											16	0	9	0	75	16	0	9	0	75
TNX153	7.5	G2	V	4-16/17	4	X	E1	Rehabilitation Engineering and Design		KS KE U W T											10	4	4	6	90	0	8	0	8	70
MAMF30	6	G2	V	4-16/17	4	-	S	Ergonomics		KS KE U W T																22	14	4	8	112
FHL064	7.5	G2	V	4-16/17	3	X	E	Finite Element Method		KS KE U W T																32	28	2	0	140
FHLN05	7.5	A	V	5-17/18	4	-	S	Computational Inelasticity		KS KE U W T	38	28	4	0	130															
MAMN25	7.5	A	V	5-17/18	4	-	S	Interaction Design		KS KE U W T	30	14	0	14	142															
MAMN45	7.5	A	V	5-17/18	4	-	S	People, Technology, Organization and Risk Management		KS KE U W T						32	14	0	24	138										
FHLN01	7.5	A	V	5-17/18	4	X	E	Structural Optimization		KS KE U W T											28	26	2	0	100					

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											
											F	O	L	H	S	F	O	L	H	S	F	O	L	H	S	F	O	L	H	S				
EMAN20	7.5	A	V	4-16/17	4	X	E1	Image Analysis		KS KE U W T	32	0	0	2	166																			
EMSE10	7.5	G2	V	4-16/17	4	X	E1	Stationary Stochastic Processes		KS KE U W T	26	16	6	0	140																			
EDAA01	7.5	G1	V	4-16/17	2	-	S	Programming - Second Course		KS KE U W T	14	6	6	0	66	12	6	8	0	82														
FMS051	7.5	A	V	4-16/17	4	X	E1	Mathematical Statistics, Time Series Analysis		KS KE U W T						26	12	12	5	120														
EMAN30	7.5	A	V	4-16/17	4	X	E1	Medical Image Analysis		KS KE U W T						32	0	0	3	165														
EITN60	7.5	A	V	4-16/17	4	X	E	Optimum and Adaptive Signal Processing		KS KE U W T						16	28	8	0	148														
FRT010	7.5	G2	V	4-16/17	2	-	S	Automatic Control, Basic Course		KS KE U W T											30	30	12	0	128									
EITN65	7.5	A	V	4-16/17	4	X	E1	Measurement and Modeling of the Central Nervous System Function		KS KE U T											24	0	0	6	170									
BMEN01	7.5	A	V	4-16/17	4	X	E1	Biomedical Signal Processing		KS KE U W T																14	14	0	7	165				
EXTP60	7.5	A	V	4-16/17	4	X	E1	Microscopy, Bio-Imaging		KS KE U W T																17	12	12	18	141				
EXTQ20	7.5	A	V	5-17/18	4	-	E1	Biological Systems		KS KE U W T	40	10	20	0	130																			
EITN55	7.5	A	V	5-17/18	4	X	E1	Signal Separation - Independent Components		KS KE U W T	14	28	8	0	150																			
EDAF55	6	G2	V	5-17/18	3	X	E1	Concurrent Programming		KS KE U W T	14	14	6	0	40	4	6	0	6	70														
FRTN35	7.5	A	V	5-17/18	3	X	E1	System Identification		KS KE U W T	28	14	14	0	70	0	0	14	0	70														
EXTQ40	7.5	A	V	5-17/18	5	X	E1	Introduction to Artificial Neural Networks and Deep Learning	X	KS KE U W T						34	10	30	0	126														

[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	Language			Course Name	Footnote	Links	sp1				sp2				sp3				sp4						
				From year	S.Ex. year	stud.				F	O	L	H	S	F	O	L	H	S	F	O	L	H	S	F	O	L	H
EDAA25	3	G1	4-16/17	4	X	S	C Programming	KS KE U W T	14	0	0	0	70															
ETT051	7.5	G2	4-16/17	4	X	E	Digital Communications	KS KE U W T	24	28	4	0	144															
MIO012	6	G1	4-16/17	1	-	S	Managerial Economics, Basic Course	KS KE U W T	50	12	3	0	95															
FMSE15	7.5	G2	4-16/17	4	X	E1	Markov Processes	KS KE U W T	26	16	6	0	140															
FMAF01	7	G2	4-16/17	4	-	E1	Mathematics - Analytic Functions	KS KE U W T	40	16	0	1	127															
EXTN65	15	A	4-16/17	4	-	E	Neurobiology	KS KE U W T	21	45	24	0	300															
FMNN01	7.5	A	4-16/17	4	X	E	Numerical Linear Algebra	KS KE U W T	36	0	0	6	160															
EXTF90	7.5	G2	4-16/17	4	X	E1	Photon and Neutron Production for Science	KS KE U W T	24	12	9	6	150															
MMKN35	7.5	A	4-16/17	4	X	E1	Product Innovation	KS KE U W T	21	32	0	0	150															
ETSN05	7.5	A	4-16/17	4	-	S	Software Development for Large Systems	KS KE U W T	10	8	4	10	168															
FMS065	7.5	G2	4-16/17	4	-	E1	Statistical Methods for Safety Analysis	KS KE U W T	28	14	12	0	120															
EIEF01	10	G2	4-16/17	4	X	E1	Applied Mechatronics	KS KE U W T	30	10	30	8	60	0	10	30	14	80										
EIT020	9	G2	4-16/17	4	-	S	Design of Digital Circuits – A Systems Approach	KS KE U W T	28	28	8	0	75	14	14	16	0	55										
FMI050	7.5	A	4-16/17	4	-	S	Energy Systems Analysis: Energy, Environment and Natural Resources	KS KE U W T	18	6	0	0	76	18	6	0	0	76										
FMIF20	7.5	G2	4-16/17	4	X	E	Environmental Issues	KS KE U W T	16	8	0	1	75	14	8	0	1	77										
FMA120	6	A	4-16/17	4	X	E1	Matrix Theory	KS KE U W T	16	8	0	1	56	14	6	0	1	58										
VBR180	15	A	4-16/17	4	-	S	Risk Analysis Methods	KS KE U	26	8	16	2	148	31	19	7	2	141										

Course Code	Credits	Cycle	Year	Language			Course Name	Footnote	Links	sp1	sp2	sp3				sp4					
				From year	S.Ex. stud.							F	O	L	H	S	F	O	L	H	S
ETIN80	7.5	A	4-16/17	4	X	E1	Algorithms in Signal Processors – Project Course	KS KE U W T				8	4	0	6	182					
EDA132	7.5	G2	4-16/17	4	X	E	Applied Artificial Intelligence	KS KE U W T				28	0	0	0	170					
FMAF10	5	G2	4-16/17	4	-	S	Applied Mathematics - Linear systems	KS KE U W T				26	10	4	0	93					
ETIN10	7.5	A	4-16/17	4	X	E	Channel Modelling for Wireless Communication	KS KE U W T				28	14	0	0	158					
EIT060	7.5	G1	4-16/17	4	X	S	Computer Security	KS KE U W T				28	0	12	2	160					
FMA270	6	A	4-16/17	4	X	E1	Computer Vision	KS KE U W T				26	0	0	2	132					
FMA240	6	G2	4-16/17	4	X	E1	Linear and Combinatorial Optimization	KS KE U W T				26	0	4	1	130					
MIOA01	9	G1	4-16/17	4	-	S	Managerial Economics, Basic Course	KS KE U W T				60	12	3	1	164					
FMAF01	7	G2	4-16/17	4	-	E1	Mathematics - Analytic Functions	KS KE U W T				40	16	0	1	127					
FMS091	7.5	A	4-16/17	4	X	E1	Monte Carlo and Empirical Methods for Stochastic Inference	KS KE U W T				26	0	14	5	120					
ETIA10	7.5	G1	4-16/17	4	X	E	Patent and Intellectual Property Rights	KS KE U W T				28	10	2	0	160					
FMSF05	7.5	G2	4-16/17	4	X	E1	Probability Theory	KS KE U W T				22	14	0	0	160					
TEK280	7.5	G2	4-16/17	4	-	S	Technology Supported Communication	KS KE U W T				20	50	0	0	150					
EDA031	7.5	G2	4-16/17	3	X	S	C++ Programming	KS KE U W T				24	0	8	0	100	0	0	0	0	60
EDA216	7.5	G2	4-16/17	4	X	S	Database Technology	KS KE U W T				24	0	8	0	114	0	0	0	0	50
EITA05	4.5	G1	4-16/17	1	-	S	History of Technology	KS KE U W T				14	0	0	0	40	14	7	0	0	40
FRTN15	7.5	A	4-16/17	4	X	E1	Predictive Control	KS KE U W T				20	14	12	0	70	8	4	0	16	70

Course Code	Credits	Cycle	Language			S.Ex. stud.	Course Name	Footnote	Links	sp1	sp2	sp3	sp4																			
			Year	From year																												
													F	O	L	H	S	F	O	L	H	S	F	O	L	H	S	F	O	L	H	S
FRTN01	10	A	4-16/17	4	X	E1	Real-Time Systems		KS KE U W T			28	18	4	0	70	6	4	8	8	70											
TEK287	15	G2	4-16/17	4	-	S	Biochemistry		KS KE U W T								32	30	80	0	258											
EMFN05	7.5	A	4-16/17	4	X	E1	Chaos		KS KE U W T								28	14	0	10	120											
FMS072	7.5	G2	4-16/17	4	X	E1	Design of Experiments		KS KE U W T								14	14	14	1	150											
FHL090	7.5	A	4-16/17	4	X	E1	Fracture Mechanics, Advanced Course		KS KE U W T								28	28	0	0	144											
EDAN40	7.5	A	4-16/17	3	X	E	Functional Programming		KS KE U W T								24	6	0	0	170											
FMSN30	7.5	A	4-16/17	4	X	E1	Linear and Logistic Regression		KS KE U W T								24	0	26	2	120											
MIO022	6	G2	4-16/17	4	-	S	Management Organization		KS KE U W T								42	0	14	1	104											
FMAF05	7	G2	4-16/17	4	-	E1	Mathematics - Systems and Transforms		KS KE U W T								40	16	0	1	127											
EEMN01	7.5	A	4-16/17	4	X	E1	Micro Sensors		KS KE U W T								14	0	28	60	108											
EDA095	7.5	G2	4-16/17	4	-	S	Network Programming		KS KE U W T								20	0	10	4	166											
FMN050	6	G2	4-16/17	4	X	E1	Numerical Analysis		KS KE U W T								48	10	0	3	100											
EMAN40	3	A	4-16/17	4	X	E1	Project in Applied Mathematics		KS KE U W T								0	0	0	10	70											
EXTN85	7.5	A	4-16/17	4	X	E	Scattering Methods		KS KE U W T								17	4	18	0	160											
ETIF10	7.5	G2	4-16/17	4	X	E1	Signal Processing - Design and Implementation		KS KE U W T								22	22	8	0	148											
FMSN35	7.5	A	4-16/17	4	X	E	Stationary and Non-stationary Spectral Analysis	X	KS KE U W T	Course on hold																						
EITF05	4	G2	5-17/18	4	-	S	Web Security		KS KE U W T	14	6	0	3	84																		

Course Code	Credits	Cycle	Year	From year	S.Ex. stud.	Language	Course Name	Footnote	Links	sp1				sp2				sp3				sp4													
										F	O	L	H	S	F	O	L	H	S	F	O	L	H	S	F	O	L	H	S						
EITN41	7.5	A	5-17/18	4	-	S	Advanced Web Security		KS KE U W T					14	0	4	2	180																	
EEMN05	7.5	A	5-17/18	4	X	E1	EMC, Noise and Noise Reduction		KS KE U W T					14	14	12	60	85																	
FHLN20	7.5	A	5-17/18	4	X	S	Finite Element Method for Non-linear Systems		KS KE U W T					28	0	28	0	144																	

[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	Language			Course Name	Footnote	Links	Links																				
				From year	S.Ex. stud.					sp1	sp2				sp3				sp4											
										F	O	L	H	S	F	O	L	H	S	F	O	L	H	S	F	O	L	H	S	
GEMA20	7.5	G1	4-16/17	1	-	E	English for Engineers	X	KS KE U W T	30	0	0	0	0	30	20	0	0	0	30										
GEMA25	7.5	G1	4-16/17	1	-	S	German for Engineers	X	KS KE U W T	0	40	0	0	0	60	0	40	0	0	60										
GEMA60	7.5	G1	4-16/17	1	-	S	Law for Engineers, Introductory Course in Business Law	X	KS KE U W T	25	0	0	0	0	75	25	0	0	0	75										
GEMA70	15	G1	4-16/17	1	-	S	Japanese for Engineers	X	KS KE U W T	0	20	0	0	0	90	0	20	0	0	90	0	20	0	0	90					
GEMA65	7.5	G1	4-16/17	1	-	S	Chinese for Engineers	X	KS KE U W T											0	20	0	0	80	0	20	0	0	80	
GEMA20	7.5	G1	4-16/17	1	-	E	English for Engineers	X	KS KE U W T											30	0	0	0	30	20	0	0	0	30	
GEMA01	7.5	G1	4-16/17	1	-	S	French for Engineers: Language, Culture and Society, First Course	X	KS KE U W T											0	26	0	0	60	0	26	0	0	60	
GEMA60	7.5	G1	4-16/17	1	-	S	Law for Engineers, Introductory Course in Business Law	X	KS KE U W T											25	0	0	0	75	25	0	0	0	75	

[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. The list is not necessarily complete before the academic year 2016/17.

Links

Course Code Credits

Course Name

EEML05	15	Bachelor Project in Clinical Innovation	KS KE U
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Degree Projects - BME

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

Links

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