

Electrical Engineering

Study Year 1 (Mandatory Courses)

Course Code	Credits	Cycle	S.Ex. stud.	Language	Course Name	Footnote	Links	21/22 sp1					21/22 sp2					21/22 sp3					21/22 sp4				
								F	O	L	H	S	F	O	L	H	S	F	O	L	H	S	F	O	L	H	S
FMAB65	7.5	G1	-	S	Calculus in One Variable B1		KS KE U W T	50	30	0	0	120															
EITA35	15	G1	-	S	Electronics		KS KE U W T	42	28	8	0	100	22	14	12	0	75	4	6	4	10	75					
FMAB70	7.5	G1	-	S	Calculus in One Variable B2		KS KE U W T						50	30	0	0	120										
EDAA55	9	G1	-	S	Programming, First Course		KS KE U W T						22	0	12	0	70	30	0	20	0	90					
FMAB20	6	G1	-	S	Linear Algebra		KS KE U W T											40	16	0	0	106					
FMAB30	6	G1	-	S	Calculus in Several Variables		KS KE U W T																44	16	2	0	100
FAFA01	9	G1	-	S	Physics - Mechanics and Waves		KS KE U W T																48	18	18	0	150

Study Year 2 (Mandatory Courses)

Course Code	Credits	Cycle	S.Ex. stud.	Language	Course Name	Footnote	Links	21/22 sp1					21/22 sp2					21/22 sp3					21/22 sp4				
								F	O	L	H	S	F	O	L	H	S	F	O	L	H	S	F	O	L	H	S
FAFA35	6	G1	-	S	Physics - Thermodynamics and Atomic Physics		KS KE U W T	28	14	12	0	100															
EITF65	9	G2	-	S	Design of Digital Circuits - A Systems Approach		KS KE U W T	28	28	12	0	71	10	14	12	0	63										
EDAA01	7.5	G1	-	S	Programming - Second Course		KS KE U W T	14	0	6	0	72	14	0	8	0	86										
MIOA12	6	G1	-	S	Managerial Economics, Basic Course	X	KS KE U W T						50	12	5	0	93										
ESSF01	8	G2	-	S	Analogue Circuits		KS KE U W T						6	6	0	0	10	14	14	8	0	30	28	14	8	0	70
ESSF10	5	G2	-	S	Electrical Measurements		KS KE U W T											6	20	20	3	70					
FMAF01	7	G2	-	E1	Mathematics - Analytic Functions		KS KE U W T											42	24	0	1	128					
FMAF05	7	G2	-	E1	Mathematics - Systems and Transforms		KS KE U W T																40	16	0	1	130
ESSF20	4.5	G2	-	S	Physics of Devices		KS KE U W T																30	12	8	0	70

[MIOA12](#) Managerial Economics, Basic Course: *Only one of the courses [MIO012](#), [MIOA12](#) and [MIOA01](#) may be included in a degree.*

Study Year 3 (Mandatory Courses)

Course Code	Credits	Cycle	S.Ex. stud.	Language	Course Name	Footnote	Links	21/22																			
								sp1	sp2			sp3			sp4												
								F	O	L	H	S	F	O	L	H	S	F	O	L	H	S	F	O	L	H	S
ERTE05	7.5	G2	-	S	Automatic Control, Basic Course		KS KE U W T	30	30	12	0	128															
EITF75	6	G2	X	E1	Systems and Signals		KS KE U W T	28	28	8	0	96															
EITF80	9	G2	X	E	Electromagnetic Fields		KS KE U W T	16	16	0	0	64	26	24	0	0	104										
FMSF20	7.5	G2	-	S	Mathematical Statistics, Basic Course		KS KE U W T						26	16	8	0	140										
ETSF15	5	G2	-	S	Communication Systems and Networks		KS KE U W T											14	10	12	0	97					
EITF70	6	G2	-	S	Computer Organization		KS KE U W T											14	8	16	0	122					
ESSF15	5	G2	-	S	Electrical Engineering		KS KE U W T											40	24	8	1	60					
BMEF01	5	G2	-	S	Project in Electronics		KS KE U W T											14	4	0	4	10	6	10	0	10	142
FMNF10	6	G2	X	E1	Numerical Analysis		KS KE U W T																48	10	0	3	100
EMIE35	4	G2	-	S	Sustainable Development from an Electro-technological Perspective		KS KE U W T																24	10	0	1	72

Study Year 3 (Elective Mandatory Courses)

Course Code	Credits	Cycle	S.Ex. stud.	Language	Course Name	Footnote	Links	21/22																			
								sp1	sp2			sp3			sp4												
								F	O	L	H	S	F	O	L	H	S	F	O	L	H	S	F	O	L	H	S
EITA50	7.5	G1	-	E1	Signal Processing in Multimedia	X	KS KE U W T																32	24	8	0	136

[EITA50](#) Signal Processing in Multimedia: *Students admitted to the China specialisation takes this course in the autumn of year three, in China.*

Specialisation bg - Images and Computer Graphics

Course Code	Credits	Cycle	Mand./ Elect.	Year	From year	S.Ex. stud.	Language	Course Name	Footnote	Links	sp1				sp2				sp3				sp4									
											F	O	L	S	F	O	L	S	F	O	L	S	F	O	L	S						
EIEN41	7.5	A	V	4	4	X	E1	Electric and Electric Hybrid Vehicle Technology		KS KE U W T	28	6	0	24	142																	
EIEN15	7.5	A	V	4	4	X	E1	Electric Power Systems		KS KE U W T	16	22	8	7	110																	
FMIN25	7.5	A	V	4	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												
MVKN95	7.5	A	V	4	4	X	E	Environmentally Friendly Power Generation		KS KE U W T	14	7	0	7	72	14	7	0	7	72												
EIEN10	7.5	A	V	4	4	X	E1	Wind Power Systems		KS KE U W T						28	10	8	16	110												
AEBF30	7.5	G2	V	4	4	X	E	Photovoltaic Systems, Basic Course		KS KE U W T											25	9	10	1	155							
FMIN20	7.5	A	V	4	4	-	S	Energy Systems Analysis: Renewable Sources of Energy		KS KE U W T											28	12	0	1	92	14	4	0	1	48		
EIEN25	15	A	V	4	4	X	E1	Power Electronics - Devices, Converters, Control and Applications	X	KS KE U W T											28	32	12	7	100	28	28	12	10	100		
MVKN15	7.5	A	V	4	4	-	S	Energy Supply Systems		KS KE U W T																4	24	0	2	170		
MVKP25	7.5	A	V	4	4	X	E	Hydrogen, Batteries and Fuel Cells		KS KE U W T																21	14	0	20	145		
MVKP15	7.5	A	V	4	4	X	E	Wind Power Technology		KS KE U W T																28	28	4	0	140		
MVKN30	7.5	A	V	5	5	-	S	Advanced Efficient Energy Systems		KS KE U W T	2	9	0	3	88	0	9	0	1	88												
EIEN30	7.5	A	V	5	4	X	E1	Project in Industrial Electrical Engineering and Automation		KS KE U W T	0	0	0	21	88	0	0	0	21	88												
EIEN20	7.5	A	V	5	4	X	E1	Design of Electrical Machines	X	KS KE U W T											28	0	0	21	30	0	0	0	21	60		
EIEN30	7.5	A	V	5	4	X	E1	Project in Industrial Electrical Engineering and Automation		KS KE U W T											0	0	0	21	88	0	0	0	21	88		

[EIEN25](#) Power Electronics - Devices, Converters, Control and Applications: *may not be included in a degree together with [ETEF10](#)*

[EIEN20](#) Design of Electrical Machines: *The course is offered every other academic year and will be offered in 2021/22, 2023/24.*

Specialisation fh - Photonics and High-Frequency Electronics

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	F	O	L	H	S			
EITF50	7.5	G2	V	4	4	X	E	An Introduction to Wireless Systems		KS KE U W T	18	18	12	0	152																							
ETIN20	7.5	A	V	4	4	X	E	Digital IC-design		KS KE U W T	24	12	12	0	150																							
FAFF01	7.5	G2	V	4	4	X	E	Optics and Optical Design		KS KE U W T	26	12	15	0	150																							
ETIN25	7.5	A	V	4	4	X	E	Analogue IC-design		KS KE U W T						22	14	12	0	152																		
ETEN10	7.5	A	V	4	4	X	E	Antenna Technology		KS KE U W T						28	14	6	0	152																		
EITP01	7.5	A	V	4	4	X	E1	High Speed Devices		KS KE U W T						32	10	8	0	150																		
FAFN01	7.5	A	V	4	4	X	E	Lasers		KS KE U W T						26	12	10	0	150																		
ETIN50	7.5	A	V	4	4	X	E	RF Amplifier Design		KS KE U W T						28	20	16	0	136																		
ETIN30	7.5	A	V	4	4	X	E	Integrated Radio Electronics		KS KE U W T											12	0	0	32	150													
EITP05	7.5	A	V	4	4	X	E1	Nanoelectronics		KS KE U W T						26	0	4	3	167																		
FFFN25	7.5	A	V	4	4	X	E	Optoelectronics and Optical Communication		KS KE U W T						28	14	12	0	145																		
EITN90	7.5	A	V	4	4	X	E	Radar and Remote Sensing		KS KE U W T						28	8	12	5	147																		
FAFN10	7.5	A	V	4	4	X	E	Advanced Optics and Lasers		KS KE U W T																26	12	10	0	150								
EITN80	7.5	A	V	4	4	X	E1	Electrodynamics		KS KE U W T																28	14	4	0	154								

Specialisation is - Integrated Systems

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
EITG05	7.5	G2	V	4	4	X	E	Digital Communications		KS KE U W T	24	28	4	0	144														
EITP30	7.5	A	V	4	4	X	E	Modern Wireless Systems - 5G and Beyond		KS KE U W T	28	14	6	8	144														
ETSF05	9	G2	V	4	4	-	E	Internet Protocols		KS KE U W T	8	4	4	2	115	10	6	0	4	87									
EITN70	7.5	A	V	4	4	X	E	Channel Coding for Reliable Communication		KS KE U W T						28	14	0	2	156									
EDIN01	7.5	A	V	4	4	X	E1	Cryptography		KS KE U W T						36	14	0	2	148									
ETTNO1	7.5	A	V	4	4	X	E	Digital Communications, Advanced Course		KS KE U W T						20	24	4	5	147									
EITN30	7.5	A	V	4	4	X	E1	Internet Inside		KS KE U W T											10	0	28	2	160				
ETSN10	7.5	A	V	4	4	X	E	Network Architecture and Performance		KS KE U W T											26	13	2	13	146				
EITN85	7.5	A	V	4	4	X	E	Wireless Communication Channels		KS KE U W T											28	14	0	0	158				
EITN45	7.5	A	V	4	4	X	E	Information Theory		KS KE U W T															26	14	0	0	160
EITF95	4.5	G2	V	4	4	X	S	Queueing System		KS KE U W T															14	22	8	0	76
EITN95	7.5	A	V	4	4	X	E1	Simulation		KS KE U W T															18	0	6	4	172
EITN75	7.5	A	V	4	4	X	E	Wireless System Design Principles		KS KE U W T															28	14	4	0	154
EITN21	7.5	A	V	5	5	X	E	Project in Wireless Communication		KS KE U W T	10	0	0	12	78	4	0	0	24	72									

Specialisation mt - Biomedical Engineering

Specialisation pla - Production, Logistics and Business

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
MTTF01	5	G2	V	4	4	-	S	Logistics		KS KE U W T	24	8	2	0	86													
MION25	7.5	A	V	4	4	-	S	Technology Strategy		KS KE U W T	36	8	0	3	153													
MIOF15	7.5	G2	V	4	4	-	S	Marketing		KS KE U W T						34	6	0	6	154								
MIOF10	7.5	G2	V	4	4	X	E	Production and Inventory Control		KS KE U W T						36	12	10	0	142								
MION20	7.5	A	V	4	4	-	S	Applied Business Analysis		KS KE U W T										54	2	0	1	143				
MTTN70	7.5	A	V	4	4	X	E	International Physical Distribution		KS KE U W T										32	12	8	8	140				
MION01	7.5	A	V	4	4	X	E	Management of Production and Inventory Systems		KS KE U W T										40	0	10	0	150				
MIOF25	6	G2	V	4	4	-	S	Managerial Economics, Advanced Course		KS KE U W T														36	14	8	1	101
MION45	7.5	A	V	4	4	X	E	Operations Strategy		KS KE U W T														22	0	10	5	163
MTTN80	7.5	A	V	4	4	X	E	Supply Chain Management		KS KE U W T														38	12	0	50	100
MION30	7.5	A	V	5	4	-	S	Industrial Management		KS KE U W T	50	0	0	6	144													
MTTN20	7.5	A	V	5	5	X	E	Supply Chain Information Systems		KS KE U W T	20	0	20	10	150													
MION05	7.5	A	V	5	4	-	S	Business Marketing		KS KE U W T						36	16	0	1	147								
MTTN75	7.5	A	V	5	4	X	E	Industrial Purchasing		KS KE U W T						48	10	4	4	130								

Specialisation pv - Software

Specialisation ra - Control and Automation

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				
FRTN55	7.5	A	V	4	4	X	E	Automatic Control, Advanced Course	X	KS KE U W T	30	28	12	0	130																			
EIEN15	7.5	A	V	4	4	X	E1	Electric Power Systems		KS KE U W T	16	22	8	7	110																			
EIEN45	10	A	V	4	4	X	E1	Applied Mechatronics		KS KE U W T	22	0	12	8	90	14	4	12	14	90														
EMAN71	7.5	A	V	4	4	X	E1	Matrix Theory		KS KE U W T	18	10	0	1	56	18	6	0	1	90														
FRTN65	7.5	A	V	4	4	X	E	Modelling and Learning from Data	X	KS KE U W T	16	10	4	0	70	14	10	8	0	68														
FRTN05	7.5	A	V	4	4	X	E	Non-Linear Control and Servo Systems		KS KE U W T						28	28	12	0	130														
FRTN40	7.5	A	V	4	4	X	E	Project in Automatic Control		KS KE U W T						0	0	0	40	160														
EIEN50	7.5	A	V	4	4	X	E1	Automation		KS KE U W T											42	10	12	8	135									
FRTN75	7.5	A	V	4	4	X	E	Learning-Based Control	X	KS KE U W T											28	28	12	0	130									
EIEN01	10	A	V	4	4	X	E1	Mechatronics, Industrial Product Design		KS KE U W T											0	0	0	14	120	0	0	0	14	120				
FRTN01	10	A	V	4	4	X	E	Real-Time Systems		KS KE U W T											34	22	12	0	132	0	0	0	12	54				
EIEN35	7.5	A	V	4	4	X	E1	Automation for Complex Systems		KS KE U W T																42	0	60	20	70				
FRTN30	7.5	A	V	4	4	X	E	Network Dynamics		KS KE U W T																28	28	16	0	130				

[FRTN55](#) Automatic Control, Advanced Course: *Replaces [FRTN10](#) Multivariable Control*

[FRTN65](#) Modelling and Learning from Data: *Replaces [FRTN35](#) System Identification.*

[FRTN75](#) Learning-Based Control: *Replaces [FRTN15](#) Predictive Control.*

Specialisation ss - Signals and Sensors

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
EITN70	7.5	A	4	4	X	E	Project in Systems, Control and Learning		KS KE U W T													0	0	0	40	160	
EITN35	7.5	A	5	4	-	E1	Advanced Course in Electrical and Information Technology	X	KS KE U W T	0	0	0	0	200													
EITF05	4	G2	5	4	-	S	Web Security		KS KE U W T	14	6	0	3	84													
EITN35	7.5	A	5	4	-	E1	Advanced Course in Electrical and Information Technology	X	KS KE U W T					0	0	0	0	200									
EITN41	7.5	A	5	4	X	E	Advanced Web Security		KS KE U W T					14	0	0	2	184									
EITN35	7.5	A	5	4	-	E1	Advanced Course in Electrical and Information Technology	X	KS KE U W T									0	0	0	0	200					
EITN35								X														0	0	0	0	200	
EIEF40	9	G2	4	4	X	E1	Measurement Systems for Control	X	KS KE U W T	Course on hold																	

[EITN50](#) Advanced Computer Security: *Only one of the courses [EITN50](#) and [EIT015](#) may be included in a degree.*

[FMSF15](#) Markov Processes: *The course is to be studied together with MASC03.*

[EDAG05](#) Agile Software Development - Project: *Only one of the courses [EDAF45](#) and [EDAG05](#) may be included in a degree.*

[EDAG01](#) Efficient C: *[EDAA25](#) and [EDAF15](#) can not be included in the degree at the same time as [EDAG01](#).*

[EDAF45](#) Software Development in Teams - Project: *Only one of the courses [EDAF45](#) and [EDAG05](#) may be included in a degree.*

[EITN35](#) Advanced Course in Electrical and Information Technology: *The course starts only after agreement with the department. The course is not linked to any specific study period. The information on hours depends on the course running over a study period. Individual study plans are to be set up and approved.*

[EIEF40](#) Measurement Systems for Control: *Exam date to be set by agreement. The course is offered every other academic year and will next be offered 2022/23.*

Externally Elective Courses - E

Course Code	Credits	Cycle	From Year	S.Ex. stud.	Language	Course Name	Footnote	Links	sp1				sp2				sp3				sp4							
									F	O	L	S	F	O	L	S	F	O	L	S	F	O	L	S				
EXTF60	15	G2	3	3	-	E	Introductory Course in Chinese for Engineers, Part 2	KS KE U W T	0	0	0	0	200	0	0	0	0	0	0	0	200							
GEMA65	7.5	G1	3	1	-	S	Chinese for Engineers	KS KE U W T									0	20	0	0	80	0	20	0	0	80		
GEMA20	7.5	G1	4	1	-	E	English for Engineers	KS KE U W T	30	0	0	0	70	20	0	0	0	80										
GEMA25	7.5	G1	4	1	-	S	German for Engineers	KS KE U W T	0	40	0	0	60	0	40	0	0	60										
GEMA20	7.5	G1	4	1	-	E	English for Engineers	KS KE U W T									30	0	0	0	70	20	0	0	0	80		
GEMA01	7.5	G1	4	1	-	S	French for Engineers: Language, Culture and Society, First Course	KS KE U W T									0	26	0	0	74	0	26	0	0	74		
GEMA70	15	G1	4	1	-	S	Japanese for Engineers	KS KE U W T									0	34	0	0	165	0	32	0	0	165		

Bachelor's Projects - E

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

Links

Course Code	Credits	Course Name	Links
FRTL01	15	Bachelor Project in Automatic Control	KS KE U
BMEL01	15	Bachelor Project in Biomedical Engineering	KS KE U
EDAL01	15	Bachelor Project in Computer Science	KS KE U W
EITL01	15	Bachelor Project in Electrical and Information Technology	KS KE U W
EEML01	15	Bachelor Project in Electrical Measurements	KS KE U
EIEL01	15	Bachelor Project in Industrial Electrical Engineering and Automation	KS KE U
FMSL01	15	Bachelor Project in Mathematical Statistics	KS KE U W
FMAL01	15	Bachelor Project in Mathematics	KS KE U
FMNL01	15	Bachelor Project in Numerical Analysis	KS KE U W
PHYL01	15	Bachelor Project in Physics	KS KE U

Degree Projects - E

The list contains the degree project courses that are included in the E 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
AEBM05	30	Degree Project in Energy and Building Design	KS KE U
VTAM01	30	Degree Project in Engineering Acoustics	KS KE U
MAMM10	30	Degree Project in Ergonomics	KS KE U W
EIEM01	30	Degree Project in Industrial Electrical Engineering and Automation	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 W
FMNM01	30	Degree Project in Numerical Analysis	KS KE U W
PHYM01	30	Degree Project in Physics	KS KE U W
MIOM05	30	Degree Project in Production Management	KS KE U W
TNSM01	30	Degree Project in Rehabilitation Engineering	KS KE U W