

# **Information and Communication Engineering**

**Study Year 1, Academic Year 2018/19 (Mandatory Courses)**

Course Code	Credits	Cycle	S.Ex. stud.	Language	Course Name	Footnote	Links	18/19	18/19	18/19	18/19
								sp1	sp2	sp3	sp4
<a href="#">EITA55</a>	7.5	G1	-	S	Communication Systems		<a href="#">KS KE U W T</a>	1			
<a href="#">EMAA05</a>	15	G1	-	S	Calculus in One Variable		<a href="#">KS KE U W T</a>	1	2		
<a href="#">EXTA65</a>	4.5	G1	-	S	Cognition		<a href="#">KS KE U W T</a>		2		
<a href="#">EDAA55</a>	9	G1	-	S	Programming, First Course		<a href="#">KS KE U W T</a>		2	3	
<a href="#">FMAB20</a>	6	G1	-	S	Linear Algebra		<a href="#">KS KE U W T</a>			3	
<a href="#">FAFA60</a>	5	G1	-	S	Photonics		<a href="#">KS KE U W T</a>			3	
<a href="#">EITA30</a>	7.5	G1	-	S	Information Transmission		<a href="#">KS KE U W T</a>				4

Course Code	Credits	Cycle	S.Ex. stud.	Language	Course Name	Footnote	Links								
							18/19 sp1	18/19 sp2	18/19 sp3	18/19 sp4					
<a href="#">ETSA02</a>	6	G1	-	S	Software Engineering - Methodology		<a href="#">KS</a>	<a href="#">KE</a>	<a href="#">U</a>	<a href="#">W</a>	<a href="#">T</a>				4

**Study Year 2, Academic Year 2019/20 (Mandatory Courses)**

Course Code	Credits	Cycle	S.Ex. stud.	Language	Course Name	Footnote	Links	19/20	19/20	19/20	19/20
								sp1	sp2	sp3	sp4
<a href="#">EMAB30</a>	6	G1	-	S	Calculus in Several Variables		<a href="#">KS KE U W T</a>	1			
<a href="#">ETSF05</a>	9	G2	-	E1	Internet Protocols	X	<a href="#">KS KE U W T</a>	1	2		
<a href="#">EDAA01</a>	7.5	G1	-	S	Programming - Second Course		<a href="#">KS KE U W T</a>	1	2		
<a href="#">MAMA15</a>	7.5	G1	-	S	Interaction Design, Basic Course		<a href="#">KS KE U W T</a>		2		
<a href="#">EITA25</a>	7.5	G1	X	S	Computer Security		<a href="#">KS KE U W T</a>			3	
<a href="#">EDAF75</a>	7.5	G2	X	S	Database Technology		<a href="#">KS KE U W T</a>			3	4
<a href="#">EMSF55</a>	7.5	G2	-	S	Mathematical Statistics, Basic Course		<a href="#">KS KE U W T</a>				4

Course Code	Credits	Cycle	S.Ex. stud.	Language	Course Name	Footnote	Links								
							19/20 sp1	19/20 sp2	19/20 sp3	19/20 sp4					
<a href="#">EITA50</a>	7.5	G1	X	S	Signal Processing in Multimedia	X	<a href="#">KS</a>	<a href="#">KE</a>	<a href="#">U</a>	<a href="#">W</a>	<a href="#">T</a>				4

[ETSF05](#) Internet Protocols: *Only one of the courses [ETSF05](#) and [ETSF10](#) may be included in a degree.*

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

### Study Year 3, Academic Year 2020/21 (Mandatory Courses)

Course Code	Credits	Cycle	S.Ex. stud.	Language	Course Name	Footnote	Links	20/21	20/21	20/21	20/21
								sp1	sp2	sp3	sp4
<a href="#">EITG05</a>	7.5	G2	X	E	Digital Communications		<a href="#">KS KE U W T</a>	1			
<a href="#">EDAF60</a>	4.5	G2	-	S	Object-oriented Modelling and Design		<a href="#">KS KE U W T</a>	1			
<a href="#">EITF05</a>	4	G2	-	S	Web Security		<a href="#">KS KE U W T</a>	1			
<a href="#">ERTF05</a>	7.5	G2	-	S	Automatic Control, Basic Course		<a href="#">KS KE U W T</a>		2		
<a href="#">ETSF25</a>	7.5	G2	-	S	The Business of Software		<a href="#">KS KE U W T</a>		2		
<a href="#">EITE70</a>	6	G2	-	S	Computer Organization		<a href="#">KS KE U W T</a>			3	
<a href="#">EDAF90</a>	7.5	G2	X	S	Web Programming		<a href="#">KS KE U T</a>			3	

Course Code	Credits	Cycle	S.Ex. stud.	Language	Course Name	Footnote	Links			
							20/21 sp1	20/21 sp2	20/21 sp3	20/21 sp4
<a href="#">EMIF45</a>	4	G2	-	S	Sustainability and Resource Use with Perspectives on Information and Communication Technology	<a href="#">KS</a> <a href="#">KE</a> <a href="#">U</a> <a href="#">W</a> <a href="#">T</a>			3	4
<a href="#">MAMN01</a>	7.5	A	-	S	Advanced Interaction Design	<a href="#">KS</a> <a href="#">KE</a> <a href="#">U</a> <a href="#">T</a>				4
<a href="#">EITF95</a>	4.5	G2	X	S	Queuing System	<a href="#">KS</a> <a href="#">KE</a> <a href="#">U</a> <a href="#">W</a> <a href="#">T</a>				4

### Specialisation da - Usability

Course Code	Credits	Cycle	Mand./ Elect.		Year	From year	S.Ex. stud.	Language	Course Name	Footnote	Links			
											sp1	sp2	sp3	sp4
<a href="#">MAMN45</a>	7.5	A	V		4 - 21/22	4	-	S	People, Technology, Organization and Risk Management	<a href="#">KS</a> <a href="#">KE</a> <a href="#">U</a> <a href="#">W</a> <a href="#">T</a>	1			
<a href="#">MAMF50</a>	7.5	G2	V		4 - 21/22	4	-	S	Usability Evaluation	<a href="#">KS</a> <a href="#">KE</a> <a href="#">U</a> <a href="#">W</a> <a href="#">T</a>	1			
<a href="#">TNSF05</a>	7.5	G2	V		4 - 21/22	4	-	S	Rehabilitation Engineering	<a href="#">KS</a> <a href="#">KE</a> <a href="#">U</a> <a href="#">W</a> <a href="#">T</a>	1	2		
<a href="#">MAMN40</a>	7.5	A	V		4 - 21/22	4	-	S	Working Environment, Project	<a href="#">KS</a> <a href="#">KE</a> <a href="#">U</a> <a href="#">W</a> <a href="#">T</a>	1	2		
<a href="#">EITN41</a>	7.5	A	V		4 - 21/22	4	X	E	Advanced Web Security	<a href="#">KS</a> <a href="#">KE</a> <a href="#">U</a> <a href="#">W</a> <a href="#">T</a>		2		
<a href="#">EDAN10</a>	7.5	A	V		4 - 21/22	4	X	E	Configuration Management	<a href="#">KS</a> <a href="#">KE</a> <a href="#">U</a> <a href="#">W</a> <a href="#">T</a>		2		
<a href="#">ETSN20</a>	7.5	A	V		4 - 21/22	4	X	E	Software Testing	<a href="#">KS</a> <a href="#">KE</a> <a href="#">U</a> <a href="#">W</a> <a href="#">T</a>		2		



Course Code	Credits	Cycle	Mand./ Elect.		Year	From year	S.Ex. stud.	Language	Course Name	Footnote	Links						
											sp1	sp2	sp3	sp4			
<a href="#">ETSN15</a>	7.5	A	V		4 - 21/22	4	-	S	Requirements Engineering		<a href="#">KS</a>	<a href="#">KE</a>	<a href="#">U</a>	<a href="#">W</a>	<a href="#">T</a>	3	
<a href="#">EXTG45</a>	7.5	G2	V		4 - 21/22	4	-	S	Technology Supported Communication		<a href="#">KS</a>	<a href="#">KE</a>	<a href="#">U</a>	<a href="#">W</a>	<a href="#">T</a>	3	
<a href="#">MAMN50</a>	7.5	A	V		4 - 21/22	4	X	E	Theoretical Perspectives in Interaction Design		<a href="#">KS</a>	<a href="#">KE</a>	<a href="#">U</a>	<a href="#">W</a>	<a href="#">T</a>	3	4
<a href="#">TNSF10</a>	7.5	G2	V		4 - 21/22	4	X	E1	Universal Design, Theory and Project		<a href="#">KS</a>	<a href="#">KE</a>	<a href="#">U</a>	<a href="#">W</a>	<a href="#">T</a>	3	4
<a href="#">MAMF45</a>	7.5	G2	V		4 - 21/22	4	-	E	Virtual Reality in Theory and Practice		<a href="#">KS</a>	<a href="#">KE</a>	<a href="#">U</a>	<a href="#">W</a>	<a href="#">T</a>	3	4
<a href="#">MAMN40</a>	7.5	A	V		4 - 21/22	4	-	S	Working Environment, Project		<a href="#">KS</a>	<a href="#">KE</a>	<a href="#">U</a>	<a href="#">W</a>	<a href="#">T</a>	3	4
<a href="#">MAMN10</a>	7.5	A	V		4 - 21/22	4	-	S	Interaction 1: Neuro Modelling, Cognitive Robotics and Agents	X	<a href="#">KS</a>	<a href="#">KE</a>	<a href="#">U</a>	<a href="#">W</a>	<a href="#">T</a>	Course on hold	
<a href="#">MAMN15</a>	7.5	A	V		4 - 21/22	4	-	S	Interaction 2: Virtuality and Cognitive Modelling	X	<a href="#">KS</a>	<a href="#">KE</a>	<a href="#">U</a>	<a href="#">W</a>	<a href="#">T</a>	Course on hold	

[MAMN10](#) Interaction 1: Neuro Modelling, Cognitive Robotics and Agents: *The course is offered every other academic year and will next be offered in 2022/23.*

[MAMN15](#) Interaction 2: Virtuality and Cognitive Modelling: *The course is offered every other academic year and will next be offered in 2022/23.*

## **Specialisation ks - Communication Systems**

Course Code	Credits	Cycle	Mand./ Elect.		Year	From year	S.Ex. stud.	Language	Course Name	Footnote	Links				
											sp1	sp2	sp3	sp4	
<a href="#">EMSE10</a>	7.5	G2	V		4 - 21/22	4	X	E	Stationary Stochastic Processes	X	<a href="#">KS</a> <a href="#">KE</a> <a href="#">U</a> <a href="#">W</a> <a href="#">T</a>	1			
<a href="#">EDIN01</a>	7.5	A	V		4 - 21/22	4	X	E1	Cryptography		<a href="#">KS</a> <a href="#">KE</a> <a href="#">U</a> <a href="#">W</a> <a href="#">T</a>		2		
<a href="#">ETTNO1</a>	7.5	A	V		4 - 21/22	4	X	E	Digital Communications, Advanced Course		<a href="#">KS</a> <a href="#">KE</a> <a href="#">U</a> <a href="#">W</a> <a href="#">T</a>		2		
<a href="#">EITP10</a>	7.5	A	V		4 - 21/22	4	X	E	High Performance Fiber Networks		<a href="#">KS</a> <a href="#">KE</a> <a href="#">U</a> <a href="#">T</a>		2		
<a href="#">EMAN10</a>	7.5	A	V		4 - 21/22	4	X	E1	Algebraic Structures		<a href="#">KS</a> <a href="#">KE</a> <a href="#">U</a> <a href="#">W</a> <a href="#">T</a>			3	
<a href="#">EDAP25</a>	7.5	A	V		4 - 21/22	4	X	E	Distributed Systems		<a href="#">KS</a> <a href="#">KE</a> <a href="#">U</a> <a href="#">T</a>			3	
<a href="#">EITN30</a>	7.5	A	V		4 - 21/22	4	X	E1	Internet Inside		<a href="#">KS</a> <a href="#">KE</a> <a href="#">U</a> <a href="#">W</a> <a href="#">T</a>			3	

Course Code	Credits	Cycle	Mand./ Elect.		Year	From year	S.Ex. stud.	Language	Course Name	Footnote	Links			
											sp1	sp2	sp3	sp4
<a href="#">ETSN10</a>	7.5	A	V		4 - 21/22	4	X	E	Network Architecture and Performance	<a href="#">KS</a> <a href="#">KE</a> <a href="#">U</a> <a href="#">W</a> <a href="#">T</a>			3	
<a href="#">EITN45</a>	7.5	A	V		4 - 21/22	4	X	E	Information Theory	<a href="#">KS</a> <a href="#">KE</a> <a href="#">U</a> <a href="#">W</a> <a href="#">T</a>				4
<a href="#">EITN95</a>	7.5	A	V		4 - 21/22	4	X	E1	Simulation	<a href="#">KS</a> <a href="#">KE</a> <a href="#">U</a> <a href="#">W</a> <a href="#">T</a>				4
<a href="#">EITN75</a>	7.5	A	V		4 - 21/22	4	X	E	Wireless System Design Principles	<a href="#">KS</a> <a href="#">KE</a> <a href="#">U</a> <a href="#">W</a> <a href="#">T</a>				4

[FMSE10](#) Stationary Stochastic Processes: *The course is to be studied together with MASC04*

## Specialisation pv - Software

Course Code	Credits	Cycle	Mand./ Elect.		Year	From year	S.Ex. stud.	Language	Course Name	Footnote	Links				
											sp1	sp2	sp3	sp4	
<a href="#">EDAP10</a>	7.5	A	V		4 - 21/22	4	-	S	Concurrent Programming		<a href="#">KS</a> <a href="#">KE</a> <a href="#">U</a> <a href="#">W</a> <a href="#">T</a>	1			
<a href="#">EDAN20</a>	7.5	A	V		4 - 21/22	4	X	E	Language Technology		<a href="#">KS</a> <a href="#">KE</a> <a href="#">U</a> <a href="#">W</a> <a href="#">T</a>	1			
<a href="#">EDAN70</a>	7.5	A	V		4 - 21/22	4	X	E1	Project in Computer Science	X	<a href="#">KS</a> <a href="#">KE</a> <a href="#">U</a> <a href="#">W</a> <a href="#">T</a>	1			
<a href="#">EDAN95</a>	7.5	A	V		4 - 21/22	4	-	E	Applied Machine Learning		<a href="#">KS</a> <a href="#">KE</a> <a href="#">U</a> <a href="#">W</a> <a href="#">T</a>		2		
<a href="#">EDAP05</a>	7.5	A	V		4 - 21/22	4	X	E	Concepts of Programming Languages	X	<a href="#">KS</a> <a href="#">KE</a> <a href="#">U</a> <a href="#">W</a> <a href="#">T</a>		2		
<a href="#">EDAN01</a>	7.5	A	V		4 - 21/22	4	X	E1	Constraint Programming		<a href="#">KS</a> <a href="#">KE</a> <a href="#">U</a> <a href="#">W</a> <a href="#">T</a>		2		
<a href="#">FMAB75</a>	7.5	G1	V		4 - 21/22	4	X	E1	Discrete Mathematics		<a href="#">KS</a> <a href="#">KE</a> <a href="#">U</a> <a href="#">W</a> <a href="#">T</a>		2		

Course Code	Credits	Cycle	Mand./ Elect.		Year	From year	S.Ex. stud.	Language	Course Name	Footnote	Links				
											sp1	sp2	sp3	sp4	
<a href="#">EDAG01</a>	7.5	G2	V		4 - 21/22	4	X	S	Efficient C	X	<a href="#">KS</a> <a href="#">KE</a> <a href="#">U</a> <a href="#">W</a> <a href="#">T</a>		2		
<a href="#">EDAN70</a>	7.5	A	V		4 - 21/22	4	X	E1	Project in Computer Science	X	<a href="#">KS</a> <a href="#">KE</a> <a href="#">U</a> <a href="#">W</a> <a href="#">T</a>		2		
<a href="#">EDAP01</a>	7.5	A	V		4 - 21/22	4	X	E	Artificial Intelligence		<a href="#">KS</a> <a href="#">KE</a> <a href="#">U</a> <a href="#">W</a> <a href="#">T</a>			3	
<a href="#">EDAN70</a>	7.5	A	V		4 - 21/22	4	X	E1	Project in Computer Science	X	<a href="#">KS</a> <a href="#">KE</a> <a href="#">U</a> <a href="#">W</a> <a href="#">T</a>			3	
<a href="#">EDAF50</a>	7.5	G2	V		4 - 21/22	4	X	S	C++ Programming		<a href="#">KS</a> <a href="#">KE</a> <a href="#">U</a> <a href="#">W</a> <a href="#">T</a>			3	4
<a href="#">EDAF05</a>	5	G2	V		4 - 21/22	4	X	S	Algorithms, Data Structures and Complexity		<a href="#">KS</a> <a href="#">KE</a> <a href="#">U</a> <a href="#">W</a> <a href="#">T</a>				4
<a href="#">EMAB75</a>	7.5	G1	V		4 - 21/22	4	X	E1	Discrete Mathematics		<a href="#">KS</a> <a href="#">KE</a> <a href="#">U</a> <a href="#">W</a> <a href="#">T</a>				4

Course Code	Credits	Cycle	Mand./ Elect.	Year	From year	S.Ex. stud.	Language	Course Name	Footnote	Links				
										sp1	sp2	sp3	sp4	
<a href="#">EDAN40</a>	7.5	A	V	4 - 21/22	4	X	E	Functional Programming		<a href="#">KS</a> <a href="#">KE</a> <a href="#">U</a> <a href="#">W</a> <a href="#">T</a>				4
<a href="#">EDAN70</a>	7.5	A	V	4 - 21/22	4	X	E1	Project in Computer Science	X	<a href="#">KS</a> <a href="#">KE</a> <a href="#">U</a> <a href="#">W</a> <a href="#">T</a>				4
<a href="#">EDAP15</a>	7.5	A	V	4 - 21/22	4	X	E	Program Analysis	X	<a href="#">KS</a> <a href="#">KE</a> <a href="#">U</a> <a href="#">W</a> <a href="#">T</a>	Course on hold			

[EDAN70](#) Project in Computer Science: *The course is given once per study period and is open for zero or more project areas each course instance. The prerequisites depend on the project area.*

[EDAP05](#) Concepts of Programming Languages: *The course is offered every other academic year and will be given in 2021/22, 2023/24.*

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

[EDAP15](#) Program Analysis: *The course is offered every other academic year and will next be given in 2022/23.*

## Specialisation sec - Security

Course Code	Credits	Cycle	Mand./ Elect.		Year	From year	S.Ex. stud.	Language	Course Name	Footnote	Links			
											sp1	sp2	sp3	sp4
<a href="#">EITN50</a>	7.5	A	V		4 - 21/22	4	X	E	Advanced Computer Security	<a href="#">KS</a> <a href="#">KE</a> <a href="#">U</a> <a href="#">W</a> <a href="#">T</a>	1			
<a href="#">MAMN45</a>	7.5	A	V		4 - 21/22	4	-	S	People, Technology, Organization and Risk Management	<a href="#">KS</a> <a href="#">KE</a> <a href="#">U</a> <a href="#">W</a> <a href="#">T</a>	1			
<a href="#">EITN41</a>	7.5	A	V		4 - 21/22	4	X	E	Advanced Web Security	<a href="#">KS</a> <a href="#">KE</a> <a href="#">U</a> <a href="#">W</a> <a href="#">T</a>		2		
<a href="#">EITF20</a>	7.5	G2	V		4 - 21/22	4	X	E	Computer Architecture	<a href="#">KS</a> <a href="#">KE</a> <a href="#">U</a> <a href="#">W</a> <a href="#">T</a>		2		
<a href="#">EDIN01</a>	7.5	A	V		4 - 21/22	4	X	E1	Cryptography	<a href="#">KS</a> <a href="#">KE</a> <a href="#">U</a> <a href="#">W</a> <a href="#">T</a>		2		
<a href="#">EMSF60</a>	7.5	G2	V		4 - 21/22	4	-	E1	Statistical Methods for Safety Analysis	<a href="#">KS</a> <a href="#">KE</a> <a href="#">U</a> <a href="#">W</a> <a href="#">T</a>		2		
<a href="#">EMAN10</a>	7.5	A	V		4 - 21/22	4	X	E1	Algebraic Structures	<a href="#">KS</a> <a href="#">KE</a> <a href="#">U</a> <a href="#">W</a> <a href="#">T</a>			3	



Course Code	Credits	Cycle	Mand./ Elect.	Year	From year	S.Ex. stud.	Language	Course Name	Footnote	Links					
										sp1	sp2	sp3	sp4		
<a href="#">EITN30</a>	7.5	A	V	4 - 21/22	4	X	E1	Internet Inside		<a href="#">KS</a>	<a href="#">KE</a>	<a href="#">U</a>	<a href="#">W</a>	<a href="#">T</a>	3
<a href="#">EITP20</a>	7.5	A	V	4 - 21/22	4	X	E	Secure Systems Engineering		<a href="#">KS</a>	<a href="#">KE</a>	<a href="#">U</a>	<a href="#">T</a>		3
<a href="#">EITN85</a>	7.5	A	V	4 - 21/22	4	X	E	Advanced Cryptography		<a href="#">KS</a>	<a href="#">KE</a>	<a href="#">U</a>	<a href="#">T</a>		4
<a href="#">EITN45</a>	7.5	A	V	4 - 21/22	4	X	E	Information Theory		<a href="#">KS</a>	<a href="#">KE</a>	<a href="#">U</a>	<a href="#">W</a>	<a href="#">T</a>	4
<a href="#">EDAE35</a>	7.5	G2	V	4 - 21/22	4	X	E1	Operating Systems		<a href="#">KS</a>	<a href="#">KE</a>	<a href="#">U</a>	<a href="#">W</a>	<a href="#">T</a>	4
<a href="#">EDAP15</a>	7.5	A	V	4 - 21/22	4	X	E	Program Analysis	X	<a href="#">KS</a>	<a href="#">KE</a>	<a href="#">U</a>	<a href="#">W</a>	<a href="#">T</a>	Course on hold

[EDAP15](#) Program Analysis: *The course is offered every other academic year and will next be given in 2022/23.*

## Elective Courses - C

Course Code	Credits	Cycle	Year	From year	S.Ex. stud.	Language	Course Name	Footnote	Links				
										sp1	sp2	sp3	sp4
<a href="#">EMAA60</a>	7.5	G1	1 - 18/19	1	-	S	Introduction to Real Analysis		<a href="#">KS</a> <a href="#">KE</a> <a href="#">U</a> <a href="#">W</a> <a href="#">T</a>	1			
<a href="#">EDAN90</a>	7.5	A	4 - 21/22	4	X	E1	Advanced Project in Computer Science	X	<a href="#">KS</a> <a href="#">KE</a> <a href="#">U</a> <a href="#">W</a> <a href="#">T</a>	1			
<a href="#">ERTN55</a>	7.5	A	4 - 21/22	4	X	E	Automatic Control, Advanced Course		<a href="#">KS</a> <a href="#">KE</a> <a href="#">U</a> <a href="#">W</a> <a href="#">T</a>	1			
<a href="#">EDAN65</a>	7.5	A	4 - 21/22	4	X	E1	Compilers		<a href="#">KS</a> <a href="#">KE</a> <a href="#">U</a> <a href="#">W</a> <a href="#">T</a>	1			
<a href="#">EDAF80</a>	7.5	G2	4 - 21/22	4	X	E	Computer Graphics		<a href="#">KS</a> <a href="#">KE</a> <a href="#">U</a> <a href="#">W</a> <a href="#">T</a>	1			
<a href="#">IYT000</a>	15	G2	4 - 21/22	3	-	S	Engineering Training Course		<a href="#">KS</a> <a href="#">KE</a> <a href="#">U</a> <a href="#">W</a>	1			
<a href="#">EDAP20</a>	7.5	A	4 - 21/22	4	X	E	Intelligent Autonomous Systems		<a href="#">KS</a> <a href="#">KE</a> <a href="#">U</a> <a href="#">W</a> <a href="#">T</a>	1			

Course Code	Credits	Cycle	Year	From year	S.Ex. stud.	Language	Course Name	Footnote	Links				
										sp1	sp2	sp3	sp4
<a href="#">MIOA12</a>	6	G1	4 - 21/22	4	-	S	Managerial Economics, Basic Course	X	<a href="#">KS</a> <a href="#">KE</a> <a href="#">U</a> <a href="#">W</a> <a href="#">T</a>	1			
<a href="#">EMSF15</a>	7.5	G2	4 - 21/22	4	X	E	Markov Processes	X	<a href="#">KS</a> <a href="#">KE</a> <a href="#">U</a> <a href="#">W</a> <a href="#">T</a>	1			
<a href="#">EITN60</a>	7.5	A	4 - 21/22	4	X	E	Optimum and Adaptive Signal Processing		<a href="#">KS</a> <a href="#">KE</a> <a href="#">U</a> <a href="#">W</a> <a href="#">T</a>	1			
<a href="#">ETSN05</a>	7.5	A	4 - 21/22	4	-	S	Software Development for Large Systems		<a href="#">KS</a> <a href="#">KE</a> <a href="#">U</a> <a href="#">W</a> <a href="#">T</a>	1			
<a href="#">EITF65</a>	9	G2	4 - 21/22	4	-	S	Design of Digital Circuits - A Systems Approach		<a href="#">KS</a> <a href="#">KE</a> <a href="#">U</a> <a href="#">W</a> <a href="#">T</a>	1	2		
<a href="#">EMIN25</a>	7.5	A	4 - 21/22	4	-	S	Energy Systems Analysis: Energy, Environment and Natural Resources		<a href="#">KS</a> <a href="#">KE</a> <a href="#">U</a> <a href="#">W</a> <a href="#">T</a>	1	2		
<a href="#">EMAN71</a>	7.5	A	4 - 21/22	4	X	E1	Matrix Theory		<a href="#">KS</a> <a href="#">KE</a> <a href="#">U</a> <a href="#">W</a> <a href="#">T</a>	1	2		

Course Code	Credits	Cycle	Year	From year	S.Ex. stud.	Language	Course Name	Footnote	Links				
										sp1	sp2	sp3	sp4
<a href="#">ERTN65</a>	7.5	A	4 - 21/22	4	X	E	Modelling and Learning from Data	X	<a href="#">KS</a> <a href="#">KE</a> <a href="#">U</a> <a href="#">W</a> <a href="#">T</a>	1	2		
<a href="#">MVKP05</a>	7.5	A	4 - 21/22	4	X	E1	Project - Formula Student		<a href="#">KS</a> <a href="#">KE</a> <a href="#">U</a> <a href="#">W</a> <a href="#">T</a>	1	2		
<a href="#">EDAN90</a>	7.5	A	4 - 21/22	4	X	E1	Advanced Project in Computer Science	X	<a href="#">KS</a> <a href="#">KE</a> <a href="#">U</a> <a href="#">W</a> <a href="#">T</a>		2		
<a href="#">EDAG05</a>	7.5	G2	4 - 21/22	4	-	E1	Agile Software Development - Project	X	<a href="#">KS</a> <a href="#">KE</a> <a href="#">U</a> <a href="#">W</a> <a href="#">T</a>		2		
<a href="#">IYT000</a>	15	G2	4 - 21/22	3	-	S	Engineering Training Course		<a href="#">KS</a> <a href="#">KE</a> <a href="#">U</a> <a href="#">W</a>		2		
<a href="#">EDAN35</a>	7.5	A	4 - 21/22	4	X	E	High Performance Computer Graphics		<a href="#">KS</a> <a href="#">KE</a> <a href="#">U</a> <a href="#">W</a> <a href="#">T</a>		2		
<a href="#">EXTQ40</a>	7.5	A	4 - 21/22	4	-	E1	Introduction to Artificial Neural Networks and Deep Learning		<a href="#">KS</a> <a href="#">KE</a> <a href="#">U</a> <a href="#">W</a> <a href="#">T</a>		2		

Course Code	Credits	Cycle	Year	From year	S.Ex. stud.	Language	Course Name	Footnote	Links				
										sp1	sp2	sp3	sp4
<a href="#">MIOA12</a>	6	G1	4 - 21/22	4	-	S	Managerial Economics, Basic Course	X	<a href="#">KS</a> <a href="#">KE</a> <a href="#">U</a> <a href="#">W</a> <a href="#">T</a>		2		
<a href="#">EMSN45</a>	7.5	A	4 - 21/22	4	X	E	Mathematical Statistics, Time Series Analysis	X	<a href="#">KS</a> <a href="#">KE</a> <a href="#">U</a> <a href="#">W</a> <a href="#">T</a>		2		
<a href="#">EMAN40</a>	3	A	4 - 21/22	4	X	E1	Project in Applied Mathematics		<a href="#">KS</a> <a href="#">KE</a> <a href="#">U</a> <a href="#">W</a> <a href="#">T</a>		2		
<a href="#">FRTN40</a>	7.5	A	4 - 21/22	4	X	E	Project in Automatic Control		<a href="#">KS</a> <a href="#">KE</a> <a href="#">U</a> <a href="#">W</a> <a href="#">T</a>		2		
<a href="#">TNSN01</a>	7.5	A	4 - 21/22	4	X	E1	Service Robotics		<a href="#">KS</a> <a href="#">KE</a> <a href="#">U</a> <a href="#">W</a> <a href="#">T</a>		2		
<a href="#">BMEN15</a>	7.5	A	4 - 21/22	4	X	E	Signal Separation - Independent Components		<a href="#">KS</a> <a href="#">KE</a> <a href="#">U</a> <a href="#">W</a> <a href="#">T</a>		2		
<a href="#">EMSN20</a>	7.5	A	4 - 21/22	4	X	E	Spatial Statistics with Image Analysis	X	<a href="#">KS</a> <a href="#">KE</a> <a href="#">U</a> <a href="#">W</a> <a href="#">T</a>		2		

Course Code	Credits	Cycle	Year	From year	S.Ex. stud.	Language	Course Name	Footnote	Links				
										sp1	sp2	sp3	sp4
<a href="#">EDAF45</a>	7.5	G2	4 - 21/22	4	-	S	Software Development in Teams - Project	X	<a href="#">KS</a> <a href="#">KE</a> <a href="#">U</a> <a href="#">W</a> <a href="#">T</a>			2	3
<a href="#">EDAN90</a>	7.5	A	4 - 21/22	4	X	E1	Advanced Project in Computer Science	X	<a href="#">KS</a> <a href="#">KE</a> <a href="#">U</a> <a href="#">W</a> <a href="#">T</a>				3
<a href="#">EMAE10</a>	5	G2	4 - 21/22	4	-	S	Applied Mathematics - Linear systems	X	<a href="#">KS</a> <a href="#">KE</a> <a href="#">U</a> <a href="#">W</a> <a href="#">T</a>				3
<a href="#">EMAN95</a>	7.5	A	4 - 21/22	4	X	E1	Computer Vision		<a href="#">KS</a> <a href="#">KE</a> <a href="#">U</a> <a href="#">W</a> <a href="#">T</a>				3
<a href="#">IYT000</a>	15	G2	4 - 21/22	3	-	S	Engineering Training Course		<a href="#">KS</a> <a href="#">KE</a> <a href="#">U</a> <a href="#">W</a>				3
<a href="#">ERTN75</a>	7.5	A	4 - 21/22	4	X	E	Learning-Based Control	X	<a href="#">KS</a> <a href="#">KE</a> <a href="#">U</a> <a href="#">W</a> <a href="#">T</a>				3
<a href="#">EMAE35</a>	6	G2	4 - 21/22	4	X	E1	Linear and Combinatorial Optimization		<a href="#">KS</a> <a href="#">KE</a> <a href="#">U</a> <a href="#">W</a> <a href="#">T</a>				3

Course Code	Credits	Cycle	Year	From year	S.Ex. stud.	Language	Course Name	Footnote	Links						
									sp1	sp2	sp3	sp4			
<a href="#">MIOA01</a>	9	G1	4 - 21/22	4	-	S	Managerial Economics, Basic Course	X	<a href="#">KS</a>	<a href="#">KE</a>	<a href="#">U</a>	<a href="#">W</a>	<a href="#">T</a>	3	
<a href="#">EMAF01</a>	7	G2	4 - 21/22	4	-	E1	Mathematics - Analytic Functions		<a href="#">KS</a>	<a href="#">KE</a>	<a href="#">U</a>	<a href="#">W</a>	<a href="#">T</a>	3	
<a href="#">EMNF05</a>	6	G2	4 - 21/22	4	X	E1	Numerical Analysis		<a href="#">KS</a>	<a href="#">KE</a>	<a href="#">U</a>	<a href="#">W</a>	<a href="#">T</a>	3	
<a href="#">ETIA10</a>	7.5	G1	4 - 21/22	4	X	E	Patent and Intellectual Property Rights		<a href="#">KS</a>	<a href="#">KE</a>	<a href="#">U</a>	<a href="#">W</a>	<a href="#">T</a>	3	
<a href="#">BMEN20</a>	7.5	A	4 - 21/22	4	X	E1	Project Course in Signal Processing – from Idea to App		<a href="#">KS</a>	<a href="#">KE</a>	<a href="#">U</a>	<a href="#">W</a>	<a href="#">T</a>	3	
<a href="#">FMSN35</a>	7.5	A	4 - 21/22	4	X	E	Stationary and Non-stationary Spectral Analysis	X	<a href="#">KS</a>	<a href="#">KE</a>	<a href="#">U</a>	<a href="#">W</a>	<a href="#">T</a>	3	
<a href="#">EMIN20</a>	7.5	A	4 - 21/22	4	-	S	Energy Systems Analysis: Renewable Sources of Energy		<a href="#">KS</a>	<a href="#">KE</a>	<a href="#">U</a>	<a href="#">W</a>	<a href="#">T</a>	3	4

Course Code	Credits	Cycle	Year	From year	S.Ex. stud.	Language	Course Name	Footnote	Links						
									sp1	sp2	sp3	sp4			
<a href="#">EITA05</a>	4.5	G1	4 - 21/22	4	-	S	History of Technology		<a href="#">KS</a>	<a href="#">KE</a>	<a href="#">U</a>	<a href="#">W</a>	<a href="#">T</a>	3	4
<a href="#">MVKP05</a>	7.5	A	4 - 21/22	4	X	E1	Project - Formula Student		<a href="#">KS</a>	<a href="#">KE</a>	<a href="#">U</a>	<a href="#">W</a>	<a href="#">T</a>	3	4
<a href="#">ERTN01</a>	10	A	4 - 21/22	4	X	E	Real-Time Systems		<a href="#">KS</a>	<a href="#">KE</a>	<a href="#">U</a>	<a href="#">W</a>	<a href="#">T</a>	3	4
<a href="#">MAMF21</a>	7.5	G2	4 - 21/22	4	-	S	Working Environment, Occupational Health and Safety		<a href="#">KS</a>	<a href="#">KE</a>	<a href="#">U</a>	<a href="#">W</a>	<a href="#">T</a>	3	4
<a href="#">EDAN90</a>	7.5	A	4 - 21/22	4	X	E1	Advanced Project in Computer Science	X	<a href="#">KS</a>	<a href="#">KE</a>	<a href="#">U</a>	<a href="#">W</a>	<a href="#">T</a>		4
<a href="#">BMEN01</a>	7.5	A	4 - 21/22	4	X	E1	Biomedical Signal Processing		<a href="#">KS</a>	<a href="#">KE</a>	<a href="#">U</a>	<a href="#">W</a>	<a href="#">T</a>		4
<a href="#">IYT000</a>	15	G2	4 - 21/22	3	-	S	Engineering Training Course		<a href="#">KS</a>	<a href="#">KE</a>	<a href="#">U</a>	<a href="#">W</a>			4



Course Code	Credits	Cycle	Year	From year	S.Ex. stud.	Language	Course Name	Footnote	Links					
									sp1	sp2	sp3	sp4		
<a href="#">KIIF01</a>	7.5	G2	4 - 21/22	4	X	E1	Industrial Environmental Management		<a href="#">KS</a>	<a href="#">KE</a>	<a href="#">U</a>	<a href="#">W</a>	<a href="#">T</a>	4
<a href="#">MIOF21</a>	7.5	G2	4 - 21/22	4	-	S	Management Organization		<a href="#">KS</a>	<a href="#">KE</a>	<a href="#">U</a>	<a href="#">W</a>	<a href="#">T</a>	4
<a href="#">MAMN30</a>	7.5	A	4 - 21/22	4	-	S	Management, Work Organisation and Project Management		<a href="#">KS</a>	<a href="#">KE</a>	<a href="#">U</a>	<a href="#">W</a>	<a href="#">T</a>	4
<a href="#">MIOF25</a>	6	G2	4 - 21/22	4	-	S	Managerial Economics, Advanced Course		<a href="#">KS</a>	<a href="#">KE</a>	<a href="#">U</a>	<a href="#">W</a>	<a href="#">T</a>	4
<a href="#">EMAF05</a>	7	G2	4 - 21/22	4	-	E1	Mathematics - Systems and Transforms	X	<a href="#">KS</a>	<a href="#">KE</a>	<a href="#">U</a>	<a href="#">W</a>	<a href="#">T</a>	4
<a href="#">FRTN30</a>	7.5	A	4 - 21/22	4	X	E	Network Dynamics		<a href="#">KS</a>	<a href="#">KE</a>	<a href="#">U</a>	<a href="#">W</a>	<a href="#">T</a>	4
<a href="#">EMAN40</a>	3	A	4 - 21/22	4	X	E1	Project in Applied Mathematics		<a href="#">KS</a>	<a href="#">KE</a>	<a href="#">U</a>	<a href="#">W</a>	<a href="#">T</a>	4

Course Code	Credits	Cycle	Year	From year	S.Ex. stud.	Language	Course Name	Footnote	Links			
									sp1	sp2	sp3	sp4
<a href="#">ERTN70</a>	7.5	A	4 - 21/22	4	X	E	Project in Systems, Control and Learning	<a href="#">KS</a> <a href="#">KE</a> <a href="#">U</a> <a href="#">W</a> <a href="#">T</a>				4
<a href="#">ETIF10</a>	7.5	G2	4 - 21/22	4	X	E1	Signal Processing - Design and Implementation	<a href="#">KS</a> <a href="#">KE</a> <a href="#">U</a> <a href="#">W</a> <a href="#">T</a>				4

[EDAN90](#) Advanced Project in Computer Science: *The course is given once per study period and is open for zero or more project areas each course instance. The prerequisites depend on the project area.*

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

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

[ERTN65](#) Modelling and Learning from Data: *Replaces [ERTN35](#) System Identification.*

[EDAG05](#) Agile Software Development - Project: *Only one of the courses [EDAF45](#) and [EDAG05](#) may be included in a degree. Please note that the contents of the course are also partly (3 credits) the same as in [ETSA03](#).*

[FMSN45](#) Mathematical Statistics, Time Series Analysis: *The course is to be studied together with MASM17.*

[ERTN40](#) Project in Automatic Control:

[FMSN20](#) Spatial Statistics with Image Analysis: *The course is to be studied together with MASM25*

[EDAF45](#) Software Development in Teams - Project: *Only one of the courses [EDAF45](#) and [EDAG05](#) may be included in a degree. Please note that the contents of the course are also partly (3 credits) the same as in [ETSA03](#).*

[FMAF10](#) Applied Mathematics - Linear systems: *Only one of the courses [FMAF05](#) and [FMAF10](#) may be included in a degree.*

[ERTN75](#) Learning-Based Control: *Replaces [ERTN15](#) Predictive Control.*

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

[FMSN35](#) Stationary and Non-stationary Spectral Analysis: *The course is offered every other academic year and will be given in 2021/22, 2023/24.*

[FMAF05](#) Mathematics - Systems and Transforms: *Only one of the courses [FMAF05](#) and [FMAF10](#) may be included in a degree.*

[ERTN70](#) Project in Systems, Control and Learning:

## Externally Elective Courses - C

Course Code	Credits	Cycle	Language			S.Ex. stud.	Course Name	Footnote	Links				
			Year	From year						sp1	sp2	sp3	sp4
<a href="#">EXTA10</a>	3	G1	2 - 19/20	2	-	S	Introduction to Chinese Society, Culture and Language	X	<a href="#">KS</a> <a href="#">KE</a> <a href="#">U</a> <a href="#">W</a> <a href="#">T</a>	1	2		
<a href="#">EXTA35</a>	15	G1	2 - 19/20	2	-	S	Introductory Course in Chinese for Engineers	X	<a href="#">KS</a> <a href="#">KE</a> <a href="#">U</a> <a href="#">W</a> <a href="#">T</a>			3	4
<a href="#">EXTF60</a>	15	G2	3 - 20/21	3	-	E	Introductory Course in Chinese for Engineers, Part 2		<a href="#">KS</a> <a href="#">KE</a> <a href="#">U</a> <a href="#">W</a> <a href="#">T</a>	1	2		
<a href="#">GEMA20</a>	7.5	G1	4 - 21/22	1	-	E	English for Engineers		<a href="#">KS</a> <a href="#">KE</a> <a href="#">U</a> <a href="#">W</a> <a href="#">T</a>	1	2		
<a href="#">GEMA25</a>	7.5	G1	4 - 21/22	1	-	S	German for Engineers		<a href="#">KS</a> <a href="#">KE</a> <a href="#">U</a> <a href="#">W</a> <a href="#">T</a>	1	2		
<a href="#">GEMA65</a>	7.5	G1	4 - 21/22	1	-	S	Chinese for Engineers		<a href="#">KS</a> <a href="#">KE</a> <a href="#">U</a> <a href="#">W</a> <a href="#">T</a>			3	4
<a href="#">GEMA20</a>	7.5	G1	4 - 21/22	1	-	E	English for Engineers		<a href="#">KS</a> <a href="#">KE</a> <a href="#">U</a> <a href="#">W</a> <a href="#">T</a>			3	4

Course Code	Credits	Cycle		From year	S.Ex. stud.	Language	Course Name	Footnote	Links			
		Year							sp1	sp2	sp3	sp4
<a href="#">GEMA01</a>	7.5	G1	4 - 21/22	1	-	S	French for Engineers: Language, Culture and Society, First Course	<a href="#">KS</a> <a href="#">KE</a> <a href="#">U</a> <a href="#">W</a> <a href="#">T</a>			3	4
<a href="#">GEMA70</a>	15	G1	4 - 21/22	1	-	S	Japanese for Engineers	<a href="#">KS</a> <a href="#">KE</a> <a href="#">U</a> <a href="#">W</a> <a href="#">T</a>			3	4

[EXTA10](#) Introduction to Chinese Society, Culture and Language: [EXTA10](#) counts as an external elective course in the degree requirements for students admitted autumn 2011 and later.

[EXTA35](#) Introductory Course in Chinese for Engineers: [EXTA35](#) counts as an external elective course in the degree requirements for students admitted autumn 2011 and later.

## Bachelor's Projects - C

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

### Links

Course Code	Credits	Course Name	Links
FRTL01	15	Bachelor Project in Automatic Control	<a href="#">KS</a> <a href="#">KE</a> <a href="#">U</a>
EXTL03	15	Bachelor Project in Cognition Science	<a href="#">KS</a> <a href="#">KE</a> <a href="#">U</a>
EDAL01	15	Bachelor Project in Computer Science	<a href="#">KS</a> <a href="#">KE</a> <a href="#">U</a> <a href="#">W</a>
EITL01	15	Bachelor Project in Electrical and Information Technology	<a href="#">KS</a> <a href="#">KE</a> <a href="#">U</a> <a href="#">W</a>
MAML15	15	Bachelor Project in Interaction Design	<a href="#">KS</a> <a href="#">KE</a> <a href="#">U</a>
FMSL01	15	Bachelor Project in Mathematical Statistics	<a href="#">KS</a> <a href="#">KE</a> <a href="#">U</a> <a href="#">W</a>
FMAL01	15	Bachelor Project in Mathematics	<a href="#">KS</a> <a href="#">KE</a> <a href="#">U</a>