

Study Programme

Academic year 2024-2025

Faculty of Engineering and Architecture Master of Science in Electrical Engineering -- Communication and Information Technology

Language of instruction: English

Programme version 9

	General	Courses			36	credit
	Course	Autopage and Base auties		Ref MT1	Session	Study
	E022230	Antennas and Propagation Hendrik Rogier Department of Information Technology	6	1	A:1	180
	E031251	Design Methodology for FPGAs Dirk Stroobandt Department of Electronics and Information Systems	6	1	A:1	180
	E033021	Electromagnetic-aware High Frequency Design Hendrik Rogier Department of Information Technology	6	1	A:1	180
	E033640	High-speed Electronics Johan Bauwelinck Department of Information Technology	6	1	A:2	180
	E003600	Information Theory Heidi Steendam Department of Telecommunications and Information Proces	6 ssing	1	B:2	180
	E012130	Modulation and Detection Nele Noels Department of Telecommunications and Information Processing	6	2	B:1	180
	Courses	s Related to the Main Subject			48	cred
	Courses	s Related to the Main Subject	CRDT F	Ref MT1	48 Session	
r		Robotics Tony Belpaeme Department of Electronics and Information Systems	CRDT F	Ref MT1		Stud
lr	Course E019370	Robotics			Session	Stud 180
lr	Course E019370 E012320	Robotics Tony Belpaeme Department of Electronics and Information Systems Mobile and Broadband Access Networks	6	1	Session A:1	Stud 180
lr	Course E019370 E012320 E033702	Robotics Tony Belpaeme Department of Electronics and Information Systems Mobile and Broadband Access Networks Mario Pickavet Department of Information Technology Hardware-design Project	6 6 6	1	Session A:1 B:2	Stud 180
r	Course E019370 E012320 E033702 E011322	Robotics Tony Belpaeme Department of Electronics and Information Systems Mobile and Broadband Access Networks Mario Pickavet Department of Information Technology Hardware-design Project Ioulia Tzouvadaki Department of Electronics and Information Systems Queueing Analysis and Simulation	6 6 6	1 1 1	Session A:1 B:2 A:2	Stud 180 180
r .1	Course E019370 E012320 E033702 E011322 Master	Robotics Tony Belpaeme Department of Electronics and Information Systems Mobile and Broadband Access Networks Mario Pickavet Department of Information Technology Hardware-design Project Ioulia Tzouvadaki Department of Electronics and Information Systems Queueing Analysis and Simulation Joris Walraevens Department of Telecommunications and Information Process	6 6 6 6 essing	1 1 1	Session A:1 B:2 A:2	Stu 18 18
r .1	Course E019370 E012320 E033702 E011322 Master Course	Robotics Tony Belpaeme Department of Electronics and Information Systems Mobile and Broadband Access Networks Mario Pickavet Department of Information Technology Hardware-design Project Ioulia Tzouvadaki Department of Electronics and Information Systems Queueing Analysis and Simulation Joris Walraevens Department of Telecommunications and Information Process	6 6 6 6 essing	1 1 1 2	Session A:1 B:2 A:2 A:1	Stu 18 18 18

- 12 credit units in year 1,
- 24 credit units in year 2.

3.1 Elective Courses: Path 1

36.0 credits

Subscribe to 36 credit units from no less than 2 and no more than 3 modules from the following list. Subject to approval by the faculty.

3.1.1 Elective Courses Communication and Information Technology

Subscribe to no less than 16 credit units from the following list. Subject to approval by the faculty.

The Research Internship (E099400) cannot be combined with Industry Internship Engineering and Architecture (E099300).

Nr	Course		CRDT Ref MT1	Session	Study			
1	E061330	Machine Learning	6	B:1	180			
		Joni Dambre Department of Electronics and Information Systems						
2	E011610	Performance Analysis of Telecommunication Systems	4	A:1	120			
		Sabine Wittevrongel Department of Telecommunications and Information Processing						

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3	E033620	High Frequency Systems Johan Bauwelinck Department of Information Technology	6	A:1	180
4	E019170	Internet of Things Jeroen Hoebeke Department of Information Technology	6	A:1	180
5	E010310	Image Processing [nl] Wilfried Philips Department of Telecommunications and Information Processing	6	A:1	180
6	E031440	VLSI Technology and Design Jan Doutreloigne Department of Electronics and Information Systems	6	A:1	180
7	E003422	Fundamentals of Statistical Sensor Processing Hiep Luong Department of Telecommunications and Information Processing	6	A:1	180
8	E033631	Applied High Frequency Design Guy Torfs Department of Information Technology	6	A:1	180
9	E017930	Parallel and Distributed Software Systems Filip De Turck Department of Information Technology	6	A:1	180
10	E003710	Game Theory and Multiagent Systems Heidi Steendam Department of Telecommunications and Information Processing	6	A:1	180
11	E012802	Broadband cable-TV and in-home networks Margot Deruyck Department of Information Technology	4	A:1ª	120
12	E017920	Design of Multimedia Applications Glenn Van Wallendael Department of Electronics and Information Systems	6	A:2	180
13	E030320	Avionics: Electronics Dries Vande Ginste Department of Information Technology	4	A:2	120
14	E022020	Audio Engineering Dick Botteldooren Department of Information Technology	4	A:2	120
15	E010220	Speech Processing Kris Demuynck Department of Electronics and Information Systems	4	A:2	120
16	E004720	Network Modelling and Design Mario Pickavet Department of Information Technology	4	B:2	120
17	E004120	Optimisation Techniques Ljubomir Jovanov Department of Telecommunications and Information Processin	6 ng	A:2	180
18	E031341	Digital Building Blocks [nl] Jan Doutreloigne Department of Electronics and Information Systems	6	A:2	180
19	E019130	Multimedia Techniques [nl] Peter Lambert Department of Electronics and Information Systems	6	A:2	180
20	E022250	Bioelectromagnetism Wout Joseph Department of Information Technology	4	B:2	120
21	E012420	Optical Communication Systems Geert Morthier Department of Information Technology	6	A:2	180
22	E030220	Advanced Analog Design Guy Torfs Department of Information Technology	6	A:1	180
23	E012210	Advanced Modulation and Coding Heidi Steendam Department of Telecommunications and Information Processing	4	A:2	120
24	E034500	Sustainable Computing Lieven Eeckhout Department of Electronics and Information Systems	3	A:2	90
25	E099400	Research Internship Patrick Segers Department of Electronics and Information Systems	6	A:J	180

3.1.2 Elective Social Courses

Subscribe to no less than 6 credit units from the following list. Subject to approval by the faculty. Students may apply for another elective social course, given a clear motivation and after approval by the faculty (exceptionally, as a rule a course from the list below is followed).

Nr	Course		CRDT Ref MT1	Session	Study
1	E099300	Industry Internship Engineering and Architecture [nl, en] Patrick Segers Department of Electronics and Information Systems	6	A:J	180
2	E098010	Integrated Portfolio [nl, en]	6	A:J	180
3	E098010	Integrated Portfolio [nl, en]	3	B:J	90
4	E037810	Safety of Electrical and Mechanical Installations [nl]	3	A:2	90
		Jos Knockaert Department of Electromechanical, Systems and Metal Eng	gineering		

5	E039060	Sustainable Energy and Rational Use of Energy Jeroen Beeckman Department of Electronics and Information Systems	4		A:2	120
6	E078310	Sustainable Use of Materials: Metals [nl] Kim Verbeken Department of Materials, Textiles and Chemical Engineering	3		A:1	90
7	E078320	Sustainable Use of Materials: Plastics and Derived Materials [nl] Lode Daelemans Department of Materials, Textiles and Chemical Engineering	3		A:2	90
8	E078010	Technology and Environment Luc Martens Department of Information Technology	3		A:1	90
9	E078752	Water and Air Quality Management Joris Thybaut Department of Materials, Textiles and Chemical Engineering	4		A:2	120
1	0 E092100	Biosystems [nl] Pascal Verdonck Department of Electronics and Information Systems	3		A:1	90
1	1 E075310	Ethics, Engineering and Society [nl] Seppe Segers Department of Philosophy and Moral Sciences	3		A:2	90
1	2 C004009	History and Philosophy of Sciences [nl] Maarten Van Dyck Department of Philosophy and Moral Sciences	3		A:1	90
1	3 E076320	The Information Society and ICT [nl] Erik Mannens Department of Electronics and Information Systems	3		A:2	90
1	4 A001900	Introduction to Psychology [nl] Wim Notebaert Department of Experimental Psychology	3		A:1	90
1	5 H001977	Coaching and Diversity [nl] Elisabeth De Schauwer Department of Special Education	3	UKV	A:J	90
1	6 A005503	Context and Nuance. A Critical Reflection on Current Topics [nl] Stef Craps Department of Literary Studies	6	UKV	A:1	180
1	7 E076450	Basic Entrepreneurship [nl]	3	UKV	A:1	90
		Introduction to Corporate Law [nl] Diederik Bruloot Department of Interdisciplinary Study of Law, Private Law and I	3 Busine	ess Law	A:1	90
1	9 E076460	Dare to Venture Johan Verrue Department of Marketing, Innovation and Organisation	4		A:2	120
2	0 E076471	Dare to Start Frank Gielen Department of Information Technology	3		A:2	90
2	1 E076621	Principles of Law and Construction Law [nl] Jelle Laverge Department of Architecture and Urban Planning	3		A:1	90
2	2 E076951	Engineering Economy Sofie Verbrugge Department of Information Technology	6		A:1	180
2	3 E076431	Introduction to Entrepreneurship Petra Andries Department of Marketing, Innovation and Organisation	3		A:1	90
2	4 H002169	Powerful Learning Environments [nl] Bram De Wever Department of Educational Studies	6		A:1	180
2	5 H002196	Classroom Management and Reflection [nl] Melissa Tuytens Department of Educational Studies	4		A:2	120
2	6 H002197	The Teacher within School and Society [nl] Melissa Tuytens Department of Educational Studies	4		A:1	120
2	7 H002198	Psychology of Adolescence [nl] Wim Beyers Department of Developmental, Personality and Social Psychology	4		A:1	120
2	8 F000083	Macroeconomics [nl] Freddy Heylen Department of Economics	6		A:1	180
2	9 H001010	Introduction Industrial Psychology [nl] Bart Wille Department of Developmental, Personality and Social Psychology	5		A:2	150
3	0 F000551	Business Skills Mieke Audenaert Department of Marketing, Innovation and Organisation	4		C:2	120
3	1 A003001	Academic English Geert Jacobs Department of Linguistics	3	UKV	B:1, A:2	90
3	2 E075800	Communication [nl] Leen Pollefliet Department of Information Technology	3		A:1	90
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3.1.3 Elective Courses Ghent University

Subscribe to no more than 16 credit units from the programmes of Ghent University, including the <u>Ghent University Elective Courses</u>. Subject to approval by the faculty.

Subscribe to 36 credit units from 3 modules from the following list. Subject to approval by the faculty.

3.2.1 Elective Courses Communication and Information Technology

Subscribe to no less than 12 credit units from the following list. Subject to approval by the faculty. The Research Internship (E099400) cannot be combined with Industry Internship Engineering and Architecture (E099300).

	e Research I Course	nternship (E099400) cannot be combined with Industry Internship Engineering and C		Session S	Study
1	E061330	Machine Learning Joni Dambre Department of Electronics and Information Systems	6	B:1	180
2	E011610	Performance Analysis of Telecommunication Systems Sabine Wittevrongel Department of Telecommunications and Information Proce	4 ssing	A:1	120
3	E033620	High Frequency Systems Johan Bauwelinck Department of Information Technology	6	A:1	180
4	E019170	Internet of Things Jeroen Hoebeke Department of Information Technology	6	A:1	180
5	E010310	Image Processing [nl] Wilfried Philips Department of Telecommunications and Information Processing	6	A:1	180
6	E031440	VLSI Technology and Design Jan Doutreloigne Department of Electronics and Information Systems	6	A:1	180
7	E003422	Fundamentals of Statistical Sensor Processing Hiep Luong Department of Telecommunications and Information Processing	6	A:1	180
8	E033631	Applied High Frequency Design Guy Torfs Department of Information Technology	6	A:1	180
9	E017930	Parallel and Distributed Software Systems Filip De Turck Department of Information Technology	6	A:1	180
10	E003710	Game Theory and Multiagent Systems Heidi Steendam Department of Telecommunications and Information Processing	6 9	A:1	180
11	E012802	Broadband cable-TV and in-home networks Margot Deruyck Department of Information Technology	4	A:1 ^a	120
12	E017920	Design of Multimedia Applications Glenn Van Wallendael Department of Electronics and Information Systems	6	A:2	180
13	E030320	Avionics: Electronics Dries Vande Ginste Department of Information Technology	4	A:2	120
14	E022020	Audio Engineering Dick Botteldooren Department of Information Technology	4	A:2	120
15	E010220	Speech Processing Kris Demuynck Department of Electronics and Information Systems	4	A:2	120
16	E004720	Network Modelling and Design Mario Pickavet Department of Information Technology	4	B:2	120
17	E004120	Optimisation Techniques Ljubomir Jovanov Department of Telecommunications and Information Processi	6 ing	A:2	180
18	E031341	Digital Building Blocks [nl] Jan Doutreloigne Department of Electronics and Information Systems	6	A:2	180
19	E019130	Multimedia Techniques [nl] Peter Lambert Department of Electronics and Information Systems	6	A:2	180
20	E022250	Bioelectromagnetism Wout Joseph Department of Information Technology	4	B:2	120
21	E012420	Optical Communication Systems Geert Morthier Department of Information Technology	6	A:2	180
22	E030220	Advanced Analog Design Guy Torfs Department of Information Technology	6	A:1	180
23	E012210	Advanced Modulation and Coding Heidi Steendam Department of Telecommunications and Information Processin	4 9	A:2	120
24	E034500	Sustainable Computing Lieven Eeckhout Department of Electronics and Information Systems	3	A:2	90
25	E099400	Research Internship Patrick Segers Department of Electronics and Information Systems	6	A:J	180
3.2	2.2 Minors				

3.2.2 Minors

Subscribe to at least 18 credit units from 1 minor from the following list. Subject to approval by the faculty.

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Subscribe to 18 credit units from the following list, with 6 credit units with reference a.

Nr	Course		CRDT	Ref MT1	Session	Study
1	E076221	Manufacturing Planning and Control Birger Raa Department of Industrial Systems Engineering and Product De	6 esign	а	A:1	180
2	E004255	Operations Research Models and Methods El-Houssaine Aghezzaf Department of Industrial Systems Engineering an	6 d Product D	esign	A:1	180
3	E060240	Quality Engineering and Industrial Statistics Stijn De Vuyst Department of Industrial Systems Engineering and Produc	6 t Design		A:2	180
4	E076951	Engineering Economy Sofie Verbrugge Department of Information Technology	6		A:1	180

3.2.2.2 Minor Biosystems

Subscribe to 18 credit units from the following list, with no less than 8 credit units with reference a. Subject to approval by the faculty.

Nr Course		CRDT	Ref	MT1	Session	Study
1 E09262	Modelling of Physiological Systems Patrick Segers Department of Electronics and Information Systems	5	а		A:2	150
2 E09266	2 From Genome to Organism Fransiska Malfait Department of Biomolecular Medicine	3	а		A:1	90
3 E07401	Quantitative Cell and Tissue Analysis Andre Skirtach Department of Biotechnology	6	а		A:1	180
4 E06367	1 Biomaterials and Tissue Engineering Peter Dubruel Department of Organic Chemistry	5			A:1	150
5 E06368	2 Biomechanics Charlotte Debbaut Department of Electronics and Information Systems	6			A:1	180
6 E01037	1 Medical Imaging Stefaan Vandenberghe Department of Electronics and Information Systems	6			A:1	180

3.2.2.3 Minor Photonics Engineering

Subscribe to no less than 18 credit units from the following list. Subject to approval by the faculty.

Nr Course 1 E030610	Photonics [nl]	CRDT Ref MT1	Session A:2	Study 180
2 E030660	Günther Roelkens Department of Information Technology Lasers Geert Morthier Department of Information Technology	4	A:1	120
3 E030761	Microphotonics Dries Van Thourhout Department of Information Technology	6	A:1	180
4 E024800	Optical Materials Jeroen Beeckman Department of Electronics and Information Systems	6	A:1	180
5 E008446	Sensors, Actuators and Electronic Microsystems Herbert De Smet Department of Electronics and Information Systems	6	A:2	180
6 E030721	Laboratories in Photonics Research Alberto Curto Department of Information Technology	6	A:2	180
7 E031521	Physics of Semiconductor Technologies and Devices Geert Van Steenberge Department of Electronics and Information Systems	4	A:2	120

3.2.3 Elective Social Courses

Subscribe to no less than 6 credit units from the following list. Subject to approval by the faculty. Students may apply for another elective social course, given a clear motivation and after approval by the faculty (exceptionally, as a rule a course from the list below is followed).

Tuit	e a course m	on the list below is followed).			
Nr				Session	Study
1	E099300	Industry Internship Engineering and Architecture [nl, en] Patrick Segers Department of Electronics and Information Systems	6	A:J	180
2	E098010	Integrated Portfolio [nl, en]	6	A:J	180
3	E098010	Integrated Portfolio [nl, en]	3	B:J	90
4	E037810	Safety of Electrical and Mechanical Installations [nl] Jos Knockaert Department of Electromechanical, Systems and Metal Enginee	3 ring	A:2	90
5	E039060	Sustainable Energy and Rational Use of Energy Jeroen Beeckman Department of Electronics and Information Systems	4	A:2	120
6	E078310	Sustainable Use of Materials: Metals [nl] Kim Verbeken Department of Materials, Textiles and Chemical Engineering	3	A:1	90

7	E078320	Sustainable Use of Materials: Plastics and Derived Materials [nl] Lode Daelemans Department of Materials, Textiles and Chemical Engineering	3		A:2	90
8	B E078010	Technology and Environment Luc Martens Department of Information Technology	3		A:1	90
ç	E078752	Water and Air Quality Management Joris Thybaut Department of Materials, Textiles and Chemical Engineering	4		A:2	120
1	0 E092100	Biosystems [nl] Pascal Verdonck Department of Electronics and Information Systems	3		A:1	90
1	1 E075310	Ethics, Engineering and Society [nl] Seppe Segers Department of Philosophy and Moral Sciences	3		A:2	90
1	2 C004009	History and Philosophy of Sciences [nl] Maarten Van Dyck Department of Philosophy and Moral Sciences	3		A:1	90
1	3 E076320	The Information Society and ICT [nl] Erik Mannens Department of Electronics and Information Systems	3		A:2	90
1	4 A001900	Introduction to Psychology [nl] Wim Notebaert Department of Experimental Psychology	3		A:1	90
1	5 H001977	Coaching and Diversity [nl] Elisabeth De Schauwer Department of Special Education	3	UKV	A:J	90
1	6 A005503	Context and Nuance. A Critical Reflection on Current Topics [nl] Stef Craps Department of Literary Studies	6	UKV	A:1	180
1	7 E076450	Basic Entrepreneurship [nl]	3	UKV	A:1	90
1	8 A005646	Introduction to Corporate Law [nl] Diederik Bruloot Department of Interdisciplinary Study of Law, Private Law and	3 Busin	ess Law	A:1	90
1	9 E076460	Dare to Venture Johan Verrue Department of Marketing, Innovation and Organisation	4		A:2	120
2	20 E076471	Dare to Start Frank Gielen Department of Information Technology	3		A:2	90
2	21 E076621	Principles of Law and Construction Law [nl] Jelle Laverge Department of Architecture and Urban Planning	3		A:1	90
2	22 E076951	Engineering Economy Sofie Verbrugge Department of Information Technology	6		A:1	180
2	23 E076431	Introduction to Entrepreneurship Petra Andries Department of Marketing, Innovation and Organisation	3		A:1	90
2	24 H002169	Powerful Learning Environments [nl] Bram De Wever Department of Educational Studies	6		A:1	180
2	25 H002196	Classroom Management and Reflection [nl] Melissa Tuytens Department of Educational Studies	4		A:2	120
2	26 H002197	The Teacher within School and Society [nl] Melissa Tuytens Department of Educational Studies	4		A:1	120
2	27 H002198	Psychology of Adolescence [nl] Wim Beyers Department of Developmental, Personality and Social Psychology	4		A:1	120
2	28 F000083	Macroeconomics [nl] Freddy Heylen Department of Economics	6		A:1	180
2	29 H001010	Introduction Industrial Psychology [nl] Bart Wille Department of Developmental, Personality and Social Psychology	5		A:2	150
3	80 F000551	Business Skills Mieke Audenaert Department of Marketing, Innovation and Organisation	4		C:2	120
3	31 A003001	Academic English Geert Jacobs Department of Linguistics	3	UKV	B:1, A:2	90
3	32 E075800	Communication [nl] Leen Pollefliet Department of Information Technology	3		A:1	90

Teaching languages

When a course is not taught (solely) in the programme's language of instruction, the effectively used languages are indicated in square brackets following the cours name, using the following ISO codes:

bg: Bulgarian de: German es: Spanish ja: Japanese pl: Polish sh: Kroatian/Serbian zh: Chinese cs: Czech el: Greek fr: French nl: Dutch pt: Portuguese sl: Slovene

da: Danish en: English it: Italian no: Norwegian ru: Russian sv: Swedish

Semester

Semesters are indicated by their number (1 or 2); semester 3 represents the summer period and J indicates a course spanning semesters 1 and 2. When a capital letter precedes a semester number, the course has multiple offerings. The letter indicates the offering concerned.

When a semester is shown in brackets, the course in not offered this year in the specific offering. The offering frequency and first year of offering are indicated by the following codes:

a: bi-annually c: annually, from 2025-2026 f: annually, from 2026-2027 i: annually, from 2027-2028 b: tri-annually from 2025-2026 g: bi-annually, from 2026-2027 j: bi-annually, from 2027-2028 e: tri-annually, from 2025-2026 h: tri-annually, from 2026-2027 k: tri-annually, from 2027-2028