

Faculty of Engineering and Architecture

Master of Science in Electrical Engineering -- Electronic Circuits and Systems

Language of instruction: English

Programme version 10

## 1 General Courses 36 credits

Nr	Course	CRDT	Ref	MT1	Session	Study
1	E022230 Antennas and Propagation Hendrik Rogier -- Department of Information Technology	6		1	A:1	180
2	E031251 Design Methodology for FPGAs Dirk Stroobandt -- Department of Electronics and Information Systems	6		1	A:1	180
3	E033021 Electromagnetic-aware High Frequency Design Hendrik Rogier -- Department of Information Technology	6		1	A:1	180
4	E033640 High-speed Electronics Johan Bauwelinck -- Department of Information Technology	6		1	A:2	180
5	E003600 Information Theory Heidi Steendam -- Department of Telecommunications and Information Processing	6		1	B:2	180
6	E012130 Modulation and Detection Nele Noels -- Department of Telecommunications and Information Processing	6		2	B:1	180

## 2 Courses Related to the Main Subject 48 credits

Nr	Course	CRDT	Ref	MT1	Session	Study
1	E031440 VLSI Technology and Design Jan Doutreloigne -- Department of Electronics and Information Systems	6		1	A:1	180
2	E008446 Sensors, Actuators and Electronic Microsystems Herbert De Smet -- Department of Electronics and Information Systems	6		1	A:2	180
3	E033702 Hardware-design Project Ioulia Tzouvadaki -- Department of Electronics and Information Systems	6		1	A:2	180
4	E031420 Technology of Integrated Circuits and Microsystems Maaïke Op de Beeck -- Department of Electronics and Information Systems	6		2	B:1	180

### 2.1 Master's Dissertation

Nr	Course	CRDT	Ref	MT1	Session	Study
1	E091103 Master's Dissertation	24		2	B:J	720

## 3 Elective Courses 36 credits

Subscribe to 36 credit units from 1 path from the following list. Subject to approval by the faculty.

Divided as:

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

### 3.1 Elective Courses: Path 1

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 Electronic Circuits and Systems

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	E033620 High Frequency Systems Johan Bauwelinck -- Department of Information Technology	6			A:1	180
2	E030900 Design of Microsystems [nl] Jan Doutreloigne -- Department of Electronics and Information Systems	6			A:1	180

3	E033631	Applied High Frequency Design Guy Torfs -- Department of Information Technology	6	A:1	180
4	E019370	Robotics Tony Belpaeme -- Department of Electronics and Information Systems	6	A:1	180
5	E030761	Microphotonics Dries Van Thourhout -- Department of Information Technology	6	A:1	180
6	E032411	Display Technology Filip Strubbe -- Department of Electronics and Information Systems	6	A:1	180
7	E011610	Performance Analysis of Telecommunication Systems Sabine Wittevrongel -- Department of Telecommunications and Information Processing	4	A:1	120
8	E003422	Fundamentals of Statistical Sensor Processing Hiep Luong -- Department of Telecommunications and Information Processing	6	A:1	180
9	E030220	Advanced Analog Design Guy Torfs -- Department of Information Technology	6	A:1	180
10	E031341	Digital Building Blocks [nl] Jan Doutrelouigne -- Department of Electronics and Information Systems	6	A:2	180
11	E030320	Avionics: Electronics Dries Vande Ginste -- Department of Information Technology	4	A:2	120
12	E022020	Audio Engineering Dick Botteldooren -- Department of Information Technology	4	A:2	120
13	E012420	Optical Communication Systems Geert Morthier -- Department of Information Technology	6	A:2	180
14	E030521	Power Electronics Hendrik Vansompel -- Department of Electromechanical, Systems and Metal Engineering	4	A:2	120
15	E024641	Physics of Semiconductor Devices Benoit Bakeroot -- Department of Electronics and Information Systems	6	B:2	180
16	E039042	Photovoltaic Energy Conversion and Sustainable Energy Filip Strubbe -- Department of Electronics and Information Systems	6	A:2	180
17	E022700	Computational Solutions of Wave Problems Dick Botteldooren -- Department of Information Technology	6	A:1	180
18	E011322	Queueing Analysis and Simulation Joris Walraevens -- Department of Telecommunications and Information Processing	6	A:1	180
19	E012210	Advanced Modulation and Coding Heidi Steendam -- Department of Telecommunications and Information Processing	4	A:2	120
20	E022250	Bioelectromagnetism Wout Joseph -- Department of Information Technology	4	B:2	120
21	E003710	Game Theory and Multiagent Systems Heidi Steendam -- Department of Telecommunications and Information Processing	6	A:1	180
22	E034500	Sustainable Computing Lieven Eeckhout -- Department of Electronics and Information Systems	3	A:2	90
23	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 [en, nl] Patrick Segers -- Department of Electronics and Information Systems	6			A:J	180
2	E098010 Integrated Portfolio [en, nl] Hiep Luong -- Department of Telecommunications and Information Processing	6			A:J	180
3	E098010 Integrated Portfolio [en, nl] Hiep Luong -- Department of Telecommunications and Information Processing	3			B:J	90
4	E037810 Safety of Electrical and Mechanical Installations [nl] Jos Knockaert -- Department of Electromechanical, Systems and Metal Engineering	3			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 Verbeke -- 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
10	E092100	Biosystems [nl] Pascal Verdonck -- Department of Electronics and Information Systems	3		A:1	90
11	E075310	Ethics, Engineering and Society [nl] Seppe Segers -- Department of Philosophy and Moral Sciences	3		A:2	90
12	C004009	History and Philosophy of Sciences [nl] Maarten Van Dyck -- Department of Philosophy and Moral Sciences	3		A:1	90
13	E076320	The Information Society and ICT [nl] Erik Mannens -- Department of Electronics and Information Systems	3		A:2	90
14	A001900	Introduction to Psychology [nl] Wim Notebaert -- Department of Experimental Psychology	3		A:1	90
15	H001977	Coaching and Diversity [nl] Elisabeth De Schauwer -- Department of Special Education	3	UKV	A:J	90
16	A005503	Context and Nuance. A Critical Reflection on Current Topics [nl] Stef Craps -- Department of Literary Studies	6	UKV	A:1	180
17	E076450	Basic Entrepreneurship [nl]	3	UKV	A:1	90
18	A005646	Introduction to Corporate Law [nl] Diederik Bruloot -- Department of Interdisciplinary Study of Law, Private Law and Business Law	3		A:1	90
19	E076460	Dare to Venture Johan Verrue -- Department of Marketing, Innovation and Organisation	4		A:2	120
20	E076471	Dare to Start Frank Gielen -- Department of Information Technology	3		A:2	90
21	E076621	Principles of Law and Construction Law [nl] Jelle Laverge -- Department of Architecture and Urban Planning	3		A:1	90
22	E076951	Engineering Economy Sofie Verbrugge -- Department of Information Technology	6		A:1	180
23	E076431	Introduction to Entrepreneurship Petra Andries -- Department of Marketing, Innovation and Organisation	3		A:1	90
24	H002169	Powerful Learning Environments [nl] Bram De Wever -- Department of Educational Studies	6		A:1	180
25	H002196	Classroom Management and Reflection [nl] Melissa Tuytens -- Department of Educational Studies	4		A:2	120
26	H002197	The Teacher within School and Society [nl] Melissa Tuytens -- Department of Educational Studies	4		A:1	120
27	H002198	Psychology of Adolescence [nl] Wim Beyers -- Department of Developmental, Personality and Social Psychology	4		A:1	120
28	F000083	Macroeconomics [nl] Freddy Heylen -- Department of Economics	6		A:1	180
29	H001010	Introduction Industrial Psychology [nl] Bart Wille -- Department of Developmental, Personality and Social Psychology	5		A:2	150
30	F000551	Business Skills Mieke Audenaert -- Department of Marketing, Innovation and Organisation	4		C:2	120
31	A003001	Academic English Geert Jacobs -- Department of Linguistics	3	UKV	B:1, A:2	90
32	E075800	Communication [nl] Leen Pollefliet -- Department of Information Technology	3		A:1	90

### 3.1.3 Elective Courses Ghent University

Subscribe to no more than 16 credit units from the programmes of Ghent University, including the [Ghent University Elective Courses](#).  
Subject to approval by the faculty.

## 3.2 Elective Courses: Path 2

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

### 3.2.1 Elective Courses Electronic Circuits and Systems

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).

Nr	Course	CRDT	Ref	MT1	Session	Study
1	E033620 High Frequency Systems Johan Bauwelink -- Department of Information Technology	6			A:1	180
2	E030900 Design of Microsystems [nl] Jan Doutreloigne -- Department of Electronics and Information Systems	6			A:1	180
3	E033631 Applied High Frequency Design Guy Torfs -- Department of Information Technology	6			A:1	180
4	E019370 Robotics Tony Belpaeme -- Department of Electronics and Information Systems	6			A:1	180
5	E030761 Microphotonics Dries Van Thourhout -- Department of Information Technology	6			A:1	180
6	E032411 Display Technology Filip Strubbe -- Department of Electronics and Information Systems	6			A:1	180
7	E011610 Performance Analysis of Telecommunication Systems Sabine Wittevrongel -- Department of Telecommunications and Information Processing	4			A:1	120
8	E003422 Fundamentals of Statistical Sensor Processing Hiep Luong -- Department of Telecommunications and Information Processing	6			A:1	180
9	E030220 Advanced Analog Design Guy Torfs -- Department of Information Technology	6			A:1	180
10	E031341 Digital Building Blocks [nl] Jan Doutreloigne -- Department of Electronics and Information Systems	6			A:2	180
11	E030320 Avionics: Electronics Dries Vande Ginste -- Department of Information Technology	4			A:2	120
12	E022020 Audio Engineering Dick Botteldooren -- Department of Information Technology	4			A:2	120
13	E012420 Optical Communication Systems Geert Morthier -- Department of Information Technology	6			A:2	180
14	E030521 Power Electronics Hendrik Vansompel -- Department of Electromechanical, Systems and Metal Engineering	4			A:2	120
15	E024641 Physics of Semiconductor Devices Benoit Bakeroort -- Department of Electronics and Information Systems	6			B:2	180
16	E039042 Photovoltaic Energy Conversion and Sustainable Energy Filip Strubbe -- Department of Electronics and Information Systems	6			A:2	180
17	E022700 Computational Solutions of Wave Problems Dick Botteldooren -- Department of Information Technology	6			A:1	180
18	E011322 Queueing Analysis and Simulation Joris Walraevens -- Department of Telecommunications and Information Processing	6			A:1	180
19	E012210 Advanced Modulation and Coding Heidi Steendam -- Department of Telecommunications and Information Processing	4			A:2	120
20	E022250 Bioelectromagnetism Wout Joseph -- Department of Information Technology	4			B:2	120
21	E003710 Game Theory and Multiagent Systems Heidi Steendam -- Department of Telecommunications and Information Processing	6			A:1	180
22	E034500 Sustainable Computing Lieven Eeckhout -- Department of Electronics and Information Systems	3			A:2	90
23	E099400 Research Internship Patrick Segers -- Department of Electronics and Information Systems	6			A:J	180

### 3.2.2 Minors

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

#### 3.2.2.1 Minor Operations Management

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

Nr	Course	CRDT	Ref	MT1	Session	Study
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1	E076221	Manufacturing Planning and Control Birger Raa -- Department of Industrial Systems Engineering and Product Design	6	a	A:1	180
2	E004255	Operations Research Models and Methods El-Houssaine Aghezzaf -- Department of Industrial Systems Engineering and Product Design	6		A:1	180
3	E060240	Quality Engineering and Industrial Statistics Stijn De Vuyst -- Department of Industrial Systems Engineering and Product Design	6		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	E092623	Modelling of Physiological Systems Patrick Segers -- Department of Electronics and Information Systems	5	a	A:2	150
2	E092662	From Genome to Organism Fransiska Malfait -- Department of Biomolecular Medicine	3	a	A:1	90
3	E074011	Quantitative Cell and Tissue Analysis Andre Skirtach -- Department of Biotechnology	6	a	A:1	180
4	E063671	Biomaterials and Tissue Engineering Peter Dubrueel -- Department of Organic Chemistry	5		A:1	150
5	E063682	Biomechanics Charlotte Debbaut -- Department of Electronics and Information Systems	6		A:1	180
6	E010371	Medical Imaging Stefaan Vandenberghie -- 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	CRDT	Ref	MT1	Session	Study
1	E030610	Photonics [nl] Günther Roelkens -- Department of Information Technology	6		A:2	180
2	E030660	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).

Nr	Course	CRDT	Ref	MT1	Session	Study
1	E099300	Industry Internship Engineering and Architecture [en, nl] Patrick Segers -- Department of Electronics and Information Systems	6		A:J	180
2	E098010	Integrated Portfolio [en, nl] Hiep Luong -- Department of Telecommunications and Information Processing	6		A:J	180
3	E098010	Integrated Portfolio [en, nl] Hiep Luong -- Department of Telecommunications and Information Processing	3		B:J	90
4	E037810	Safety of Electrical and Mechanical Installations [nl] Jos Knockaert -- Department of Electromechanical, Systems and Metal Engineering	3		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	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
10	E092100	Biosystems [nl] Pascal Verdonck -- Department of Electronics and Information Systems	3		A:1	90
11	E075310	Ethics, Engineering and Society [nl] Seppe Segers -- Department of Philosophy and Moral Sciences	3		A:2	90
12	C004009	History and Philosophy of Sciences [nl] Maarten Van Dyck -- Department of Philosophy and Moral Sciences	3		A:1	90
13	E076320	The Information Society and ICT [nl] Erik Mannens -- Department of Electronics and Information Systems	3		A:2	90
14	A001900	Introduction to Psychology [nl] Wim Notebaert -- Department of Experimental Psychology	3		A:1	90
15	H001977	Coaching and Diversity [nl] Elisabeth De Schauwer -- Department of Special Education	3	UKV	A:J	90
16	A005503	Context and Nuance. A Critical Reflection on Current Topics [nl] Stef Craps -- Department of Literary Studies	6	UKV	A:1	180
17	E076450	Basic Entrepreneurship [nl]	3	UKV	A:1	90
18	A005646	Introduction to Corporate Law [nl] Diederik Bruloot -- Department of Interdisciplinary Study of Law, Private Law and Business Law	3		A:1	90
19	E076460	Dare to Venture Johan Verrue -- Department of Marketing, Innovation and Organisation	4		A:2	120
20	E076471	Dare to Start Frank Gielen -- Department of Information Technology	3		A:2	90
21	E076621	Principles of Law and Construction Law [nl] Jelle Laverge -- Department of Architecture and Urban Planning	3		A:1	90
22	E076951	Engineering Economy Sofie Verbrugge -- Department of Information Technology	6		A:1	180
23	E076431	Introduction to Entrepreneurship Petra Andries -- Department of Marketing, Innovation and Organisation	3		A:1	90
24	H002169	Powerful Learning Environments [nl] Bram De Wever -- Department of Educational Studies	6		A:1	180
25	H002196	Classroom Management and Reflection [nl] Melissa Tuytens -- Department of Educational Studies	4		A:2	120
26	H002197	The Teacher within School and Society [nl] Melissa Tuytens -- Department of Educational Studies	4		A:1	120
27	H002198	Psychology of Adolescence [nl] Wim Beyers -- Department of Developmental, Personality and Social Psychology	4		A:1	120
28	F000083	Macroeconomics [nl] Freddy Heylen -- Department of Economics	6		A:1	180
29	H001010	Introduction Industrial Psychology [nl] Bart Wille -- Department of Developmental, Personality and Social Psychology	5		A:2	150
30	F000551	Business Skills Mieke Audenaert -- Department of Marketing, Innovation and Organisation	4		C:2	120
31	A003001	Academic English Geert Jacobs -- Department of Linguistics	3	UKV	B:1, A:2	90
32	E075800	Communication [nl] Leen Pollefliet -- Department of Information Technology	3		A:1	90

#### Teaching

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 course name, using the following ISO codes:

bg: Bulgarian	de: German	es: Spanish	ja: Japanese	pl: Polish	sh: Croatian/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 is 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	d: bi-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