

Faculty of Engineering and Architecture

Master of Science in Mechanical and Electrical Systems Engineering

Language of instruction: English

Programme version 1

1 General Courses 66 credits

Nr	Course	CRDT	Ref	MT1	Session	Study
1	E048100 Fluid Machines <i>Joris Degroote -- Department of Electromechanical, Systems and Metal Engineering</i>	6		1	A:1	180
2	E005220 Linear Systems <i>Gert De Cooman -- Department of Electronics and Information Systems</i>	6		1	A:1	180
3	E048200 Electrical Drives <i>Frederik De Belie -- Department of Electromechanical, Systems and Metal Engineering</i>	6		1	A:1	180
4	E048300 Kinematics and Dynamics of Mechanisms <i>Magd Abdel Wahab -- Department of Electromechanical, Systems and Metal Engineering</i>	6		1	A:1	180
5	E048400 Numerical Modelling and Design of Electrical and Mechanical Systems <i>Jolan Wauters -- Department of Electromechanical, Systems and Metal Engineering</i>	6		1	A:1	180
6	E048500 Thermal Machines <i>Sebastian Verhelst -- Department of Electromechanical, Systems and Metal Engineering</i>	6		1	A:2	180
7	E048600 Vibrations and Signals <i>Mia Loccupier -- Department of Electromechanical, Systems and Metal Engineering</i>	6		1	A:2	180
8	E048700 Electrical Power and Energy Systems <i>Lieven Vandeveldde -- Department of Electromechanical, Systems and Metal Engineering</i>	6		1	A:2	180
9	E048800 Construction Techniques and Engineering Maintenance <i>Wim De Waele -- Department of Electromechanical, Systems and Metal Engineering</i>	6		1	A:2	180
10	E048900 Multidisciplinary Design <i>Steven Lecompte -- Department of Electromechanical, Systems and Metal Engineering</i>	6		1	A:2	180
11	E029800 Domain-Specific Research Skills <i>Michel De Paepe -- Department of Electromechanical, Systems and Metal Engineering</i>	3		2	(A:1) ^c	90
12	E029700 General Research Skills <i>Michel De Paepe -- Department of Electromechanical, Systems and Metal Engineering</i>	3		2	(A:1) ^c	90

2 Elective Courses 18 credits

Subscribe to 18 credit units from 2 modules from the following list. Subject to approval by the faculty.

2.1 Academic Specializing Elective Courses

Subscribe to no less than 6 and no more than 12 credit units from the following list. Subject to approval by the faculty.

Nr	Course	CRDT	Ref	MT1	Session	Study
1	E032600 Advanced Linear Process Control <i>Clara Ionescu -- Department of Electromechanical, Systems and Metal Engineering</i>	6			(A:1) ^c	180
2	E900069 Composites <i>Wim Van Paepegem -- Department of Materials, Textiles and Chemical Engineering</i>	6			A:1	180
3	E032610 Mechanical Material Behaviour: Identification and Modelling <i>Patricia Verleysen -- Department of Electromechanical, Systems and Metal Engineering</i>	3			(A:1) ^c	90
4	E032620 Tribology: Durability, Reliability and Performance of Machines <i>Dieter Fauconnier -- Department of Electromechanical, Systems and Metal Engineering</i>	6			(A:1) ^c	180
5	E032630 Fatigue and Fracture of Mechanical Components and Structures <i>Fuhui Shen -- Department of Electromechanical, Systems and Metal Engineering</i>	6			(A:1) ^c	180

6	E032640	Nonlinear Optimal Estimation and Control <i>Tom Lefebvre -- Department of Electromechanical, Systems and Metal Engineering</i>	6	(A:1) ^c	180
7	E032650	Powertrains for Sustainable Transportation <i>Sebastian Verhelst -- Department of Electromechanical, Systems and Metal Engineering</i>	3	(A:1) ^c	90
8	E032660	Robotics <i>Frederik Ostyn</i>	6	(A:1) ^c	180
9	E032670	Electrification and Renewable Energy <i>Jan Desmet -- Department of Electromechanical, Systems and Metal Engineering</i>	6	(A:1) ^c	180
10	E032680	Operational Aspects of Electrical Power Systems <i>Lieven Vandevelde -- Department of Electromechanical, Systems and Metal Engineering</i>	6	(A:1) ^c	180
11	E032690	Dynamics of Electrical Systems <i>Frederik De Belle -- Department of Electromechanical, Systems and Metal Engineering</i>	3	(A:1) ^c	90
12	E032710	Mechanics of Mechanical Constructions <i>Magd Abdel Wahab -- Department of Electromechanical, Systems and Metal Engineering</i>	3	(A:1) ^c	90
13	E032720	Thermal Cycles: Sustainable Energy Conversion, Heating and Cooling <i>Steven Lecompte -- Department of Electromechanical, Systems and Metal Engineering</i>	3	(A:1) ^c	90
14	E032730	Two-phase Heat Transfer <i>Michel De Paepe -- Department of Electromechanical, Systems and Metal Engineering</i>	3	(A:1) ^c	90
15	E032780	Nonlinear Vibration Control <i>Mia Loccufer -- Department of Electromechanical, Systems and Metal Engineering</i>	6	(A:1) ^c	180
16	E032700	Electric Vehicle Powertrains <i>Peter Sergeant -- Department of Electromechanical, Systems and Metal Engineering</i>	6	(A:1) ^f	180
17	E038020	Nuclear Reactor Theory: part 1 <i>Greet Maenhout -- Department of Electromechanical, Systems and Metal Engineering</i>	3	A:1	90

2.2 Non-Technical Elective Courses

Subscribe to no less than 6 and no more than 12 credit units from the following list. Subject to approval by the faculty.

Nr	Course	CRDT	Ref	MT1	Session	Study
1	E075310 Ethics, Engineering and Society [nl] <i>Seppe Segers -- Department of Philosophy and Moral Sciences</i>	3			A:2	90
2	C004009 History and Philosophy of Sciences [nl] <i>Maarten Van Dyck -- Department of Philosophy and Moral Sciences</i>	3			B:2	90
3	E076320 The Information Society and ICT [nl] <i>Erik Mannens -- Department of Electronics and Information Systems</i>	3			A:2	90
4	A005646 Introduction to Corporate Law [nl] <i>Diederik Bruloot -- Department of Interdisciplinary Study of Law, Private Law and Business Law</i>	3			A:1	90
5	B001375 Energy Law [nl] <i>Frederik Vandendriessche -- Department of European, Public and International Law</i>	4			A:2	120
6	A001900 Introduction to Psychology [nl] <i>Wim Notebaert -- Department of Experimental Psychology</i>	3			A:1	90
7	H002476 Powerful Learning Environments [nl] <i>Bram De Wever -- Department of Educational Studies</i>	6			A:1	180
8	H002477 The Teacher within Class, School and Society [nl] <i>Melissa Tuytens -- Department of Educational Studies</i>	6			A:2	180
9	H002478 The Student: Development and Motivation [nl] <i>Wim Beyers -- Department of Developmental, Personality and Social Psychology</i>	6			A:1	180
10	F001020 Introduction to Entrepreneurship <i>Petra Andries -- Department of Marketing, Innovation and Organisation</i>	3			A:1	90
11	F001022 Dare to Venture <i>Johan Verrue -- Department of Marketing, Innovation and Organisation</i>	4			A:2	120
12	E076471 Dare to Start <i>Wouter Haerick -- Department of Information Technology</i>	3			A:2	90
13	E076951 Engineering Economy <i>Sofie Verbrugge -- Department of Information Technology</i>	6			A:1	180
14	F000551 Business Skills <i>Mieke Audenaert -- Department of Marketing, Innovation and Organisation</i>	4			C:2	120
15	E075800 Communication [nl] <i>Leen Pollefliet -- Department of Information Technology</i>	3			A:1	90

16	E037830	Basics of Health and Safety at Work for Engineers [nl]	3		A:1	90
17	D002354	Movement and Sports: Now and Later [nl] <i>Veerle Segers -- Department of Movement and Sports Sciences</i>	3	UKV	A:2, B:J	90
18	H001977	Coaching and Diversity [nl] <i>Elisabeth De Schauwer -- Department of Special Education</i>	3	UKV	A:J	90
19	A003107	Advanced Academic English <i>Geert Jacobs -- Department of Linguistics</i>	3	UKV	A:1, B:2	90
20	B001581	Human Rights: Multidisciplinary Perspectives <i>Eva Brems -- Department of European, Public and International Law</i>	5	UKV	A:2	150
21	A005503	Context and Nuance. A Critical Reflection on Current Topics [nl] <i>July De Wilde -- Department of Translation, Interpreting and Communication</i>	6	UKV	A:1	180
22	G000922	Animal Welfare, Law and Ethics [nl] <i>Sarne De Vlieghe -- Department of Internal Medicine, Reproduction and Population Medicine</i>	3	UKV	A:2	90
23	H002395	Migration and Society: an Interdisciplinary Introduction <i>Robin Vandevoordt -- Department of Social Work and Social Pedagogy</i>	5	UKV	A:2	150
24	A005569	Global Minds <i>Ines Keygnaert -- Department of Public Health and Primary Care</i>	5	UKV	A:2	150

3 Elective Courses

6 credits

Subscribe to 6 credit units from no less than 1 and no more than 2 modules from the following list. Subject to approval by the faculty.

3.1 Technological Elective Courses

Subscribe to no more than 6 credit units from the following list. Subject to approval by the faculty.

Nr	Course	CRDT	Ref	MT1	Session	Study
1	E035421 Sustainable Energy <i>Jan Mertens -- Department of Electromechanical, Systems and Metal Engineering</i>	3			A:1	90
2	E038321 Nuclear Reactor Technology <i>Matthias Vanderhaegen -- Department of Electromechanical, Systems and Metal Engineering</i>	3			(A:2) ^c	90
3	E053642 Railway Technology Fundamentals <i>Hendrik Bonne -- Department of Electromechanical, Systems and Metal Engineering</i>	3			A:1	90
4	E061621 Automotive Technology <i>Sebastian Verhelst -- Department of Electromechanical, Systems and Metal Engineering</i>	3			A:2	90
5	E061960 Aeroplanes <i>Benoit Marinus -- Department of Electromechanical, Systems and Metal Engineering</i>	3			A:1	90
6	E032740 Maritime Transport	3			(A:2) ^c	90
7	E032750 Steel Manufacturing Technology: Equipment, Operations, and Maintenance	3			(A:2) ^c	90
8	E032760 Energy in Buildings	3			(A:2) ^c	90
9	E032770 Offshore Energy Production Systems	3			(A:2) ^c	90
10	E032790 Mechatronics in Manufacturing Industry	3			(A:2) ^c	90

3.2 Elective Courses: Internship / Integrated Portfolio

Subscribe to no more than 6 credit units from the following list. Subject to approval by the faculty.

Students can only subscribe once to the Internship or the Integrated Portfolio, either in elective module 3.2, either in elective module 4.3.

Nr	Course	CRDT	Ref	MT1	Session	Study
1	E099300 Industry Internship Engineering and Architecture [en, nl] <i>Patrick Segers -- Department of Electronics and Information Systems</i>	6			A:J	180
2	E099400 Research Internship <i>Patrick Segers -- Department of Electronics and Information Systems</i>	6			A:J	180
3	E098010 Integrated Portfolio [en, nl] <i>Hiep Luong -- Department of Telecommunications and Information Processing</i>	3			B:J	90
4	E098010 Integrated Portfolio [en, nl] <i>Hiep Luong -- Department of Telecommunications and Information Processing</i>	6			A:J	180

4 Elective Courses

6 credits

Subscribe to 6 credit units from no less than 1 and no more than 4 modules from the following list. Subject to approval by the faculty.

4.1 Academic Specializing Elective Courses

Subscribe to no more than 6 credit units from the following list. Subject to approval by the faculty.

Nr	Course	CRDT	Ref	MT1	Session	Study
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1	E032600	Advanced Linear Process Control <i>Clara Ionescu -- Department of Electromechanical, Systems and Metal Engineering</i>	6	(A:1) ^c	180
2	E900069	Composites <i>Wim Van Paepegem -- Department of Materials, Textiles and Chemical Engineering</i>	6	A:1	180
3	E032610	Mechanical Material Behaviour: Identification and Modelling <i>Patricia Verleysen -- Department of Electromechanical, Systems and Metal Engineering</i>	3	(A:1) ^c	90
4	E032620	Tribology: Durability, Reliability and Performance of Machines <i>Dieter Faconnier -- Department of Electromechanical, Systems and Metal Engineering</i>	6	(A:1) ^c	180
5	E032630	Fatigue and Fracture of Mechanical Components and Structures <i>Fuhui Shen -- Department of Electromechanical, Systems and Metal Engineering</i>	6	(A:1) ^c	180
6	E032640	Nonlinear Optimal Estimation and Control <i>Tom Lefebvre -- Department of Electromechanical, Systems and Metal Engineering</i>	6	(A:1) ^c	180
7	E032650	Powertrains for Sustainable Transportation <i>Sebastian Verhelst -- Department of Electromechanical, Systems and Metal Engineering</i>	3	(A:1) ^c	90
8	E032660	Robotics <i>Frederik Ostyn</i>	6	(A:1) ^c	180
9	E032670	Electrification and Renewable Energy <i>Jan Desmet -- Department of Electromechanical, Systems and Metal Engineering</i>	6	(A:1) ^c	180
10	E032680	Operational Aspects of Electrical Power Systems <i>Lieven Vandevelde -- Department of Electromechanical, Systems and Metal Engineering</i>	6	(A:1) ^c	180
11	E032690	Dynamics of Electrical Systems <i>Frederik De Belie -- Department of Electromechanical, Systems and Metal Engineering</i>	3	(A:1) ^c	90
12	E032710	Mechanics of Mechanical Constructions <i>Magd Abdel Wahab -- Department of Electromechanical, Systems and Metal Engineering</i>	3	(A:1) ^c	90
13	E032720	Thermal Cycles: Sustainable Energy Conversion, Heating and Cooling <i>Steven Lecompte -- Department of Electromechanical, Systems and Metal Engineering</i>	3	(A:1) ^c	90
14	E032730	Two-phase Heat Transfer <i>Michel De Paepe -- Department of Electromechanical, Systems and Metal Engineering</i>	3	(A:1) ^c	90
15	E032780	Nonlinear Vibration Control <i>Mia Loccupier -- Department of Electromechanical, Systems and Metal Engineering</i>	6	(A:1) ^c	180
16	E032700	Electric Vehicle Powertrains <i>Peter Sergeant -- Department of Electromechanical, Systems and Metal Engineering</i>	6	(A:1) ^f	180
17	E038020	Nuclear Reactor Theory: part 1 <i>Greet Maenhout -- Department of Electromechanical, Systems and Metal Engineering</i>	3	A:1	90

4.2 Non-Technical Elective Courses

Subscribe to no more than 6 credit units from the following list. Subject to approval by the faculty.

Nr	Course	CRDT	Ref	MT1	Session	Study
1	E075310 Ethics, Engineering and Society [nl] <i>Seppe Segers -- Department of Philosophy and Moral Sciences</i>	3			A:2	90
2	C004009 History and Philosophy of Sciences [nl] <i>Maarten Van Dyck -- Department of Philosophy and Moral Sciences</i>	3			B:2	90
3	E076320 The Information Society and ICT [nl] <i>Erik Mannens -- Department of Electronics and Information Systems</i>	3			A:2	90
4	A005646 Introduction to Corporate Law [nl] <i>Diederik Bruloot -- Department of Interdisciplinary Study of Law, Private Law and Business Law</i>	3			A:1	90
5	B001375 Energy Law [nl] <i>Frederik Vandendriessche -- Department of European, Public and International Law</i>	4			A:2	120
6	A001900 Introduction to Psychology [nl] <i>Wim Notebaert -- Department of Experimental Psychology</i>	3			A:1	90
7	H002476 Powerful Learning Environments [nl] <i>Bram De Wever -- Department of Educational Studies</i>	6			A:1	180
8	H002477 The Teacher within Class, School and Society [nl] <i>Melissa Tuytens -- Department of Educational Studies</i>	6			A:2	180
9	H002478 The Student: Development and Motivation [nl] <i>Wim Beyers -- Department of Developmental, Personality and Social Psychology</i>	6			A:1	180
10	F001020 Introduction to Entrepreneurship <i>Petra Andries -- Department of Marketing, Innovation and Organisation</i>	3			A:1	90

11	F001022	Dare to Venture <i>Johan Verrue -- Department of Marketing, Innovation and Organisation</i>	4		A:2	120
12	E076471	Dare to Start <i>Wouter Haerick -- Department of Information Technology</i>	3		A:2	90
13	E076951	Engineering Economy <i>Sofie Verbrugge -- Department of Information Technology</i>	6		A:1	180
14	F000551	Business Skills <i>Mieke Audenaert -- Department of Marketing, Innovation and Organisation</i>	4		C:2	120
15	E075800	Communication [nl] <i>Leen Pollefliet -- Department of Information Technology</i>	3		A:1	90
16	E037830	Basics of Health and Safety at Work for Engineers [nl]	3		A:1	90
17	D002354	Movement and Sports: Now and Later [nl] <i>Veerle Segers -- Department of Movement and Sports Sciences</i>	3	UKV	A:2, B:J	90
18	H001977	Coaching and Diversity [nl] <i>Elisabeth De Schauwer -- Department of Special Education</i>	3	UKV	A:J	90
19	A003107	Advanced Academic English <i>Geert Jacobs -- Department of Linguistics</i>	3	UKV	A:1, B:2	90
20	B001581	Human Rights: Multidisciplinary Perspectives <i>Eva Brems -- Department of European, Public and International Law</i>	5	UKV	A:2	150
21	A005503	Context and Nuance. A Critical Reflection on Current Topics [nl] <i>July De Wilde -- Department of Translation, Interpreting and Communication</i>	6	UKV	A:1	180
22	G000922	Animal Welfare, Law and Ethics [nl] <i>Sarne De Vlieghe -- Department of Internal Medicine, Reproduction and Population Medicine</i>	3	UKV	A:2	90
23	H002395	Migration and Society: an Interdisciplinary Introduction <i>Robin Vandevoordt -- Department of Social Work and Social Pedagogy</i>	5	UKV	A:2	150
24	A005569	Global Minds <i>Ines Keygnaert -- Department of Public Health and Primary Care</i>	5	UKV	A:2	150

4.3 Elective Courses: Internship / Integrated Portfolio

Subscribe to no more than 6 credit units from the following list. Subject to approval by the faculty.
Students can only subscribe once to the Internship or the Integrated Portfolio, either in elective module 3.2, either in elective module 4.3.

Nr	Course	CRDT	Ref	MT1	Session	Study
1	E099300 Industry Internship Engineering and Architecture [en, nl] <i>Patrick Segers -- Department of Electronics and Information Systems</i>	6			A:J	180
2	E099400 Research Internship <i>Patrick Segers -- Department of Electronics and Information Systems</i>	6			A:J	180
3	E098010 Integrated Portfolio [en, nl] <i>Hiep Luong -- Department of Telecommunications and Information Processing</i>	3			B:J	90
4	E098010 Integrated Portfolio [en, nl] <i>Hiep Luong -- Department of Telecommunications and Information Processing</i>	6			A:J	180

4.4 Elective Courses Ghent University

Subscribe to no more than 6 credit units from the following list. Subject to approval by the faculty.

4.4.1 Elective Courses Ghent University

Subscribe to no more than 6 credit units from the following list.

Nr	Course	CRDT	Ref	MT1	Session	Study
1	E076221 Manufacturing Planning and Control <i>Birger Raa -- Department of Industrial Systems Engineering and Product Design</i>	6			A:1	180
2	E008446 Sensors, Actuators and Electronic Microsystems <i>Herbert De Smet -- Department of Electronics and Information Systems</i>	6			A:2	180
3	E045930 Modelling of Turbulence and Combustion <i>Alexander Snegirev -- Department of Structural Engineering and Building Materials</i>	3			A:1	90
4	E051610 Passive Fire Protection <i>Emmanuel Annerel -- Department of Structural Engineering and Building Materials</i>	3			A:1	90
5	E051540 Explosions and Industrial Fire Safety <i>Filip Verplaetsen -- Department of Structural Engineering and Building Materials</i>	6			A:1	180
6	E053620 Railroads [nl] <i>Jan Mys -- Department of Civil Engineering</i>	3			A:2	90

7	E037810	Safety of Electrical and Mechanical Installations [nl] <i>Jos Knockaert -- Department of Electromechanical, Systems and Metal Engineering</i>	3	A:2	90
8	E039060	Sustainable Energy and Rational Use of Energy <i>Jeroen Beeckman -- Department of Electronics and Information Systems</i>	4	A:2	120
9	E078310	Sustainable Use of Materials: Metals [nl] <i>Kim Verbeken -- Department of Materials, Textiles and Chemical Engineering</i>	3	A:1	90
10	E078320	Sustainable Use of Materials: Plastics and Derived Materials [nl] <i>Lode Daelemans -- Department of Materials, Textiles and Chemical Engineering</i>	3	A:2	90
11	E078010	Technology and Environment <i>Luc Martens -- Department of Information Technology</i>	3	A:1	90
12	E078752	Water and Air Quality Management <i>Joris Thybaut -- Department of Materials, Textiles and Chemical Engineering</i>	4	A:2	120
13	E092100	Biosystems [nl] <i>Pascal Verdonck -- Department of Electronics and Information Systems</i>	3	A:1	90
14	E038030	Nuclear Reactor Theory: part 2 <i>Matthias Vanderhaegen -- Department of Electromechanical, Systems and Metal Engineering</i>	3	A:1	90
15	E055120	Introduction to Ships and Marine Technology <i>Evert Lataire -- Department of Civil Engineering</i>	4	A:1	120
16	E055320	Ship Behaviour in Shallow and Confined Water <i>Guillaume Delefortrie -- Department of Civil Engineering</i>	3	A:2	90
17	E055350	Underwater Vehicles	3	(A:2) ^d	90

4.4.2 Elective Courses Ghent University

Subscribe to a maximum of 6 ECTS from the programmes from Ghent University. Subject to approval by the faculty.

5 Master's Dissertation 24 credits

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

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 2026-2027	f: annually, from 2027-2028	i: annually, from 2028-2029
b: tri-annually	d: bi-annually, from 2026-2027	g: bi-annually, from 2027-2028	j: bi-annually, from 2028-2029
	e: tri-annually, from 2026-2027	h: tri-annually, from 2027-2028	k: tri-annually, from 2028-2029