

Faculty of Engineering and Architecture

Master of Science in Industrial Engineering and Operations Research

Campus: UGent

Language(s) of instruction: English (Programme sheet as of: 2021)

Programme version 9 Valid as from the academic year 2021-2022 (GOEDGEKEURD)

1 General Courses - EMaEOR_alg 32.0 credits

Nr	Course	CRDT	Ref	MT1	MT2	Session	Contact	Study
1	E004255 Operations Research Models and Methods [en] El-Houssaine Aghezzaf -- Department of Industrial Systems Engineering and Product Design	6.0		1		A:1	60.0	180
2	E005741 Simulation of Stochastic Systems [en] Stijn De Vuyst -- Department of Industrial Systems Engineering and Product Design	6.0		1		A:1	60.0	180
3	E076950 Engineering Economy [en] Sofie Verbrugge -- Department of Information Technology	4.0		1		A:1	30.0	120
4	E076340 Information Technology and Data Processing [en] Jan Aelterman -- Department of Telecommunications and Information Processing	6.0		1		B:2	60.0	180
5	E004241 Industrial Systems Modelling and Optimization [en] El-Houssaine Aghezzaf -- Department of Industrial Systems Engineering and Product Design	6.0		2		A:1	60.0	180
6	E004152 Heuristics and Search Methods [en] Sidharta Gautama -- Department of Industrial Systems Engineering and Product Design	4.0		2		A:1	30.0	120

2 Majors - EMIEOR_major 30.0 credits

Subscribe to 1 major from the following list. Subject to approval by the faculty.

2.1 Major Manufacturing & Supply Chain - EMIEOR_major_1 30.0 credits

Nr	Course	CRDT	Ref	MT1	MT2	Session	Contact	Study
1	E076221 Manufacturing Planning and Control [en] Birger Raa -- Department of Industrial Systems Engineering and Product Design	6.0		1		A:1	60.0	180
2	E076380 Methods Engineering and Work Measurement [en] Dieter Claey's -- Department of Industrial Systems Engineering and Product Design	6.0		1		A:1	60.0	180
3	E060240 Quality Engineering and Industrial Statistics [en] Stijn De Vuyst -- Department of Industrial Systems Engineering and Product Design	6.0		1		A:2	60.0	180
4	E004701 Design of Manufacturing and Service Operations [en] Dieter Claey's -- Department of Industrial Systems Engineering and Product Design	6.0		1		A:2	60.0	180
5	E076251 Supply Chain Engineering [en] Birger Raa -- Department of Industrial Systems Engineering and Product Design	6.0		2		A:1	60.0	180

2.2 Major Transport & Mobility - EMIEOR_major_2 30.0 credits

Nr	Course	CRDT	Ref	MT1	MT2	Session	Contact	Study
1	C004177 Spatiotemporal Analysis and Modelling [en] Nico Van de Weghe -- Department of Geography	5.0		1		A:1	40.0	150
2	E084390 Traffic Flow Modelling [en] Dieter Fiems -- Department of Telecommunications and Information Processing	6.0		1		A:1	60.0	180
3	E084460 Design of Urban Services [en] Sidharta Gautama -- Department of Industrial Systems Engineering and Product Design	6.0		1		A:2	60.0	180
4	C003534 Urban Mobility and Logistics [en] Frank Witlox -- Department of Geography	5.0		2		A:1	60.0	150
5	E084470 Computational Aspects of Transport and Mobility [en] Pieter Audenaert -- Department of Information Technology	4.0		2		A:1	40.0	120
6	E084480 Advanced Topics in Traffic and Logistics [en] Sidharta Gautama -- Department of Industrial Systems Engineering and Product Design	4.0		2		A:2(2022)	40.0	120

3 Elective Courses - EMIEOR_keuze_vooropl 6.0 credits

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

Depending on the student's previous degree.

Nr	Course	CRDT	Ref	MT1	MT2	Session	Contact	Study
1	E018310 Algorithms and Data Structures [en] Tom Dhaene -- Department of Information Technology	6.0		1		B:2	60.0	180
2	E007120 Modelling and Control of Dynamic Systems [nl] Mia Loccufier -- Department of Electromechanical, Systems and Metal Engineering	6.0		1		A:2	60.0	180

4 Elective Courses - EMaEOR

28.0 credits

Subscribe to 28 credit units from 1 path from the following list. Subject to approval by the faculty.

Divided as:

- in year 1: 8 credits for major Manufacturing & Supply Chain; 15 credits for major Transport & Mobility
- in year 2: 20 credits for major Manufacturing & Supply Chain; 13 credits for major Transport & Mobility

4.1 Elective Courses: Path 1 - EMaEOR_keuze_1

Subscribe to 28 credit units from no less than 1 and no more than 4 modules from the following list. Subject to approval by the faculty.

Divided as:

- either 18 (to 22) credit units from the Minor Artificial Intelligence, with 10 (or 6) credit units from the other elective modules (4.1.1, 4.1.3 and/or 4.1.4)
- either at least 15 credit units from the elective list 4.1.1, with max. 13 credit units from the elective list 4.1.3 and/or max. 13 credit units from the elective module 4.1.4

4.1.1 Elective Courses Industrial Engineering and Operations Research - EMaEOR_keuze_ljst

Nr	Course	CRDT	Ref	MT1	MT2	Session	Contact	Study
1	E003700 Game Theory with Engineering Applications [en] Heidi Steendam -- Department of Telecommunications and Information Processing	6.0				A:1	60.0	180
2	E007920 Computer Control of Industrial Processes [en] Clara-Mihaela Ionescu -- Department of Electromechanical, Systems and Metal Engineering	6.0				A:1	60.0	180
3	E016330 Artificial Intelligence [en] Aleksandra Pizurica -- Department of Telecommunications and Information Processing	6.0				A:1	60.0	180
4	E061330 Machine Learning [en] Joni Dambre -- Department of Electronics and Information Systems	6.0				B:1	60.0	180
5	E003421 Estimation and Decision Techniques [en] Hiep Luong -- Department of Telecommunications and Information Processing	4.0				A:1	30.0	120
6	E011610 Performance Analysis of Telecommunication Systems [en] Sabine Wittevrongel -- Department of Telecommunications and Information Processing	4.0				A:1	30.0	120
7	E019331 ICT and Mechatronics [en] Guillaume Crevecoeur -- Department of Electromechanical, Systems and Metal Engineering	6.0				A:2	60.0	180
8	E018210 Big Data Science [en] Dieter De Witte -- Department of Electronics and Information Systems	6.0				A:2	60.0	180
9	E005220 Linear Systems [en] Gert De Cooman -- Department of Electronics and Information Systems	6.0				A:2	60.0	180
10	E005722 Modelling and Simulation of Dynamical Systems [en] Guillaume Crevecoeur -- Department of Electromechanical, Systems and Metal Engineering	6.0				A:2	60.0	180
11	E004720 Network Modelling and Design [en] Mario Pickavet -- Department of Information Technology	4.0				B:2	30.0	120
12	E011320 Queueing Theory [en] Joris Walraevens -- Department of Telecommunications and Information Processing	6.0				B:1	60.0	180
13	E005770 Total Plant Automation [en] Johannes Cottyn -- Department of Industrial Systems Engineering and Product Design	6.0				A:2	60.0	180
14	E003110 Applied Probability [nl] Sabine Wittevrongel -- Department of Telecommunications and Information Processing	3.0				A:2	30.0	90
15	E076221 Manufacturing Planning and Control [en] Birger Raa -- Department of Industrial Systems Engineering and Product Design	6.0				A:1	60.0	180
16	E076380 Methods Engineering and Work Measurement [en] Dieter Claeys -- Department of Industrial Systems Engineering and Product Design	6.0				A:1	60.0	180
17	E060240 Quality Engineering and Industrial Statistics [en] Stijn De Vuyst -- Department of Industrial Systems Engineering and Product Design	6.0				A:2	60.0	180
18	E084390 Traffic Flow Modelling [en] Dieter Fiems -- Department of Telecommunications and Information Processing	6.0				A:1	60.0	180
19	E084470 Computational Aspects of Transport and Mobility [en] Pieter Audenaert -- Department of Information Technology	4.0				A:1	40.0	120

4.1.2 Minor Artificial Intelligence - EEMIEOR_minor1

Subscribe to no less than 18 and no more than 22 credit units from the following list. Subject to approval by the faculty.

Nr	Course	CRDT	Ref	MT1	MT2	Session	Contact	Study
1	E016330 Artificial Intelligence [en] Aleksandra Pizurica -- Department of Telecommunications and Information Processing	6.0				A:1	60.0	180

2	E061330	Machine Learning [en] Joni Dambre -- Department of Electronics and Information Systems	6.0			B:1	60.0	180
3	E018210	Big Data Science [en] Dieter De Witte -- Department of Electronics and Information Systems	6.0			A:2	60.0	180
4	E016340	Probabilistic Graphical Models [en] Aleksandra Pizurica -- Department of Telecommunications and Information Processing	4.0			A:2	30.0	120
5	F000918	Deep Learning [en] Joni Dambre -- Department of Electronics and Information Systems	6.0			A:2	60.0	180

4.1.3 Elective Courses Industrial Engineering and Operations Research - EMaBEDR_keuze_DIV_fac

Nr	Course	CRDT	Ref	MT1	MT2	Session	Contact	Study
1	E099920 International Internship 1 [en] Patrick Segers -- Department of Electronics and Information Systems	3.0				B:2, A:1	7.5	90
2	E099930 International Internship 2 [en] Patrick Segers -- Department of Electronics and Information Systems	3.0				B:2, A:1	7.5	90
3	E099940 International Internship 3 [en] Patrick Segers -- Department of Electronics and Information Systems	6.0				B:2, A:1	7.5	180
4	E099960 Internship 1 [nl, en] Patrick Segers -- Department of Electronics and Information Systems	3.0				B:2, A:1	7.5	90
5	E099970 Internship 2 [nl, en] Patrick Segers -- Department of Electronics and Information Systems	3.0				A:1, B:2	7.5	90
6	E099980 Internship 3 [nl, en] Patrick Segers -- Department of Electronics and Information Systems	6.0				B:2, A:1	7.5	180
7	E065460 Rational Use of Materials [en] Tom Depover -- Department of Materials, Textiles and Chemical Engineering	5.0				A:1	45.0	150
8	E076820 Project Management [en] Mario Vanhoucke -- Department of Business Informatics and Operations Management	6.0				A:2	45.0	180
9	C003400 Bayesian Statistics [en] N. N.	5.0				A:2	62.5	150
10	E037810 Safety of Electrical and Mechanical Installations [nl] Jos Knockaert -- Department of Electromechanical, Systems and Metal Engineering	3.0				A:2	30.0	90
11	E076320 The Information Society and ICT [en] Erik Mannens -- Department of Electronics and Information Systems	3.0				A:1	15.0	90
12	F000627 Transport Economics [nl] Jochen Maes -- Department of Economics	6.0				A:2	30.0	180
13	F000892 Innovation Management [en] Katrien Verleye -- Department of Marketing, Innovation and Organisation	3.0				A:2	30.0	90
14	E076460 Dare to Venture [en] Johan Verrue -- Department of Marketing, Innovation and Organisation	4.0				A:2	30.0	120
15	F000224 Labour and Employment [nl] Stijn Baert -- Department of Economics	5.0				A:1	45.0	150
16	F000083 Macroeconomics [nl] Freddy Heylen -- Department of Economics	6.0				A:1	60.0	180
17	H001010 Introduction Industrial Psychology [nl] Bart Wille -- Department of Department of developmental, personality and social psychology	5.0				A:2	45.0	150
18	E076520 Commercial Law [nl] Diederik Bruloot -- Department of Interdisciplinary Study of Law, Private Law and Business Law	3.0				A:1	30.0	90
19	F000551 Business Skills [en] Mieke Audenaert -- Department of Marketing, Innovation and Organisation	4.0				C:2	30.0	120
20	F000132 Corporate Finance [en] Sophie Manigart -- Department of Accounting, Corporate Finance and Taxation	6.0				A:2	60.0	180
21	H001977 Coaching and Diversity [nl] Elisabeth De Schauwer -- Department of Special education	3.0	UKV			A:J	25.0	90
22	K001339 Sustainability Thinking [nl] Thomas Block -- Department of Political Sciences	5.0	UKV			A:J	45.0	150
23	E078010 Technology and Environment [en] Luc Martens -- Department of Information Technology	3.0				A:1	15.0	90
24	A001900 Introduction to Psychology [nl] Wim Notebaert -- Department of Experimental psychology	3.0				A:1	30.0	90
25	E076130 Introduction to Human Resource Management	3.0					30.0	90
26	D002354 Movement and Sports: Now and Later [nl] Veerle Segers -- Department of Movement and Sports Sciences	3.0	UKV			A:2	30.0	90

4.1.4 Elective Courses Faculty - EKeuze_faculteit_14_16

Subscribe to no more than 13 credit units of technical courses from the study programmes Master of Science in Engineering (with the exception of Architecture) of the Faculty of Engineering and Architecture. Subject to approval by the faculty.

4.2 Elective Courses: Path 2 - EMaIEOR_keuze_2

Only available for students who follow the Major Manufacturing & Supply Chain.
Subscribe to 28 credit units from 2 modules from the following list. Subject to approval by the faculty.

4.2.1 Minor Automotive Production Engineering - EMa_minor_ape

Subscribe to no less than 18 and no more than 24 credit units from the following list, with

- no less than 6 credit units from the courses with reference b,
- no less than 6 credit units from the courses with reference c.

Subject to approval by the faculty.

Only subscribe to courses with reference b or c.

Nr	Course	CRDT	Ref	MT1	MT2	Session	Contact	Study
1	E076221 Manufacturing Planning and Control [en] Birger Raa -- Department of Industrial Systems Engineering and Product Design	6.0	a			A:1	60.0	180
2	E076380 Methods Engineering and Work Measurement [en] Dieter Claeys -- Department of Industrial Systems Engineering and Product Design	6.0	a			A:1	60.0	180
3	E060240 Quality Engineering and Industrial Statistics [en] Stijn De Vuyst -- Department of Industrial Systems Engineering and Product Design	6.0	a			A:2	60.0	180
4	E005770 Total Plant Automation [en] Johannes Cottyn -- Department of Industrial Systems Engineering and Product Design	6.0	a			A:2	60.0	180
5	E066661 Corrosion and Surface Technology [en] Kim Verbeke -- Department of Materials, Textiles and Chemical Engineering	6.0	b			A:2	60.0	180
6	E066270 Metal Processing and Technology [en] Roumen Petrov -- Department of Electromechanical, Systems and Metal Engineering	6.0	b			A:1	60.0	180
7	E900069 Composites [en] Wim Van Paepegem -- Department of Materials, Textiles and Chemical Engineering	6.0	b			A:1	60.0	180
8	E043070 Materials Selection in Mechanical Design [en] Stijn Hertelé -- Department of Electromechanical, Systems and Metal Engineering	6.0	b			B:2	45.0	180
9	E061322 Machine Design [en] Dieter Fauconnier -- Department of Electromechanical, Systems and Metal Engineering	6.0	c			A:1	60.0	180
10	E037121 Displacement Pumps, Compressors and IC Engine Fundamentals [en] Sebastian Verhelst -- Department of Electromechanical, Systems and Metal Engineering	6.0	c			A:1	60.0	180
11	E037221 IC Engines: advanced design and research [en] Sebastian Verhelst -- Department of Electromechanical, Systems and Metal Engineering	3.0	c			A:2	30.0	90
12	E061621 Automotive Technology [en] Toon Demeester -- Department of Electromechanical, Systems and Metal Engineering	3.0	c			A:2	30.0	90
13	E007920 Computer Control of Industrial Processes [en] Clara-Mihaela Ionescu -- Department of Electromechanical, Systems and Metal Engineering	6.0	c			A:1	60.0	180
14	E008420 Servo Systems and Industrial Robots [en] Guillaume Crevecoeur -- Department of Electromechanical, Systems and Metal Engineering	3.0	c			A:1	30.0	90
15	E030520 Power Electronics [en] Hendrik Vansompel -- Department of Electromechanical, Systems and Metal Engineering	3.0	c			A:2	30.0	90

4.2.2 Elective Courses Industrial Engineering and Operations Research - EMaIEOR_keuze_ljst

Subscribe to no less than 4 and no more than 10 credit units from the following list. Subject to approval by the faculty.

Nr	Course	CRDT	Ref	MT1	MT2	Session	Contact	Study
1	E003700 Game Theory with Engineering Applications [en] Heidi Steendam -- Department of Telecommunications and Information Processing	6.0				A:1	60.0	180
2	E007920 Computer Control of Industrial Processes [en] Clara-Mihaela Ionescu -- Department of Electromechanical, Systems and Metal Engineering	6.0				A:1	60.0	180
3	E016330 Artificial Intelligence [en] Aleksandra Pizurica -- Department of Telecommunications and Information Processing	6.0				A:1	60.0	180
4	E061330 Machine Learning [en] Joni Dambre -- Department of Electronics and Information Systems	6.0				B:1	60.0	180
5	E003421 Estimation and Decision Techniques [en] Hiep Luong -- Department of Telecommunications and Information Processing	4.0				A:1	30.0	120
6	E011610 Performance Analysis of Telecommunication Systems [en] Sabine Wittevrongel -- Department of Telecommunications and Information Processing	4.0				A:1	30.0	120
7	E019331 ICT and Mechatronics [en] Guillaume Crevecoeur -- Department of Electromechanical, Systems and Metal Engineering	6.0				A:2	60.0	180
8	E018210 Big Data Science [en] Dieter De Witte -- Department of Electronics and Information Systems	6.0				A:2	60.0	180
9	E005220 Linear Systems [en] Gert De Cooman -- Department of Electronics and Information Systems	6.0				A:2	60.0	180
10	E005722 Modelling and Simulation of Dynamical Systems [en] Guillaume Crevecoeur -- Department of Electromechanical, Systems and Metal Engineering	6.0				A:2	60.0	180

11	E004720	Network Modelling and Design [en] Mario Pickavet -- Department of Information Technology	4.0			B:2	30.0	120
12	E011320	Queueing Theory [en] Joris Walraevens -- Department of Telecommunications and Information Processing	6.0			B:1	60.0	180
13	E005770	Total Plant Automation [en] Johannes Cottyn -- Department of Industrial Systems Engineering and Product Design	6.0			A:2	60.0	180
14	E003110	Applied Probability [nl] Sabine Wittevrongel -- Department of Telecommunications and Information Processing	3.0			A:2	30.0	90
15	E076221	Manufacturing Planning and Control [en] Birger Raa -- Department of Industrial Systems Engineering and Product Design	6.0			A:1	60.0	180
16	E076380	Methods Engineering and Work Measurement [en] Dieter Claeys -- Department of Industrial Systems Engineering and Product Design	6.0			A:1	60.0	180
17	E060240	Quality Engineering and Industrial Statistics [en] Stijn De Vuyst -- Department of Industrial Systems Engineering and Product Design	6.0			A:2	60.0	180
18	E084390	Traffic Flow Modelling [en] Dieter Fiems -- Department of Telecommunications and Information Processing	6.0			A:1	60.0	180
19	E084470	Computational Aspects of Transport and Mobility [en] Pieter Audenaert -- Department of Information Technology	4.0			A:1	40.0	120

5 Master's Dissertation - EMasterproef_24_EN_JAAR							24.0 credits	
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Nr	Course	CRDT	Ref	MT1	MT2	Session	Contact	Study
1	E091103 Master's Dissertation [en]	24.0		2		B:J	60.0	720