Study Programme

Academic year 2022-2023

Faculty of Engineering and Architecture

Master of Science in Industrial Engineering and Operations Research -- Manufacturing and Supply Chain Engineering

Language of instruction: English

Programme version 1

| 1 | General Courses | | | | | 36 credits |

Nr	Course		CRDT	Ref	MT1	Session	Study
1	E004255	Operations Research Models and Methods	6		1	A:1	180
		El-Houssaine Aghezzaf -- Department of Industrial Systems Engineering and Product Design					
2	E005741	Simulation of Stochastic Systems	6		1	A:1	180
		Stijn De Vuyst -- Department of Industrial Systems Engineering and Product Design					
3	E076950	Engineering Economy	4		1	A:1	120
		Sofie Verbrugge -- Department of Information Technology					
4	E076340	Information Technology and Data Processing	6		1	B:2	180
		Jan Aelterman -- Department of Telecommunications and Information Processing					
5	E018320	Algorithmic Programming	4		1	A:2	120
		Birger Raa -- Department of Industrial Systems Engineering and Product Design					
6	E004241	Industrial Systems Modelling and Optimization	6		2	A:1	180
		El-Houssaine Aghezzaf -- Department of Industrial Systems Engineering and Product Design					
7	E004152	Heuristics and Search Methods	4		2	A:1	120
		Sidharta Gautama -- Department of Industrial Systems Engineering and Product Design					

| 2 | Courses Related to the Main Subject | | | | | 30 credits |

Nr	Course		CRDT	Ref	MT1	Session	Study
1	E076221	Manufacturing Planning and Control	6		1	A:1	180
		Birger Raa -- Department of Industrial Systems Engineering and Product Design					
2	E076380	Methods Engineering and Work Measurement	6		1	A:1	180
		Dieter Claeys -- Department of Industrial Systems Engineering and Product Design					
3	E060240	Quality Engineering and Industrial Statistics	6		1	A:2	180
		Stijn De Vuyst -- Department of Industrial Systems Engineering and Product Design					
4	E004701	Design of Manufacturing and Service Operations	6		1	A:2	180
		Dieter Claeys -- Department of Industrial Systems Engineering and Product Design					
5	E076251	Supply Chain Engineering	6		2	A:1	180
		Birger Raa -- Department of Industrial Systems Engineering and Product Design					

| 3 | Elective Courses | | | | | 30 credits |

Subscribe to 30 credit units from no less than 1 and no more than 2 modules from the following list. Subject to approval by the faculty.
Divided as:
• 10 credit units in year 1
• 20 credit units in year 2

3.1 In-depth Elective Courses and Minor   15 credits

Subscribe to at least 15 credit units from no less than 1 and no more than 2 modules from the following list. Subject to approval by the faculty.

3.1.1 Elective Courses Manufacturing and Supply Chain

Nr	Course		CRDT	Ref	MT1	Session	Study
1	E003700	Game Theory with Engineering Applications	6			A:1	180
		Heidi Steendam -- Department of Telecommunications and Information Processing					

Nr	Course		CRDT	Ref	MT1	Session	Study
2	E007920	Computer Control of Industrial Processes	6			A:1	180
		Clara Ionescu -- Department of Electromechanical, Systems and Metal Engineering					
3	E016330	Artificial Intelligence	6			A:1	180
		Aleksandra Pizurica -- Department of Telecommunications and Information Processing					
4	E061330	Machine Learning	6			B:1	180
		Joni Dambre -- Department of Electronics and Information Systems					
5	E003421	Estimation and Decision Techniques	4			A:1	120
		Hiep Luong -- Department of Telecommunications and Information Processing					
6	E084390	Traffic Flow Modelling	6			A:1	180
		Dieter Fiems -- Department of Telecommunications and Information Processing					
7	E084470	Computational Aspects of Transport and Mobility	4			A:1	120
		Pieter Audenaert -- Department of Information Technology					
8	E011320	Queueing Theory	6			B:1	180
		Joris Walraevens -- Department of Telecommunications and Information Processing					
9	E019331	ICT and Mechatronics	6			A:2	180
		Guillaume Crevecoeur -- Department of Electromechanical, Systems and Metal Engineering					
10	E018210	Big Data Science	6			A:2	180
		Dieter De Witte -- Department of Electronics and Information Systems					
11	E005220	Linear Systems	6			A:2	180
		Arthur Van Camp -- Department of Electronics and Information Systems					
12	E005722	Modelling and Simulation of Dynamical Systems	6			A:2	180
		Guillaume Crevecoeur -- Department of Electromechanical, Systems and Metal Engineering					
13	E004720	Network Modelling and Design	4			B:2	120
		Mario Pickavet -- Department of Information Technology					
14	E005770	Total Plant Automation	6			A:2	180
		Johannes Cottyn -- Department of Industrial Systems Engineering and Product Design					
15	E003110	Applied Probability [nl]	3			A:2	90
		Sabine Wittevrongel -- Department of Telecommunications and Information Processing					
16	E007120	Modelling and Control of Dynamic Systems [nl]	6			A:2	180
		Mia Loccufier -- Department of Electromechanical, Systems and Metal Engineering					

3.1.2 Minor Artifical Intelligence

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	Session	Study
1	E016330	Artificial Intelligence	6			A:1	180
		Aleksandra Pizurica -- Department of Telecommunications and Information Processing					
2	E061330	Machine Learning	6			B:1	180
		Joni Dambre -- Department of Electronics and Information Systems					
3	E018210	Big Data Science	6			A:2	180
		Dieter De Witte -- Department of Electronics and Information Systems					
4	E016340	Probabilistic Graphical Models	4			A:2	120
		Aleksandra Pizurica -- Department of Telecommunications and Information Processing					
5	F000918	Deep Learning	6			A:2	180
		Joni Dambre -- Department of Electronics and Information Systems					

3.1.3 Minor Automotive Production Engineering

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	Session	Study
1	E076221	Manufacturing Planning and Control	6	a		A:1	180
		Birger Raa -- Department of Industrial Systems Engineering and Product Design					
2	E076380	Methods Engineering and Work Measurement	6	a		A:1	180
		Dieter Claeys -- Department of Industrial Systems Engineering and Product Design					
3	E060240	Quality Engineering and Industrial Statistics	6	a		A:2	180
		Stijn De Vuyst -- Department of Industrial Systems Engineering and Product Design					
4	E005770	Total Plant Automation	6	a		A:2	180
		Johannes Cottyn -- Department of Industrial Systems Engineering and Product Design					

5	E066661	Corrosion and Surface Technology	6	b		A:2	180
		Kim Verbeken -- Department of Materials, Textiles and Chemical Engineering					
6	E066270	Metal Processing and Technology	6	b		A:1	180
		Roumen Petrov -- Department of Electromechanical, Systems and Metal Engineering					
7	E900069	Composites	6	b		A:1	180
		Wim Van Paepegem -- Department of Materials, Textiles and Chemical Engineering					
8	E043070	Materials Selection in Mechanical Design	6	b		B:2	180
		Stijn Hertelé -- Department of Electromechanical, Systems and Metal Engineering					
9	E061322	Machine Design	6	c		A:1	180
		Dieter Fauconnier -- Department of Electromechanical, Systems and Metal Engineering					
10	E037121	Displacement Pumps, Compressors and IC Engine Fundamentals	6	c		A:1	180
		Sebastian Verhelst -- Department of Electromechanical, Systems and Metal Engineering					
11	E037221	IC Engines: advanced design and research	3	c		A:2	90
		Sebastian Verhelst -- Department of Electromechanical, Systems and Metal Engineering					
12	E061621	Automotive Technology	3	c		A:2	90
		Toon Demeester -- Department of Electromechanical, Systems and Metal Engineering					
13	E007920	Computer Control of Industrial Processes	6	c		A:1	180
		Clara Ionescu -- Department of Electromechanical, Systems and Metal Engineering					
14	E008420	Servo Systems and Industrial Robots	3	c		A:1	90
		Guillaume Crevecoeur -- Department of Electromechanical, Systems and Metal Engineering					
15	E030520	Power Electronics	3	c		A:2	90
		Hendrik Vansompel -- Department of Electromechanical, Systems and Metal Engineering					

3.2 Broadening Elective Courses   15 credits

Subscribe to at most 15 credit units from no less than 1 and no more than 2 modules from the following list. Subject to approval by the faculty.

3.2.1 Broadening Elective Courses

Nr	Course		CRDT	Ref	MT1	Session	Study
1	E099300	Industry Internship Engineering and Architecture [en, nl]	6			A:J	180
		Patrick Segers -- Department of Electronics and Information Systems					
2	E099400	Research Internship	6			A:J	180
		Patrick Segers -- Department of Electronics and Information Systems					
3	E099400	Research Internship	3			B:J	90
		Patrick Segers -- Department of Electronics and Information Systems					
4	E076820	Project Management	6			A:2	180
		Mario Vanhoucke -- Department of Business Informatics and Operations Management					
5	C003400	Bayesian Statistics	5				150
6	E037810	Safety of Electrical and Mechanical Installations [nl]	3			A:2	90
		Jos Knockaert -- Department of Electromechanical, Systems and Metal Engineering					
7	E076320	The Information Society and ICT	3			A:1	90
		Erik Mannens -- Department of Electronics and Information Systems					
8	F000627	Transport Economics [nl]	6			A:2	180
		Jochen Maes -- Department of Economics					
9	F000892	Innovation Management	3			A:2	90
		Katrien Verleye -- Department of Marketing, Innovation and Organisation					
10	E076460	Dare to Venture	4			A:2	120
		Johan Verrue -- Department of Marketing, Innovation and Organisation					
11	F000224	Labour and Employment [nl]	5			A:1	150
		Stijn Baert -- Department of Economics					
12	F000083	Macroeconomics [nl]	6			A:1	180
		Freddy Heylen -- Department of Economics					
13	H001010	Introduction Industrial Psychology [nl]	5			A:2	150
		Bart Wille -- Department of Developmental, Personality and Social Psychology					
14	E076520	Commercial Law [nl]	3			A:1	90
		Diederik Bruloot -- Department of Interdisciplinary Study of Law, Private Law and Business Law					
15	F000551	Business Skills	4			C:2	120
		Mieke Audenaert -- Department of Marketing, Innovation and Organisation					

Nr	Code	Course	CRDT	Ref	MT1	Session	Study
16	F000132	Corporate Finance *Sophie Manigart -- Department of Accounting, Corporate Finance and Taxation*	6			A:2	180
17	F000683	Investment Analysis *Michael Frömmel -- Department of Economics*	6			A:1	180
18	F000778	Business Process Management *Frederik Gailly -- Department of Business Informatics and Operations Management*	4			A:2	120
19	H001977	Coaching and Diversity [nl] *Elisabeth De Schauwer -- Department of Special Education*	3	UKV		A:J	90
20	K001339	Sustainability Thinking [nl] *Thomas Block -- Department of Political Sciences*	5	UKV		A:J	150
21	E078310	Sustainable Use of Materials: Metals [nl] *Kim Verbeken -- Department of Materials, Textiles and Chemical Engineering*	3			A:1	90
22	E078320	Sustainable Use of Materials: Plastics and Derived Materials [nl] *Lode Daelemans -- Department of Materials, Textiles and Chemical Engineering*	3			A:2	90
23	E078010	Technology and Environment *Luc Martens -- Department of Information Technology*	3			A:1	90
24	A001900	Introduction to Psychology [nl] *Wim Notebaert -- Department of Experimental Psychology*	3			A:1	90
25	D002354	Movement and Sports: Now and Later [nl] *Veerle Segers -- Department of Movement and Sports Sciences*	3	UKV		A:2	90

3.2.2 Elective Courses Faculty

Subscribe to no more than 15 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 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 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 2023-2024	f: annually, from 2024-2025	i: annually, from 2025-2026
b: tri-annually	d: bi-annually, from 2023-2024	g: bi-annually, from 2024-2025	j: bi-annually, from 2025-2026
	e: tri-annually, from 2023-2024	h: tri-annually, from 2024-2025	k: tri-annually, from 2025-2026