

Appendices of the Teaching and Examination Regulations of the Master's degree programme in Industrial Engineering and Management

Content:

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- B. Specializations of the degree programme;
- C. Content of the degree programme;
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A. Teaching outcomes of the degree programme *Industrial Engineering and Management*:

After the master's degree programme students have:

1. The knowledge to describe complex and advanced technological processes and products in a managerial/business context.
2. The understanding to diagnose the functionality and performance of such processes and products in a multi-disciplinary way (e.g. technological, managerial and from viewpoint of various stake-holders).
3. The skills to (re)design, implement and then evaluate such processes and products.
4. The knowledge, understanding and skills for doing research, i.e. applying industrial engineering methodologies in research.
5. The knowledge, understanding and skills for life-long learning (including information retrieval and ICT-use) needed to function autonomously.
6. The skills to think critically and communicate scientifically about ideas and solutions with engineers and managers.
7. The knowledge and understanding of advanced technology, managerial/business sciences and mathematics to do research and to enter a PhD-program in Industrial Engineering or a related discipline.
8. Professional skills for managerial, societal and ethical behaviour when applying technology.

B. Tracks of the degree programme

The master's programme of Industrial Engineering and Management three tracks; the PTL – track contains two specializations:

- Production Technology and Logistics (PTL)
- Information Engineering (IE)
- Product and Process Technology (PPT)

C/E. Content of the degree programme, entry requirements and compulsory order of examinations

Module	ECTS	Practical work	Examination form¹⁾	Prerequisites²⁾
Core programme	85			
Outlining and Implementing Innovation Strategy	5	Yes	OE & ASS	
Simulation of Logistic Systems	5	Yes	ASS	
Asset Management	5	Yes	ASS	
Systems Engineering	5	Yes	ASS	
Project Management	5	Yes	ASS	
Research Methodology	5	Yes	ASS	
Business Project	20	Yes	ASS	
Master's thesis Research	35	Yes	ASS	Research Methodology, a minimal study-load of of 60 ECTS of the master's IEM programme

PTL-Specialization	35			
Foundations of Log. Systems Engineering	5		WE	
Robotics	5		WE	
Analysis and control of smart systems	5		WE	
Optional Modules (SSCM/LSE)	20	Var	Var	
IE-Specialization	35			
Distributed Systems	5	Yes	ASS	
Software Architecture	5	Yes	ASS	
Business Intelligence	5	Yes	OE & ASS	
ICT management & consultancy	5	Yes	WE & ASS	
Sustainable and Integrated Information Systems	5	Yes	ASS	
Optional Modules	10	Var	Var	
PPT-Specialization	35			
Interfacial Engineering	5		WE	
Bio-based products	5		ASS	
Powder technology <i>OR</i> Polymer Products	5	-/Yes	WE/ASS	
Process Design	10	Yes	ASS	
Transport phenomena 2	5		WE	
Advanced product engineering	5	Yes	ASS	

¹WE: Written examination, OE: Oral examination, ASS: assignment including report and/or presentation, Var: various; ²) entry requirements and compulsory order of examinations

D. Optional modules (for type of examination, prerequisites course format and other course details, see <http://www.rug.nl/ocasys/>) (draft list).

Semester	Course code	Course Name	ECTS
semester I			
semester I a	NADP-08	<u>Device physics (C)</u>	5
	WIRC-09	Robust Control	5
	WIMOD-08	<u>Mathematical modelling</u>	5
semester I b	INBGAD-10	<u>Gevorderde algoritmen en datastructuren</u>	5
	TBIEMPR-08	<u>IEMproject</u>	5
	INMNN-08	<u>Neural networks</u>	5
	TBPDFEM-10	<u>Product design by the finite element method</u>	5
	INMSP-08	<u>Software patterns</u>	5
	CHSFE05E	<u>Sustainability for engineers</u>	5
	WIVOB-09	<u>Calculus of Variations and Optimal</u>	5

		<u>Control (B)</u>	
semester II	TBRCSMU05E	<u>Research course simulation mod. & use</u>	5
semester II a	CHTMFR105E	<u>Meerfasen reactoren</u>	5
	INMMOB-08	<u>Mobile software</u>	5
semester II b	CHCE-09	<u>Catalysis for engineers</u>	5
	KIM.CE11	<u>Cognitive engineering</u>	5
	TBAFPE-11	<u>Adaptive filtering and parameter estimation</u>	5

F. Admission to the degree programme and different specializations

- Holders of a Bachelor's degree in Industrial Engineering and Management from the University of Groningen. Admission is profile specific.
- Holders of a Dutch or foreign Bachelor's or Master's degree with equivalent learning outcomes as the Bachelor's degree programme Industrial Engineering and Management of the University of Groningen.

G. Application deadlines for admission

Deadline of Application	Non-EU students	EU students
Nanoscience		
Behavioural and Cognitive Neurosciences		
Biomolecular Sciences (topprogramme)		
Evolutionary Biology (topprogramme)		
Remaining FMNS Masters	April 1 th	1 st may