

Appendices of the Teaching and Examination Regulations of the Master's degree programme in Industrial Engineering and Management 2011-2012

A. Teaching outcomes of the degree programme *Industrial Engineering and Management*:

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

B. Specializations of the degree programme

Within the master's programme of Industrial Engineering and Management three 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 form ¹⁾	Prerequisites ²⁾
Core programme	70			
Business Law	5	Yes	WE	
Simulation of business processes	5	Yes	ASS	
Systems Engineering	5	Yes	ASS	
Applied capital budgeting & finance	5	Yes	WE	
Outlining and Implementing Innovation Strategy	5	Yes	OE & ASS	
Research Methodology	5	Yes	ASS	
Project Management	5	Yes	ASS	
Master's thesis preparation	5	Yes	ASS	Research Methodology, a

				minimal studyload of Of 70 ECTS of the master's IEM programme
Master's thesis Research	30	Yes	ASS	Master's thesis preparation
PTL-Specialization	50			
Operations Research 2	5		WE	
Mechatronics	5		WE	
Flexible manufacturing automation	5	Yes	WE	
Modelling and Analysis of Complex Networks	5	Yes	WE	
Analysis and control of smart systems	5	Yes	WE	
Optional Modules	25		Var	
IE-Specialization	50			
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	25		Var	
PPT-Specialization	50			
Transport phenomena 2	5		WE	
Process design	10	Yes	ASS	
Advanced product engineering	5	Yes	ASS	
Polymer Products	5		ASS	
Optional modules	25		Var	

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/>)

Semester	Course code	Course Name	ECTS
semester I	EBM611A10	<u>Field Course Small Business Management</u>	10
	EBM653A10	<u>ICT: Human & Organizational Issues</u>	10
	EBM658A05	<u>Inf. Systems for Operations & Supply Ch.</u>	5
	EM4RSD15E	<u>Resources and sustainable development</u>	15
	EBM851A10	<u>Small Business Economics</u>	10
	EBB881A10	<u>Spec. Course Finance</u>	10
semester I a	EBM760A05	<u>Advanced Product & Service Development</u>	5
	EBM716A05	<u>Advanced Purchasing & Supply Management</u>	5
	INMAWT-08	<u>Advanced web technology</u>	5

	NADP-08	<u>Device physics (C)</u>	5
	EBM607A05	<u>Field Course Business Development Ia</u>	5
	CHTCIE05E	<u>Interfacial engineering</u>	5
	EBM761A05	<u>Management Acc. for Techn. Innovation</u>	5
	CHPP-10	<u>Particulate products</u>	5
	EBB667A05	<u>Project Management</u>	5
	WIRC-09	<u>Robust Control</u>	5
	EBM882A05	<u>Services Marketing</u>	5
	WIMOD-08	<u>Wiskundig modelleren (C)</u>	5
semester I b	INBGAD-10	<u>Gevorderde algoritmen en datastructuren</u>	5
	NAGO-12	<u>Golven en optica (A)</u>	5
	TBIEMPR-08	<u>IEMproject</u>	5
	INMNN-08	<u>Neural networks</u>	5
	EBM725B05	<u>Operations Management Process Industries</u>	5
	EBM622B05	<u>Organizing Innovation</u>	5
	EBM762A05	<u>Process Innovation & Oper. Excellence</u>	5
	TBPDFEM-10	<u>Product design by the finite element method</u>	5
	EBM880A05	<u>Retail Marketing</u>	5
	EBM763A05	<u>Social System Analysis of Techn. Innov.</u>	5
	INMSP-08	<u>Software patterns</u>	5
	CHSFE05E	<u>Sustainability for engineers</u>	5
	WIVOB-09	<u>Variatierekening en optimale besturingstheorie (B)</u>	5
	EBM012A05	<u>Work Design and Team Processes</u>	5
	CHPHV-08	<u>Zonnecellen (A)</u>	5
semester II		<u>Applied finite elements</u>	6
	TBRCSMU05E	<u>Research course simulation mod. & use</u>	5
	EBB888A10	<u>Spec. Course Applied Operations Research</u>	10
semester II a	EBM632A05	<u>Advanced Quality Management</u>	5
	EBM673A05	<u>Conflict Man. & Industrial Relations</u>	5
	EM4EM06	<u>Energy and materials</u>	10
	EBM614A05	<u>Global Operations & Supply Chains</u>	5
	EBM706A05	<u>Management Consulting</u>	5
	CHTMFR105E	<u>Meerfasen reactoren</u>	5
	INMMOB-08	<u>Mobile software</u>	5
	EBM843A10	<u>Quantitative Logistics</u>	10
semester II b	EBB608A05	<u>Business Ethics & Corporate Social Resp.</u>	5
	CHCE-09	<u>Catalysis for engineers</u>	5
	KIM.CE11	<u>Cognitive engineering</u>	5

	WIMI-10	<u>Modeling and identification (10/11)</u>	5
	NABP05E	<u>Robotics (Robotica)(B)</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 15 th	1 st june