MASTER OF SCIENCE IN OPERATIONS RESEARCH ENGINEERING (MANUFACTURING AND SUPPLY CHAIN ENGINEERING)

120 ECTS CREDITS - LANGUAGE: ENGLISH

The Faculty of Engineering and Architecture (FEA) offers most of its Master's Programmes in Engineering in English. This underlines the faculty's international ambition, as well as the importance of international education and multiple language skills for students.

WHAT

The focus of this master program is to analyse, optimise, and design complex operational systems, with the aim of improving their effectiveness and efficiency, thus increasing their productivity in a sustainable manner. Such operational systems are found across all kinds of industrial organizations but also for example in health care, urban mobility, and energy grids.
Operations Research (OR) deals with the mathematical and statistical models and methods for optimisation and simulation. The model-based and data-driven analytical methodologies and techniques of OR are at the heart of decision-support tools for managing complex operational systems within any organization.
Students in the program select one of two main subjects: '**Manufacturing and Supply Chain Engineering**' or '**Transport and Mobility Engineering**'. Some pertinent application domains include Industry 5.0, connected robotics, and sustainable smart cities.
This master program creates a unique engineering profile that combines technical know-how with analytic reasoning and managerial insights. It effectively prepares students to take up leading roles in manufacturing and service industries worldwide.

STRUCTURE

The programme consists of a general module, main subject modules, elective courses, and a master dissertation. The general module contains 36 credits worth of courses that cover the core competencies of Operations Research. The main subject module contains 30 credits of specialist courses in a specific application domain.
The **Manufacturing & Supply Chain Engineering** main subject focuses on analysing, optimising, and designing systems in production and logistics, e.g., from the detailed time and methods study of an operator at a semi-automated workstation in a plastic recycling facility to the strategic network study of a global automotive supply chain of vehicles assembled in Belgium using components sourced from three different continents.
Through 30 credits of electives, students can further deepen and/or broaden their knowledge and skills in technical and non-technical subjects. As part of the electives, students can take up an internship to already start applying their knowledge in practice.
In the master dissertation, covering the final 24 credits, students conduct academic research using OR tools to tackle challenging problems in manufacturing, supply chain, transport or mobility.

LABOUR MARKET

Companies in all branches of industry, public services, and scientific research are eager to recruit OR engineers. They have the skills to lead the continuous day-to-day improvement of systems that create products and services, but also to innovate and develop new products and services. OR engineers are typically recruited as production manager, business analyst, project manager, supply chain consultant, etc. They usually quickly grow into senior technically specialised roles or management positions.
As an illustration, here are some job titles and companies where recently graduated alumni are active:

- Supply chain consultant at OMP, Solventure, Logflow
- Business consultant at Bain, McKinsey, BCG
- Project Manager at Jan De Nul Group, Crunch Analytics, Accent Jobs, UZ Gent
- Data Scientist at P&G, element61, ML6
- Software engineer at TomTom, ExxonMobil, Skyline Communications
- Production manager at Farys, Oesterbank, Volvo Trucks
- Supply Chain / Logistics Director at Aleris, Edgard & Cooper, stow Group, Assa Abloy
- PhD student / research assistant at UGent-FEA

To have a strong connection to the labour market, there is close collaboration with industry throughout the entire master's programme: through master theses, coteaching by the innovation manager from Logflow, company visits (such as to the Movu Robotics experience center), and an incompany project. In recent years, these projects have taken place at companies including Volvo Trucks, CNH,

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Niko, Audi, and others.

FACULTY OF ENGINEERING AND ARCHITECTURE

2026-27

GHENT UNIVERSITY

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TOELATINGSVOORWAARDEN VOOR HOUDERS VAN EEN VLAAMS DIPLOMA

1 **Rechtstreeks:**
a opleidingen nieuwe structuur:
- Een diploma van een opleiding 'Bachelor of Science in de ingenieurswetenschappen' (met uitzondering van 'architectuur')
- Een diploma van een opleiding 'Master of Science in de ingenieurswetenschappen' leidend tot de titel van 'burgerlijk ingenieur' (met uitzondering van architectuur)
- Een diploma van een opleiding 'Master of Science in Engineering' leidend tot de titel van 'burgerlijk ingenieur' (met uitzondering van Architecture)

b opleidingen oude structuur:
- Een diploma van 'Burgerlijk Ingenieur' (met uitzondering van 'Burgerlijk Ingenieur-Architect')

2 **Na het met succes voltooien van een voorbereidingsprogramma:**
MIN 30 SP - MAX 90 SP
a opleidingen nieuwe structuur:
- Bachelor handelsingenieur
- Bachelor in de bio-ingenieurswetenschappen
- Bachelor in de fysica
- Bachelor in de fysica en de sterrenkunde
- Bachelor in de geografie en de geomatica
- Bachelor in de informatica
- Bachelor in de ingenieurswetenschappen (KMS)
- Bachelor in de ingenieurswetenschappen: architectuur
- Bachelor in de toegepaste economische wetenschappen: handelsingenieur
- Bachelor in de toegepaste economische wetenschappen: handelsingenieur in de beleidsinformatica
- Bachelor in de wiskunde
- Bachelor of Engineering Technology
- Een diploma van een opleiding 'Bachelor of Science in de industriële wetenschappen'
- Een diploma van een opleiding 'Master of Bioscience Engineering' leidend tot de titel van 'bio-ingenieur'
- Een diploma van een opleiding 'Master of Science in de bio-ingenieurswetenschappen' leidend tot de titel van 'bio-ingenieur'
- Master in de fysica
- Master in de fysica en de sterrenkunde
- Master in de geografie en de geomatica
- Master in de ingenieurswetenschappen: architectuur
- Master in de wiskunde
- Master in de wiskundige informatica
- Master of Architectural Engineering
- Master of Mathematics
- Master of Physics
- Master of Physics and Astronomy

b opleidingen oude structuur:
- Een diploma van 'Bio-ingenieur'
- Licentiaat in de informatica
- Licentiaat in de natuurkunde
- Licentiaat in de wiskunde

MAX 60 SP
a opleidingen nieuwe structuur:
- Master in de toegepaste economische wetenschappen: handelsingenieur
- Master in de toegepaste economische wetenschappen: handelsingenieur in de beleidsinformatica
- Master of Business Engineering

b opleidingen oude structuur:
- Handelsingenieur

3 **Rechtstreekse toelating voor het volgen van een brugprogramma (horizontale instroom):**
a opleidingen nieuwe structuur:
- Een diploma van 'Master in Engineering Technology'
- Een diploma van een opleiding 'Master of Science in de industriële wetenschappen'

b opleidingen oude structuur:
- Een diploma van 'Industrieel Ingenieur' (met uitzondering van Industrieel ingenieur in landbouw en biotechnologie)

Additional Information on Admission (Flemish Degree)

The *MSc in Operations Research Engineering*, main subject *Sustainable Mobility Analytics* is accessible only to students

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taking a double degree between this programme and another master's programme of a partner university within the context of the MSc in Smart Mobility Data Science and Analysis double degree programme of the EIT Urban Mobility. Students applying for this double degree programme must submit, in parallel, two applications for admission:

1. application for admission to the master's programme *Master of Science in Operations Research Engineering*, Main Subject: *Sustainable Mobility Analytics* at Ghent University Online Application Platform.
2. application for admission to the MSc in Smart Mobility Data Science and Analytics double degree programme (and possibly also for an EIT scholarship) on the EIT Urban Mobility Master School Office admission portal.

Only students accepted for both applications, will receive a letter of admission for this track.
Please note that, apart from the double degree in itself, different conditions apply as to participation cost, language requirements, study progress monitoring...).

ADMISSION REQUIREMENTS FOR INTERNATIONAL DEGREE STUDENTS

The programme welcomes candidates who have a solid foundation in analytical problem solving with an eye for detail, as demonstrated by a bachelor's degree of minimum 180 ECTS in Engineering, Computer Science, Information Technology, Software Engineering, Computer Engineering, Information Systems or a related field.
The *MSc in Industrial Engineering and Operations Research, main subject Sustainable Mobility Analytics* is accessible only to students pursuing a double-degree through either the **MSc Sustainable Urban Mobility Transitions (SUMT)** programme or the **MSc Smart Mobility Data Science and Analytics (SMDSA)** programme offered by the EIT Urban Mobility Master School. Students applying for this double degree programme(students holding a degree of the Flemish Community as well as international degree students) must submit, in parallel, two applications for admission:

1 application for admission to the master's programme *Master of Science in Industrial Engineering and Operations Research*, Main Subject: *Sustainable Mobility Analytics* at Ghent University Online Application Platform.

2 application for admission to the MSc Sustainable Urban Mobility Transitions (SUMT) or the MSc Smart Mobility Data Science and Analytics (SMDSA) double degree programme (and possibly also for an EIT scholarship) on the EIT Urban Mobility Master School Office admission portal.

Only students accepted for both applications, will receive a letter of admission for this track.
Please note that, apart from the double degree in itself, different conditions apply as to participation cost, language requirements, study progress monitoring...).
Information on admission requirements and the administrative procedure for admission on the basis of a diploma obtained abroad, can be found on the following page: www.ugent.be/prospect/en/administration/enrolment-or-registration.

LANGUAGE REQUIREMENTS

Language requirements Dutch: no language requirements

Language requirements for the MSc in Industrial Engineering and Operations Research - main subject Sustainable Mobility Analytics differ from the required standard level for English taught study programmes as specified in the Ghent University Education and Examination Code:
English: IELTS: 6.5 (minimum 6 for each part) - TOEFL: 92 ((internet-based) (with score 21 or higher for reading, listening and speaking, and minimum 22 for writing)
English proficiency tests may be waived for applicants who have completed a bachelor degree given in English at a university that is physically located in one of the following countries: Australia, Canada, the United Kingdom, New Zealand or USA.

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PRACTICAL INFORMATION

Study programme
studiekiezer.ugent.be/master-of-science-in-operations-research-engineering-manufacturing-and-supply-chain-engineering-en/programma

Information sessions
EVOLV
evolv.gent/en/students/further-studies

Enrolling institution
Information on enrolment at Ghent University.

Application Deadline (for International degree students)
For students who **need a visa**: before 1st of April
For students who **do not need a visa**: before 1st of June
Read more

Tuition fee
More information is to be found on: www.ugent.be/tuitionfee

Learning path counsellor
studietrajectir.ea@ugent.be

Contact (for international degree students)
International Relations Officer
+32 9 264 36 99
international.ea@ugent.be

https://ea18.ugent.be/education/IEOR

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