MASTER OF SCIENCE IN FIRE SAFETY ENGINEERING

120 ECTS CREDITS - LANGUAGE: ENGLISH

INHOUD

The Master of Science is an ideal specialisation programme for holders of a bachelor's or master's degree in (electro-) mechanical or civil engineering. There is a strong European tendency to move from prescriptive towards performance-based fire safety designs. This goes hand in hand with a strong need for advanced knowledge in the multidisciplinary field of Fire Safety Engineering (FSE). Master students will be well prepared for professional activities within this evolving field of FSE.
The IMFSE students will learn how to:

- master the scientific knowledge to understand, critically evaluate and analyse the phenomenon fire and its consequences;
- critically evaluate and judge risk with respect to fire and explosions,
- compute and design different types of fire protection concerning structures, passive fire protection, detection and suppression;
- judge the human behaviour in case of fire;
- communicate and collaborate with colleagues within the multidisciplinary domain of Fire Safety Engineering.

STRUCTUUR

The MFSE program consists of 4 semesters of 30 credits each. In semester 1, the general courses cover basic knowledge on thermodynamics, heat transfer, structural engineering, fire dynamics and fire science in general (at master level). Several elective courses can be selected as well, on design, structures and fire safety engineering. In addition, there are also elective social courses available, such as undertaking an internship.
The advanced FSE courses are taught in semester 2 and 3. The broad domain of FSE is covered in the built environment and industry, including risk assessment and human behaviour. Semester 4 is mainly devoted to the master's dissertation, which can be completed in collaboration with industry. The structure of the MFSE programme supports education within the worldwide context of evolution from prescriptive to performance-based codes and standards regarding fire safety and fire protection. Starting from the basics of fire safety science (including thermodynamics and fire dynamics) and structural engineering, and adding the important topics of risk assessment and human behaviour, the students evolve in the spirit of performance-based fire protection designs as they are taught specialist courses and advanced fire safety science and structural fire engineering. The students' Performance Based Design [PBD] skills are evaluated through their master's dissertation and in the PBD devoted course.

Master's Dissertation

The master's dissertation is a requirement for every candidate to obtain a master's degree. The master's dissertation is an original piece of research work. It aims to develop and strengthen the research capacity skills of the students. The student defines his/her own topic or selects one from a topic list. The master's dissertation consists of a critical and original analysis of the topic.

ARBEIDSMARKT

The masters can find a job as fire safety engineer:

- in fire protection consultancy companies;
- in design bureaus for structural stability and/or technical equipment of buildings;
- in architect bureaus;
- in fire prevention services of larger cities;
- as responsible person for fire prevention in industry;
- in prevention departments of fire brigades;
- in fire protection equipment industry;
- as fire experts in insurance companies;
- as fire experts in governmental agencies;
- in standard testing laboratories;
- in environmental impact assessment consultancies;
- in health and safety organisations;
- in research and education institutes.

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TOELATINGSVOORWAARDEN VOOR HOUDERS VAN EEN VLAAMS DIPLOMA

1 **Rechtstreeks:**
- Bachelor in de ingenieurswetenschappen (KMS)
- Bachelor in de ingenieurswetenschappen, afstudeerrichting: bouwkunde
- Bachelor in de ingenieurswetenschappen, afstudeerrichting: chemie en materialen
- Bachelor in de ingenieurswetenschappen, afstudeerrichting: chemische technologie
- Bachelor in de ingenieurswetenschappen, afstudeerrichting: chemische technologie en materiaalkunde
- Bachelor in de ingenieurswetenschappen, afstudeerrichting: materiaalkunde
- Bachelor in de ingenieurswetenschappen, afstudeerrichting: werktuigkunde-elektrotechniek
- Bachelor in de ingenieurswetenschappen: architectuur
- Bachelor in de ingenieurswetenschappen: bouwkunde
- Bachelor in de ingenieurswetenschappen: chemische technologie en materiaalkunde
- Bachelor in de ingenieurswetenschappen: werktuigkunde-elektrotechniek

2 **Rechtstreeks, na check door de inrichtende faculteit van formele toelatingsvereisten:**
- Bachelor in de ingenieurswetenschappen, afstudeerrichting: elektrotechniek nevenrichting: werktuigkunde
- Bachelor in de ingenieurswetenschappen, afstudeerrichting: werktuigkunde nevenrichting: elektrotechniek

3 **Na het met succes voltooien van een voorbereidingsprogramma:**
MIN 30 SP - MAX 90 SP
- Bachelor in de ingenieurswetenschappen, afstudeerrichting: computerwetenschappen
- Bachelor in de ingenieurswetenschappen, afstudeerrichting: elektrotechniek
- Bachelor in de ingenieurswetenschappen, afstudeerrichting: toegepaste natuurkunde
- Bachelor in de ingenieurswetenschappen: computerwetenschappen
- Bachelor in de ingenieurswetenschappen: elektrotechniek
- Bachelor in de ingenieurswetenschappen: toegepaste natuurkunde
- Een diploma van een opleiding 'Bachelor of Science in de ingenieurswetenschappen' (met inbegrip van 'architectuur')
- Master in het milieu- en preventiemanagement

4 **Op voorwaarde van toelating door de inrichtende faculteit: na het met succes voltooien van een voorbereidingsprogramma:**
MIN 30 SP - MAX 90 SP
- Een diploma van 'Master in Engineering Technology'dat geen toegang geeft tot het brugprogramma (horizontale instroom)
- Een diploma van een opleiding 'Master of Science in de industriële wetenschappen'dat geen toegang geeft tot het brugprogramma (horizontale instroom)

5 **Rechtstreekse toelating voor het volgen van een brugprogramma (horizontale instroom):**

a opleidingen nieuwe structuur:
- Master in de industriële wetenschappen: bouwkunde
- Master in de industriële wetenschappen: chemie
- Master in de industriële wetenschappen: elektromechanica
- Master in de industriële wetenschappen: elektrotechniek
- Master in de industriële wetenschappen: energie
- Master of Chemical Engineering Technology
- Master of Electromechanical Engineering Technology

b opleidingen oude structuur:
- Industrieel ingenieur in bouwkunde
- Industrieel ingenieur in chemie
- Industrieel ingenieur in elektromechanica

ADMISSION REQUIREMENTS FOR INTERNATIONAL DEGREE STUDENTS

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/admission

Additional information:
Bachelors or Masters in: architecture, civil engineering, electrical engineering, electromechanical engineering, chemical engineering, engineering physics, materials science, urbanism and spatial planning.
Other degrees on the basis of a study of individual skills (e.g. fire safety consultants, fire prevention officers, fire brigade officers, building designers, building services engineers, architectural practitioners).

The language requirements for this study programme can be found on: www.ugent.be/languagerequirements

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FACULTY OF ENGINEERING AND ARCHITECTURE

2021-22

PRACTICAL INFORMATION

Study programme

studiekiezer.ugent.be/master-of-science-in-fire-safety-engineering-en/programma

Information sessions

Graduation Fair

afstudeerbeurs.gent/en/students/further-studies

Open Days

30 April 2021 - - virtual tours

Application deadline

For students who **need a visa**: 1st of March
For students who **do not need a visa**: 1st of June
Read more

Tuition fee

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

Contact
Prof. Bart Merci
+32 9 264 33 14
mfse@ugent.be

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

GHENT UNIVERSITY

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