

# MASTER OF SCIENCE IN FIRE SAFETY ENGINEERING

120 ECTS CREDITS - LANGUAGE: ENGLISH

## WHAT

The Fire Safety Engineering programme 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). Students taking our Master's programme will be well-prepared for professional activities within this evolving field of FSE.

MFSE students will learn how to:

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

## STRUCTURE

The MFSE programme consists of four terms of thirty credits each. In the first term, the general course units cover basic knowledge on thermodynamics, heat transfer, structural (fire) engineering, fire dynamics and fire science in general (at Master's level). In addition to those general course units, we offer several elective course units on design, structures and fire safety engineering. We also have elective course units available with a focus social skills, such as the work placement.

The advanced FSE course units are taught in the second and third terms. The broad domain of FSE is covered in the built environment and industry, including risk assessment and human behaviour. The fourth term is mainly devoted to the Master's dissertation, which can be completed in collaboration with the 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 (fire) 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 course units and advanced fire safety science and structural fire engineering. The students' Performance Based Design [PBD] skills are assessed through their Master's dissertation and in the PBD-devoted

course unit.

## Master's Dissertation

Completing the Master's dissertation is a requirement for any student who wants to obtain their Master's degree. The Master's dissertation is an original piece of research. Its aim is to develop and strengthen the students' research skills. Students either define their own topic or select one from a topic list. The Master's dissertation consists of a literature review, practical research, and an original analysis of the chosen topic.

## LABOUR MARKET

Our graduates can find a job as fire safety engineers:

- at fire protection consultancy companies;
- at design agencies for structural stability and/or technical equipment of buildings;
- at architectural firms;
- in larger cities' fire prevention services;
- as head of fire prevention in the industry;
- at fire brigade prevention departments;
- in the fire protection equipment industry;
- as fire experts at insurance companies;
- as fire experts at governmental agencies;
- at standard testing laboratories;
- at environmental impact assessment consultancy agencies;
- at health and safety organisations;
- at research and education institutes.

## 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 preventie management

### 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

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).

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](http://www.ugent.be/prospect/en/administration/enrolment-or-registration).

## LANGUAGE REQUIREMENTS

Language requirements Dutch: no language requirements  
English: CEFR level B2

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The language requirements for this study programme can be found on: [www.ugent.be/languagerequirements](http://www.ugent.be/languagerequirements)

## PRACTICAL INFORMATION

### Study programme

[studiekiezer.ugent.be/master-of-science-in-fire-safety-engineering-en/programma](http://studiekiezer.ugent.be/master-of-science-in-fire-safety-engineering-en/programma)

### Information sessions

#### Graduation Fair

[afstudeerbeurs.gent/en/students/further-studies](http://afstudeerbeurs.gent/en/students/further-studies)

#### Open Days

26 April 2022 17u00 - 19u00 - Ufo, Campus Ufo, Sint-Pietersnieuwstraat 33, Gent

### 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](http://www.ugent.be/tuitionfee)

### Contact

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### Contact (for international degree students)

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