MASTER OF SCIENCE IN FIRE SAFETY ENGINEERING

120 ECTS CREDITS - LANGUAGE: ENGLISH

WHAT

We can engineer the built environment to limit the likelihood of catastrophic fires occurring. The shift from a prescriptive approach towards performance-based fire safety designs creates a growing demand for advanced expertise in the multidisciplinary field of fire safety engineering. Now, climate change and the global transition toward more sustainable ways of living are increasing fire risks, making fire safety engineering more essential than ever.
Fire safety engineering is the application of engineering principles, rules and expert judgement based on a scientific understanding of fire. Fire engineers study fire and its phenomena as well as its effects on the built environment and human behaviour, to identify and quantify the risks. By implementing the principles of performance-based design, they optimize fire protection measures to safeguard life, the environment, property, and cultural heritage.
Fire safety engineering students will learn:

- the nature and characteristics of fire and its spread
- how structures, materials and people behave in the event of a fire
- how to evaluate, quantify and mitigate fire risks - how to design fire detection, ventilation and suppression systems
- how building design interacts with firefighting and rescue operations
- how to analyse fire incidents and which lessons to draw from them

Find out more about Fire Safety Engineering in our FSE Q&A series.

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

A degree in Fire Safety Engineering offers excellent career prospects. Graduates are in strong demand and are usually quickly hired in professional roles with competitive salaries.
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.

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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: 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 27 SP - MAX 87 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 27 SP - MAX 87 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, industrial engineering and operations research, urbanism and spatial planning or other degrees on

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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) have a chance at being admitted.
Important: Students who wish to enrol must add the result of a GRE test to their application, more specifically the result of the Quantitative Reasoning of the General Test. The GRE test result will be assessed using the faculty's grading scale.
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 English: CEFR level B2

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

PRACTICAL INFORMATION

Study programme
studiekiezer.ugent.be/master-of-science-in-fire-safety-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

Contact
MFSE office
09 264 89 03
mfse@ugent.be

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

www.ugent.be/ea/nl/faculteit/onderwijsondersteuning/oplir/fse