MASTER OF SCIENCE IN FIRE SAFETY ENGINEERING

120 ECTS CREDITS – FULL-TIME – LANGUAGE: ENGLISH – DEGREE: MASTER OF SCIENCE

COURSE CONTENT

The Master of Science is an ideal specialization 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 MFSE 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.

COURSE STRUCTURE

The MFSE program consists of 4 semesters of 30 credits each. In semester 1, basic FSE topics are taught, covering basic knowledge on thermodynamics, heat transfer, structural engineering, fire dynamics and fire science in general (at master level). There is also room for broadening courses, such as entrepreneurship. 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 figure illustrates how 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 engineering. The students' Performance Based Design [PBD] skills are evaluated through their master's dissertation and in the PBD devoted course.

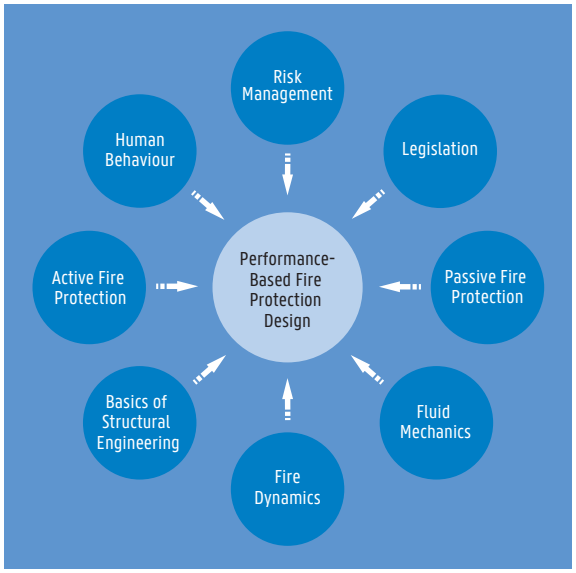

Illustration on how the courses in the MFSE curriculum support performance-based fire protection design. Red solid arrows: direct input for PBD; green dashed arrows: indirect support.

> 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 students define their own topic or select one from a topic list. The master's dissertation consists of a critical and original analysis of the topic.

Career perspectives
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 AHJs;
- 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

Rechtstreeks:
- Ba ingenieurswetenschappen: architectuur
- Ba ingenieurswetenschappen: bouwkunde
- Ba ingenieurswetenschappen, afstudeerrichting bouwkunde
- Ba ingenieurswetenschappen: chemische technologie en materiaalkunde
- Ba ingenieurswetenschappen, afstudeerrichting chemische technologie
- Ba ingenieurswetenschappen, afstudeerrichting materiaalkunde
- Ba ingenieurswetenschappen, afstudeerrichting chemie en materialen
- Ba ingenieurswetenschappen: werktuigkunde-elektrotechniek
- Ba ingenieurswetenschappen, afstudeerrichting werktuigkunde, nevenrichting: elektrotechniek
- Ba ingenieurswetenschappen, afstudeerrichting elektrotechniek, nevenrichting: werktuigkunde
- Ba ingenieurswetenschappen, afstudeerrichting werktuigkunde-elektrotechniek

Rechtstreeks: (naar brugprogramma - 120 studiepunten)
- Ma industriële wetenschappen: bouwkunde of chemie of elektrotechniek of elektromechanica of energie
  opleiding(en) oude structuur:
  - industrieel ingenieur: bouwkunde *of* chemie *of* elektromechanica

Via voorbereidingsprogramma: (max. 90 studiepunten)
- Ba ingenieurswetenschappen: computerwetenschappen
- Ba ingenieurswetenschappen: elektrotechniek
- Ba ingenieurswetenschappen: toegepaste natuurkunde
- Ba ingenieurswetenschappen (andere dan vermeld bij 'rechtstreeks')
- Ma in het milieu- en preventiemanagement
- Ma industriële wetenschappen (andere dan vermeld bij 'naar brugprogramma')

TAAL
Je voldoet aan de taalvoorwaarden op basis van je Vlaams diploma.

PRAKTISCHE INFORMATIE

Studieprogramma:
https://studiegids.ugent.be
> faculteiten > opleidingstypes > ga naar de opleiding van je keuze

Alternatieve trajecten
Meer informatie over voorbereidings- en brugprogramma's op www.ugent.be/ea
volg > alles voor toekomstige studenten > voor wie al een diploma heeft

Infomomenten
Masterbeurs
www.ugent.be/masterbeurs
Opleidingsgebonden infosessie
19 april 2017 - 17 u.-19 u. doorlopend, Campus Ufo, Ufo, Sint-Pietersnieuwstraat 33 - Foyer
www.ugent.be/nl/studeren/masteropleidingen

Contact
Universiteit Gent – Faculteit Ingenieurswetenschappen en Architectuur – Opleidingscommissie Fire Safety Engineering
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Meer info
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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).

LANGUAGE

More information regarding the required knowledge of English:
www.ugent.be/languagerequirements

PRACTICAL INFORMATION

Study programme

www.ugent.be/coursecatalogue
> by Faculty > Programme types > select your programme

Application deadline for international students

for students who need a visa: 1st of March
for students who do not need a visa: 1st of June
www.ugent.be/deadline

Enrolling institution

Ghent University

Tuition fee

Separate amounts apply.
www.ugent.be/tuitionfee

Contact
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International Relations Officer – Degree students
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