

Programme jointly offered by Ghent University, The University of Edinburgh, Lund University, Universitat Politècnica de Catalunya • BarcelonaTech  
International Master of Science in Fire Safety Engineering

Language of instruction: English

Programme version 3

## 1 General Courses

The student takes the general courses in accordance with the mobility scheme as approved by the Management Board, according to the following possibilities:

- The first semester can be taken at Ghent University or University of Edinburgh (Scotland)
- The second semester is offered by Lund University (Sweden)
- The third semester can be taken at Ghent University or at Universitat Politècnica de Catalunya (Spain)
- The fourth semester can be taken at each partner university (Ghent University, University of Edinburgh, Lund University or Universitat Politècnica de Catalunya), or at one of the associated partners

More information: <https://www.imfse.be>

### 1.1 General Courses Ghent University

- Students in the first semester at Ghent University take up all courses from the first master's year (1 in column MT1, 24 ECTS) and 6 ECTS elective courses (following the modules below)
- Students in the third semester at Ghent University take up all courses from the second master's year (2 in column MT1, 24 ECTS) and 6 ECTS elective courses (following the modules below)

Nr	Course	CRDT	Ref	MT1	Session	Study
1	E051540 Explosions and Industrial Fire Safety Filip Verplaetsen -- Department of Structural Engineering and Building Materials	6		1	A:1	180
2	E051430 Fire Dynamics Tarek Beji -- Department of Structural Engineering and Building Materials	6		1	B:1	180
3	E051640 Data-Driven Management of Fire Incidents Steven Verstockt -- Department of Electronics and Information Systems	3		1	A:1	90
4	E039161 Thermodynamics, Heat and Mass Transfer Georgios Maragkos -- Department of Structural Engineering and Building Materials	6		1	A:1	180
5	E051570 Material Behaviour at Ambient and Elevated Temperatures Bart Merci -- Department of Structural Engineering and Building Materials	3		1	A:1	90
6	E051482 Active Fire Protection I: Detection and Suppression Christian Gryspeerdt -- Department of Structural Engineering and Building Materials	6		2	A:1	180
7	E051494 Active Fire Protection II: Smoke and Heat Control Bart Merci -- Department of Structural Engineering and Building Materials	6		2	A:1	180
8	E051443 Fire Safety and Legislation Jan De Saedeleer -- Department of Structural Engineering and Building Materials	3		2	A:1	90
9	E051610 Passive Fire Protection Emmanuel Annerel -- Department of Structural Engineering and Building Materials	3		2	A:1	90
10	E061522 Performance-Based Design Patrick van Hees -- Department of Structural Engineering and Building Materials	6		2	A:1	180

#### 1.1.1 In-depth Structural Engineering Elective Courses Ghent University

- Students in the first semester at Ghent University:
  - one course from this module and one course from the Broadening Elective Courses (1.1.2.)
  - Students with a structural/civil engineering background: subscribe to Design for Structural Fire Resistance (E051512)
  - Students with another background: subscribe to Analysis of Structures (E051511)
- Students in the third semester at Ghent University:
  - Subscribe to Design for Structural Fire Resistance (E051512)
  - Subscribe either to Applications of Advanced Structural Fire Engineering (E051620) or to an elective from the Broadening Electives Courses (1.1.2.).
  - If Design for Structural Fire Resistance (E051512) was already taken in the first semester: subscribe to Applications of Advanced Structural Fire Engineering (E051620) and to an elective from the Broadening Electives Courses (1.1.2.).

Nr	Course	CRDT	Ref	MT1	Session	Study
----	--------	------	-----	-----	---------	-------

1	E051511	Analysis of Structures Ruben Van Coile -- Department of Structural Engineering and Building Materials	3	1	A:1	90
2	E051512	Design for Structural Fire Resistance Emmanuel Annerel -- Department of Structural Engineering and Building Materials	3		A:1	90
3	E051620	Applications of Advanced Structural Fire Engineering Ruben Van Coile -- Department of Structural Engineering and Building Materials	3	2	A:1	90

### 1.1.2 Broadening Elective Courses Ghent University

Subscribe to no more than 3 credit units from the following list. Subject to approval by the faculty.

Nr	Course	CRDT	Ref	MT1	Session	Study
1	E076431 Introduction to Entrepreneurship Petra Andries -- Department of Marketing, Innovation and Organisation	3			A:1	90
2	E045930 Modelling of Turbulence and Combustion Alexander Snegirev -- Department of Structural Engineering and Building Materials	3			A:1	90
3	E051560 FSE Based Firefighting Karel Lambert -- Department of Structural Engineering and Building Materials	3			A:1	90
4	E051581 Fire Research Seminar Bart Merci -- Department of Structural Engineering and Building Materials	3			A:1	90

### 1.2 General Courses The University of Edinburgh

30 credits

Nr	Course	CRDT	Ref	MT1	Session	Study
1	E900534 Fire Science Laboratory The University of Edinburgh, Rory Hadden	10		1	A:1	300
2	E900535 Fire Safety Engineering The University of Edinburgh, Stephen Welch	5		1	A:1	150
3	E900536 Fire Science and Fire Dynamics The University of Edinburgh, Ricky Carvel	5		1	A:1	150
4	E900537 Structural Design for Fire The University of Edinburgh, Angus Law	5		1	A:1	150
5	E900538 Research Methods for Engineers The University of Edinburgh, Simon Smith	5		1	A:1	150

### 1.3 General Courses Lund University

30 credits

Nr	Course	CRDT	Ref	MT1	Session	Study
1	E900304 Risk Assessment Lund University, Håkan Frantzich	8		1	A:2	240
2	E900305 Advanced Fire Dynamics Lund University, Nils Johansson	9		1	A:2	270
3	E900306 Human Behaviour in Fire Lund University, Enrico Ronchi	8		1	A:2	240
4	E900525 Simulation of Fires in Enclosures Lund University, Jonathan Wahlqvist	5		1	A:2	150

### 1.4 General Courses Universitat Politècnica de Catalunya

30 credits

Students taking the third semester at Universitat Politècnica de Catalunya, take all 4 courses mentioned hereafter, as well as one elective course.

Nr	Course	CRDT	Ref	MT1	Session	Study
1	E900545 Wildland Fire Behavior and Modelling Universitat Politècnica de Catalunya • BarcelonaTech, Eulalia Planas	6		2	A:1	180
2	E900543 Risk and Vulnerability at the Wildland-Urban Interface Universitat Politècnica de Catalunya • BarcelonaTech, Elsa Pastor	6		2	A:1	180
3	E900541 Advanced Fire Safety Engineering Universitat Politècnica de Catalunya • BarcelonaTech, Alba Àgueda	6		2	A:1	180
4	E900542 Risk and Safety at the Chemical Industry Universitat Politècnica de Catalunya • BarcelonaTech, Elsa Pastor	6		2	A:1	180

#### 1.4.1 Electives Universitat Politècnica de Catalunya

6 credits

Subscribe to 6 credit units from the following list.

Nr	Course	CRDT	Ref	MT1	Session	Study
1	E900539 Computer Vision Universitat Politècnica de Catalunya • BarcelonaTech, Jose Julian Rodellar	6		2	A:1	180
2	E900540 Data Analysis and Pattern Recognition Universitat Politècnica de Catalunya • BarcelonaTech, Raúl Benítez	6		2	A:1	180

2 Master's Dissertation

Nr	Course	CRDT	Ref	MT1	Session	Study
1	E091105 Master's Dissertation	30		2	B:2	900

### Teaching

When a course is not taught (solely) in the programme's language of instruction, the effectively used languages are indicated in square brackets following the cours name, using the following ISO codes:

bg: Bulgarian	de: German	es: Spanish	ja: Japanese	pl: Polish	sh: Kroatian/Serbian	zh: Chinese
cs: Czech	el: Greek	fr: French	nl: Dutch	pt: Portuguese	sl: Slovene	
da: Danish	en: English	it: Italian	no: Norwegian	ru: Russian	sv: Swedish	

### Semester

Semesters are indicated by their number (1 or 2); semester 3 represents the summer period and J indicates a course spanning semesters 1 and 2. When a capital letter precedes a semester number, the course has multiple offerings. The letter indicates the offering concerned.

When a semester is shown in brackets, the course in not offered this year in the specific offering.

The offering frequency and first year of offering are indicated by the following codes:

a: bi-annually	c: annually, from 2025-2026	f: annually, from 2026-2027	i: annually, from 2027-2028
b: tri-annually	d: bi-annually, from 2025-2026	g: bi-annually, from 2026-2027	j: bi-annually, from 2027-2028
	e: tri-annually, from 2025-2026	h: tri-annually, from 2026-2027	k: tri-annually, from 2027-2028