

Programme jointly offered by Ghent University, Lund University, The University of Edinburgh

International Master of Science in Fire Safety Engineering

Language of instruction: English

Programme version 11

## 1 General Courses

90 credits

Subscribe to 90 credit units from no less than 2 and no more than 3 modules from the following list. Subject to approval by the faculty. In accordance with the mobility scheme of the student.

### 1.1 General Courses Ghent University

Subscribe to no less than 30 and no more than 60 credit units from the following list. Subject to approval by the faculty.

| Nr | Course   | CRDT | Ref | MT1 | Session | Study |
|----|--|------|-----|-----|---------|-------|
| 1  | E051540 Explosions and Industrial Fire Safety<br><i>Filip Verplaetsen -- Department of Structural Engineering and Building Materials</i>                 | 6    |     | 1   | A:1     | 180   |
| 2  | E051430 Fire Dynamics<br><i>Tarek Beji -- Department of Structural Engineering and Building Materials</i>  | 6    |     | 1   | B:1     | 180   |
| 3  | E051581 Fire Research Seminar<br><i>Bart Merci -- Department of Structural Engineering and Building Materials</i>  | 3    |     | 1   | A:1     | 90    |
| 4  | E039161 Thermodynamics, Heat and Mass Transfer<br><i>Georgios Maragkos -- Department of Structural Engineering and Building Materials</i>                | 6    |     | 1   | A:1     | 180   |
| 5  | E051570 Material Behaviour at Ambient and Elevated Temperatures<br><i>Bart Merci -- Department of Structural Engineering and Building Materials</i>      | 3    |     | 1   | A:1     | 90    |
| 6  | E051482 Active Fire Protection I: Detection and Suppression<br><i>Christian Gryspeert -- Department of Structural Engineering and Building Materials</i> | 6    |     | 2   | A:1     | 180   |
| 7  | E051494 Active Fire Protection II: Smoke and Heat Control<br><i>Bart Merci -- Department of Structural Engineering and Building Materials</i>            | 6    |     | 2   | A:1     | 180   |
| 8  | E051443 Fire Safety and Legislation<br><i>Jan De Saedeleer -- Department of Structural Engineering and Building Materials</i>                            | 3    |     | 2   | A:1     | 90    |
| 9  | E051610 Passive Fire Protection<br><i>Emmanuel Annerel -- Department of Structural Engineering and Building Materials</i>                                | 3    |     | 2   | A:1     | 90    |
| 10 | E061522 Performance-Based Design<br><i>Patrick van Hees -- Department of Structural Engineering and Building Materials</i>                               | 6    |     | 2   | A:1     | 180   |

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

Subscribe to no less than 3 and no more than 9 credit units from the following list. Subject to approval by the faculty.

Each student takes the course Design for Structural Fire Resistance (E051512), either in year 1 or in year 2.

Students without the prerequisite structural/civil engineering background take Analysis of Structures (E051511) in year 1 and Design for Structural Fire Resistance (E051512) in year 2. They can also choose Applications of Advanced Structural Fire Engineering (E051620) as an extra elective in year 2.

Students with the necessary initial competences choose Design for Structural Fire Resistance (E051512) in year 1 and subscribe to Applications of Advanced Structural Fire Engineering (E051620) in year 2.

| Nr | Course  | CRDT | Ref | MT1 | Session | Study |
|----|---|------|-----|-----|---------|-------|
| 1  | E051511 Analysis of Structures<br><i>Ruben Van Coile -- Department of Structural Engineering and Building Materials</i>                               | 3    |     | 1   | A:1     | 90    |
| 2  | E051512 Design for Structural Fire Resistance<br><i>Emmanuel Annerel -- Department of Structural Engineering and Building Materials</i>               | 3    |     |     | A:1     | 90    |
| 3  | E051620 Applications of Advanced Structural Fire Engineering<br><i>Ruben Van Coile -- Department of Structural Engineering and Building Materials</i> | 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<br><i>Petra Andries -- Department of Marketing, Innovation and Organisation</i>           | 3    |     |     | A:1     | 90    |
| 2  | E037321 Turbomachines<br><i>Joris Degroote -- Department of Electromechanical, Systems and Metal Engineering</i>                   | 6    |     |     | B:1     | 180   |
| 3  | E045930 Modelling of Turbulence and Combustion<br><i>Bart Merci -- Department of Structural Engineering and Building Materials</i> | 3    |     |     | A:1     | 90    |
| 4  | E051700 CFD for Fire Safety Engineering<br><i>Tarek Beji -- Department of Structural Engineering and Building Materials</i>        | 3    |     |     | A:1     | 90    |
| 5  | E051560 FSE Based Firefighting<br><i>Karel Lambert -- Department of Structural Engineering and Building Materials</i>              | 3    |     |     | A:1     | 90    |
| 6  | E051640 Data-Driven Management of Fire Incidents<br><i>Steven Verstockt -- Department of Electronics and Information Systems</i>   | 3    |     |     | A:1     | 90    |

## 1.2 General Courses The University of Edinburgh

60 credits

Subscribe to no less than 30 and no more than 60 credit units from the following list. Subject to approval by the faculty.

| Nr | Course  | CRDT | Ref | MT1 | Session | Study |
|----|---|------|-----|-----|---------|-------|
| 1  | E900527 Fire Science and Fire Dynamics<br><i>The University of Edinburgh, Ricky Carvel</i>      | 9    |     | 1   |         | 270   |
| 2  | E900529 Fire Safety Engineering<br><i>The University of Edinburgh</i>                           | 9    |     | 1   |         | 270   |
| 3  | E900530 Research Methods for Engineers<br><i>The University of Edinburgh</i>                    | 6    |     | 1   |         | 180   |
| 4  | E900528 Structural Mechanics<br><i>The University of Edinburgh, Luke Bisby</i>                  | 6    |     | 1   | A:1     | 180   |
| 5  | E900524 Finite Element Analysis for Solids<br><i>The University of Edinburgh, Pankaj Pankaj</i> | 6    |     | 2   | A:1     | 180   |
| 6  | E900531 Fire Science Laboratory<br><i>The University of Edinburgh</i>                           | 6    |     | 2   | A:1     | 180   |
| 7  | E900532 Fire Investigation and Failure Analysis<br><i>The University of Edinburgh</i>           | 6    |     | 2   | A:1     | 180   |
| 8  | E900522 Structural Design for Fire<br><i>The University of Edinburgh</i>                        | 6    |     | 2   | A:1     | 180   |
| 9  | E900533 Fire Safety, Engineering and Society<br><i>The University of Edinburgh</i>              | 6    |     | 2   | A:1     | 180   |

## 1.3 General Courses Lund University

30 credits

Subscribe to 30 credit units from the following list. Subject to approval by the faculty.

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

## 2 Master's Dissertation

30 credits

Subscribe to 30 credit units from the following list. Subject to approval by the faculty.

The student can take the Master's Dissertation at one of the partner universities, in accordance with his/her mobility scheme.

| 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 course name, using the following ISO codes:

|               |             |             |               |                |                      |             |
|---------------|-------------|-------------|---------------|----------------|----------------------|-------------|
| bg: Bulgarian | de: German  | es: Spanish | ja: Japanese  | pl: Polish     | sh: Croatian/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 is 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 2023-2024     | f: annually, from 2024-2025     | i: annually, from 2025-2026     |
| b: tri-annually | d: bi-annually, from 2023-2024  | g: bi-annually, from 2024-2025  | j: bi-annually, from 2025-2026  |
|                 | e: tri-annually, from 2023-2024 | h: tri-annually, from 2024-2025 | k: tri-annually, from 2025-2026 |