7º Congreso Internacional de Ingeniería de Seguridad contra Incendios
7th International Congress on Fire Safety Engineering

Education as Support for Performance-Based Fire Safety: A Joint International Effort

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Education and Culture DG
ERASMUS MUNDUS

- Partners
  - Ghent University (Belgium)
  - Lund University (Sweden)
  - The University of Edinburgh (UK)
- European Commission quality label

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- Basic principles of Erasmus Mundus
  - Mobility
  - International and intercultural experience
  - Expertise of top-notch institutes for focused high-level education
  - Strive for joint degrees

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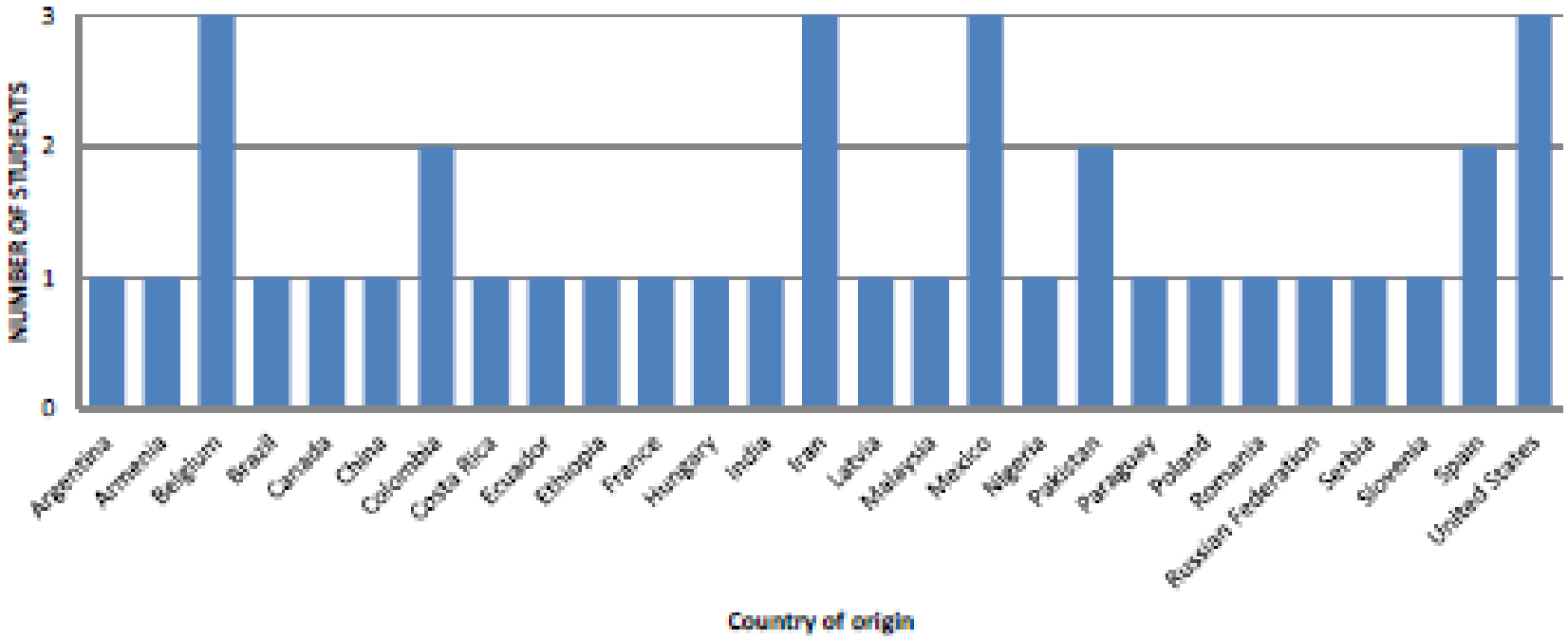

Figure 2.21: Country of origin for all students in the IMFSE programme (situation of September 2011)

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- Master of Science Program
  - 2 years fulltime study
  - 4 semesters
  - 120 ECTS credits
  - Possible change of study location after each semester

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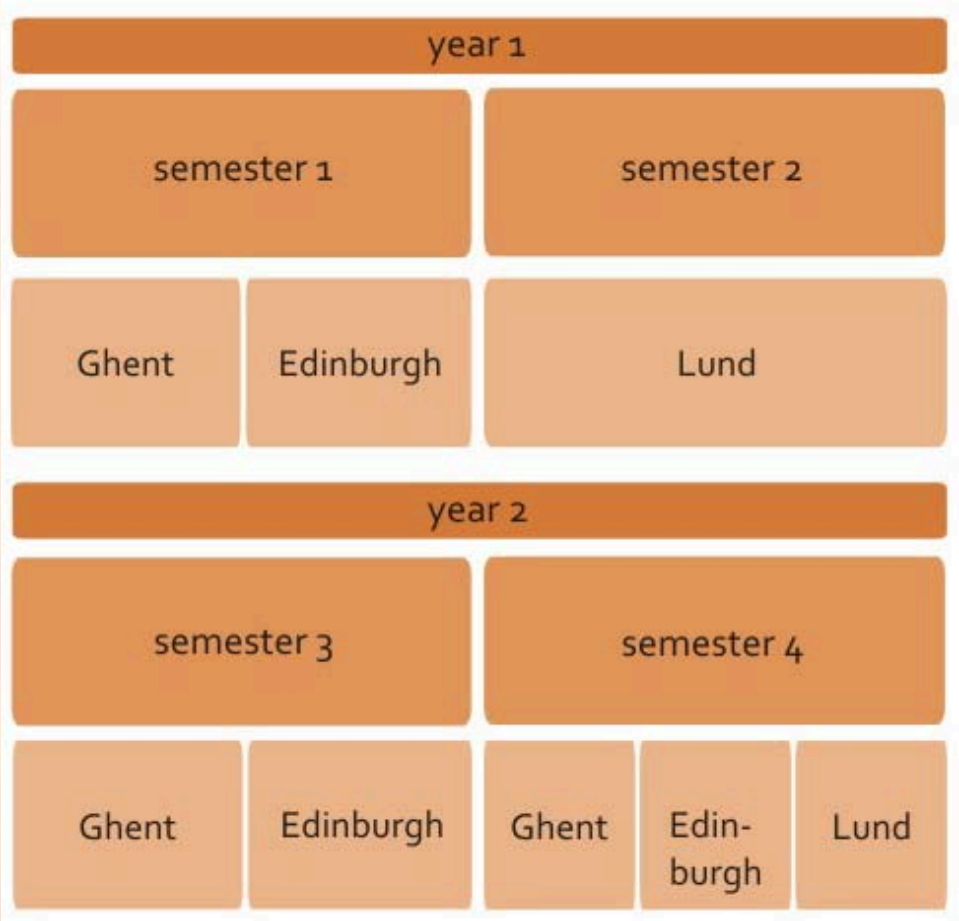

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- Support of Performance-Based Design
- Master of Science Program
  - Semester 1: Basics (Ghent/Edinburgh)
  - Semester 2: More Basics + Human Behavior and Risk Assessment (Lund)
  - Semester 3:
    - General FSE (Ghent) or
    - Advanced Structural Engineering (Edinburgh)
  - Semester 4: Master Thesis (All)

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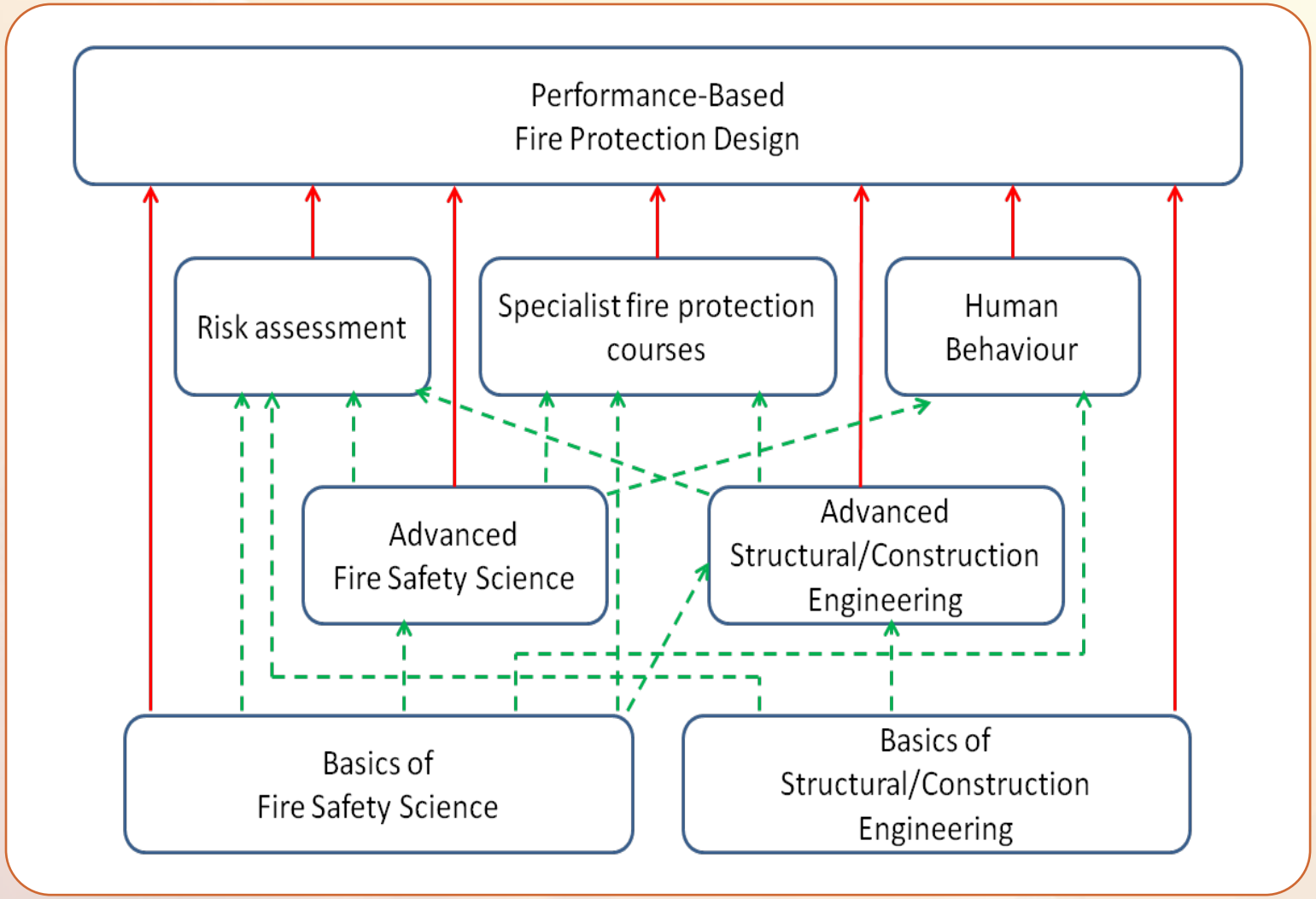

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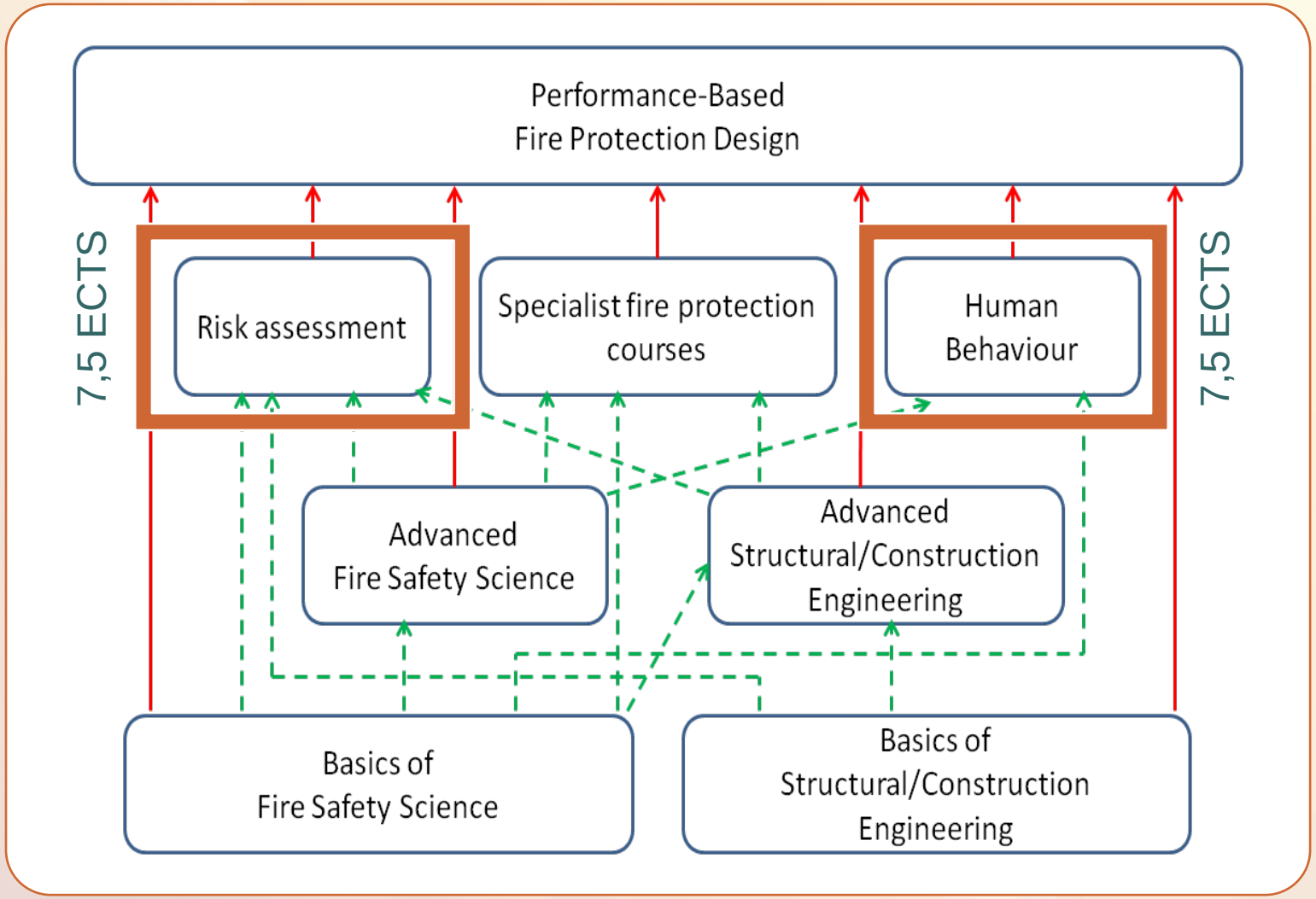
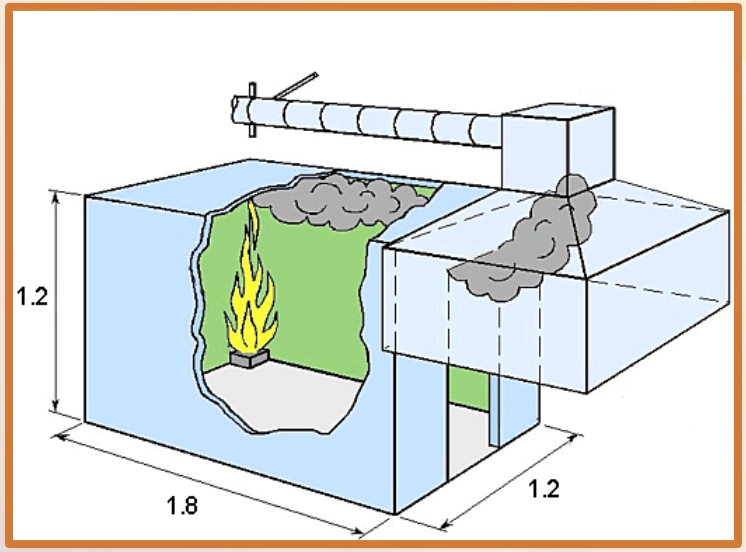


- Example – Creating links between courses
  - Enclosure fire experiment – three courses
    - Fire Dynamics – Advanced
    - Risk Assessment
    - Simulation of Enclosure Fires – CFD

- Example – Creating links between courses
  - Enclosure fire experiment – three scenarios selected by the students



- Example – Creating links between courses
  - Enclosure fire experiment
    - Independently plan and execute the experiment (Fire Dynamics – Advanced)
    - Perform risk analysis for lab (Risk Assessment)
    - Simulate lab in CFD (Simulation of Enclosure Fires – CFD)

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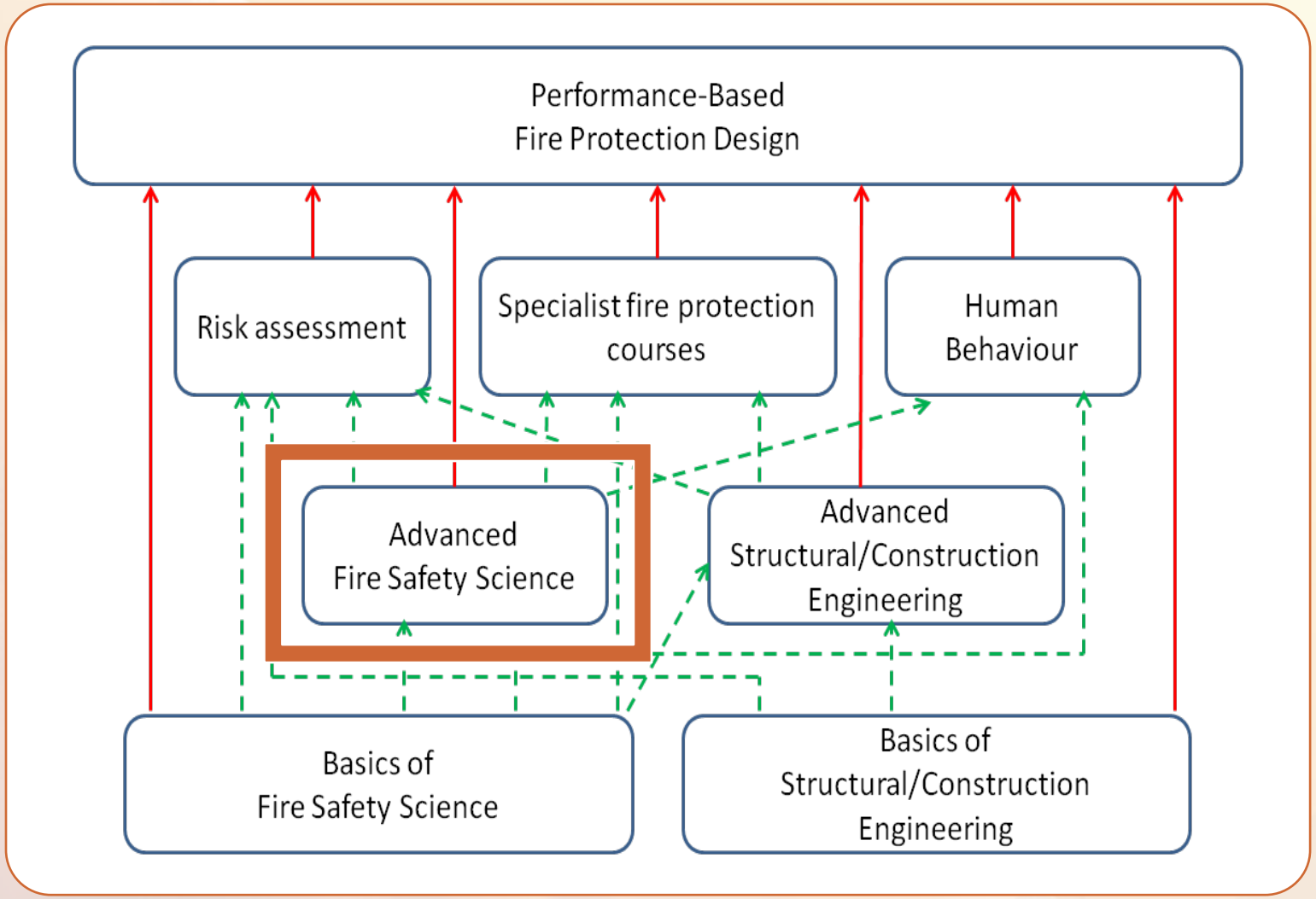

- Example - Supporting Performance-Based Design
  - Fire Dynamics – Advanced (Semester 2)
  - Focus of course
    - Enclosure fire dynamics (fires in rooms)
    - Modeling (hand calculations and two-zone models)
    - Experiments and experimental design
    - Constructing design fires

- Example - Supporting Performance-Based Design
  - Fire Dynamics – Advanced (Semester 2)
  - Home assignments
    - Assignment 1 – HRR curve for own apartment and large laboratory hall
    - Assignment 2 – Time-temperature curve for fully developed fire in their apartment
    - Assignment 3 – HRR curve for public building => radiation and smoke control

- Example - Supporting Performance-Based Design
  - Fire Dynamics – Advanced (Semester 2)
  - Home assignments
    - The selection process is simplified – just construct a curve
    - The selection process is included in later courses
      - Deterministic Analysis (worst credible case)
      - Quantitative Risk Analysis (“all” cases)

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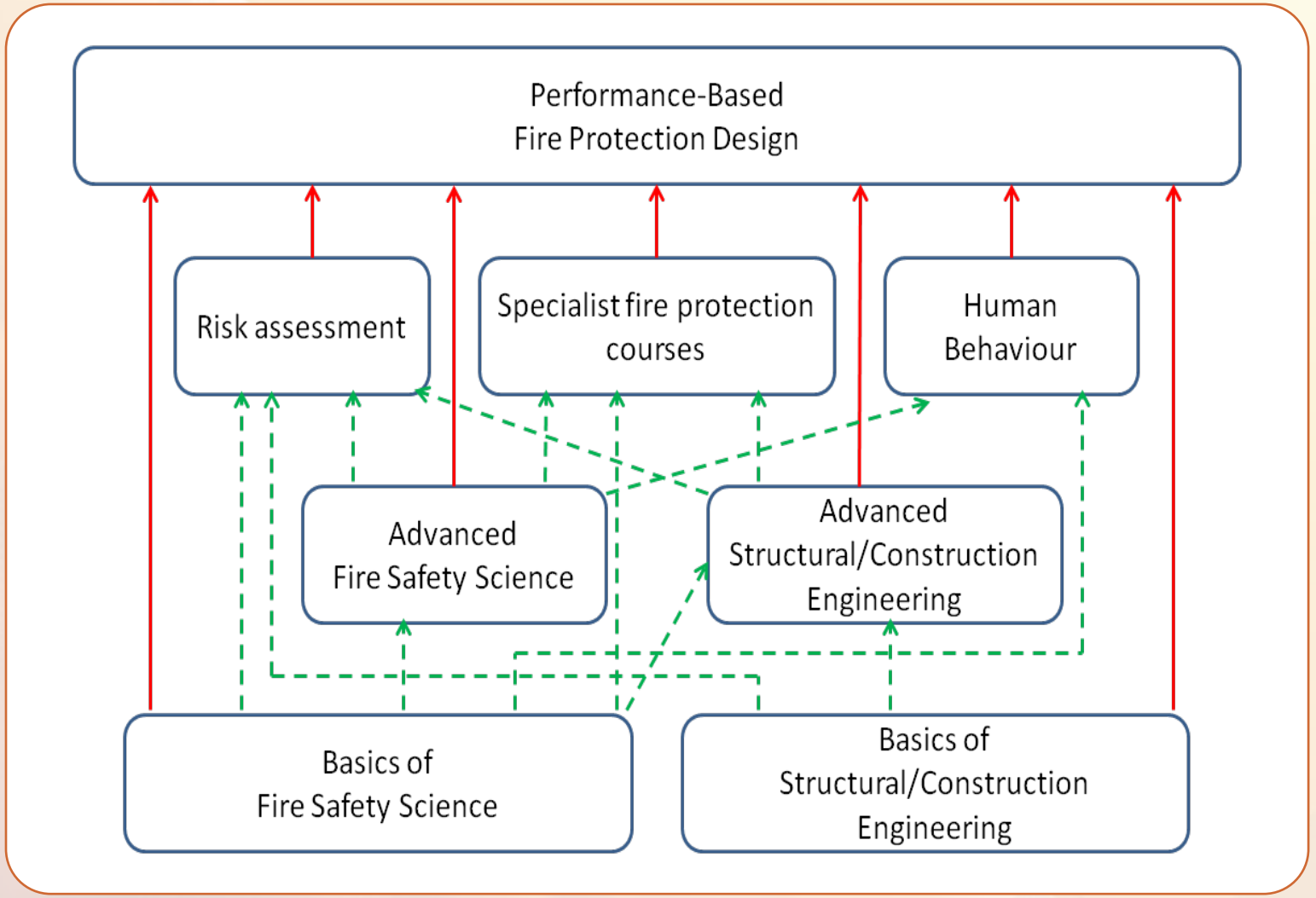

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- More info (also on applications):
  - http://www.imfse.ugent.be
  - IMFSE@UGent.be (Elise Meerburg)
  - Co-ordinator Bart Merci, Ghent University

Gracias por su atención
Thanks for your attention

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