

Structural fire resistance with Fire Safety Engineering criteria
3 ECTS - 24 hours

Title	Teachers	Language	Date	Hours	Mode	ECTS
Structural fire resistance with Fire Safety Engineering criteria	Emidio Nigro, Donatella de Silva	Italian	28-30/05 and 4-6/06 9h30 – 13h30	24	Blended	3

Lesson 1 (28/05/2025): Introduction to Fire Safety Engineering (FSE) and to structural fire resistance (Nigro)

- Introduction and course content.
- Introduction to Fire Safety Engineering. The national and international regulatory framework.
- Fire curves, behaviour of structural materials at high temperatures and calculation bases for structures in fire situations.
- Fire resistance assessment of structures.

Lesson 2 (29/05/2025): Advanced calculation methods for steel structures (de Silva) - Advanced calculation methods for steel structures subjected to fire.

- Fire protections for steel structures: design and modelling.
- Practical examples.

Lesson 3 (30/05/2025): Advanced calculation methods for reinforced concrete and steel-concrete composite structures (Nigro - de Silva)

- Advanced calculation methods for reinforced concrete and steel-concrete composite structures subjected to fire.
- Practical examples.

Lesson 4 (04/06/2025): *Fire modelling with Fire Safety Engineering (FSE) criteria applied to the structures* (Nigro - de Silva)

- Fire Safety Engineering criteria for fire scenarios definition.
- Zone fire model, localised and computational fluid dynamic models for the evaluation of natural fire curves.
- Practical examples.

Lesson 5 (05/06/2025): *Fire Safety Engineering (FSE) criteria applied to the structures* (Nigro)

- Structural modelling with FSE criteria.
- Advanced thermo-mechanical analyses.

Lesson 6 (06/06/2025): Practical cases of FSE application for structural fire (de Silva)

- Advanced thermo-mechanical analyses with SAFIR software.
- Examples and case studies.
- Conclusions.