



SVEUČILIŠTE U SPLITU
FAKULTET GRAĐEVINARSTVA,
ARHITEKTURE I GEODEZIJE

UNIVERSITY OF SPLIT
FACULTY OF CIVIL ENGINEERING,
ARCHITECTURE AND GEODESY

Structural fire engineering analysis 2017



University of Split

Spend your summer at
SPLIT SUMMER SCHOOL for students
of Civil Engineering, Architecture & Geodesy
CROATIA / Split

Welcome to Split Summer School!

The Course: Structural fire engineering analysis

Structural fire engineering analysis course provides an insight into contemporary engineering design procedures which consider fire as one of the actions that could threaten the ability of a structure to withstand load. The motivation for conducting this course arises from a fact that structural fire engineering courses aren't generally included in standard teaching modules for engineers which deprives a common student of basic knowledge about fire design and how to address the problem in engineering practice.

We would like to introduce you to the people organising the course and to the lecturers.

Organising committee

Boris Trogrlić Ph.D. Dean, Associate professor btroglic@gradst.hr	Mirela Galić Ph.D. Vice Dean for Int. Cooperation, Associate professor mgalic@gradst.hr	Ana Jeličić Mag. ing. aedif. Academic Associate ana.jelicic@gradst.hr
		

Lecturers

Neno Torić Ph.D. Assistant professor neno.toric@gradst.hr	Ivica Boko Ph.D. Professor Ivica.boko@gradst.hr	Ivana Uzelac Ph.D. Assistant ivana.uzelac@gradst.hr	Marko Goreta Assistant mgoreta@gradst.hr
			



Program structure

Sunday, 3/9 Faculty Entry hall

19.30-21.00	Registration
20.30 - ...	Welcome and address by Organising Committee

Monday, 4/9 Classroom C1, ground floor

9.00 – 09.30	Introduction (of the course, participants and the lecturers)
09.30 - 10.30	Lecture: Introduction to fire engineering analysis (Introduction of key steps in a fire engineering analysis: fire modelling, heat transfer modelling, structural fire analysis, evacuation modelling)
10.30 - 11.00	Coffee break: cafeteria - ground floor
11.00 - 12.30	Lecture: Heat transfer modelling – EN1991-1-2, EN1993-1-2 (Basics of heat transfer analysis, fire temperature models, lumped mass heat transfer models and custom heat transfer software)
12.30 - 13.30	Lunch break: student restaurant - ground floor
13.30 - 15.00	Exercise: Resistance of members under fire action – EN1993-1-2 (Calculations in resistance domain)

Tuesday, 5/9 Classroom C1, ground floor

09.00 - 10.30	Lecture: Structural fire design of steel structures – EN1993-1-2 (mechanical properties of steel in fire, load bearing capacity of steel members exposed to fire, connection design)
10.30 - 11.00	Coffee break: cafeteria - ground floor
11.00 - 12.30	Exercise: Resistance of members under fire action – EN1993-1-2 (Calculations in time and resistance domain)
12.30 - 13.30	Lunch break: student restaurant - ground floor
13.30 - 15.00	Exercise: Resistance of members under fire actions – EN1993-1-2 (Calculations in time domain)



Wednesday, 6/9 Classroom C1, ground floor

09.00 - 10.30	Lecture: Structural fire design of concrete structures – EN1992-1-2 (tests for determining mechanical properties, mechanical properties of concrete in fire, simple calculation models for member capacity)
10.30 - 11.00	Coffee break: cafeteria - ground floor
11.00 - 12.30	Exercise: Introduction to FEM based software
12.30 - 13.30	Lunch break: student restaurant - ground floor
13.30 - 14.15	Exercise: Fire resistance analysis with FEM based software
14.15 - 15.00	Final project: definition of assignments
	Free time

Thursday, 7/9 Classroom C1, ground floor

09.00 - 09.45	Lecture: FEM modelling of structures exposed to fire (Introduction to essential parts of the structural engineering software based on Finite Element Method)
09.45 - 10.30	Exercise: Fire resistance analysis with FEM based software
10.30 - 11.00	Coffee break: cafeteria - ground floor
11.00 - 12.30	Final project: individual work with assistance
12.30 - 13.30	Lunch break: student restaurant - ground floor
13.30 - 15.00	Final project: individual work with assistance
	Free time
18.00 -	City tour (Diocletian's palace)



Friday, 8/9 Classroom C1, ground floor

09.00 – 09.45	Lecture: Prescriptive vs. performance based engineering (Definition of main differences between prescriptive and performance based philosophy)
09.45 – 10.30	Final project: individual work with assistance (completion of the projects and preparation of the presentations)
10.30 - 11.00	Coffee break: cafeteria -ground floor
11.00 – 12.30	Final project: individual work with assistance (completion of the projects and preparation of the presentations)
12.30 - 13.30	Lunch break: student restaurant - ground floor
13.30 - 15.30	Final projects presentations
	Free time
18.30-19.30	Diploma awarding
19:30 -	Dinner at Faculty restaurant



Learning materials

E-learning

<http://cigla.gradst.hr/moodle26/>

Online materials

Eurocodes: Background & Applications Design of steel buildings - Worked Examples

<https://ec.europa.eu/jrc/en/publication/eurocodes-background-applications-design-steel-buildings-worked-examples>

Fire protection today: Metal framed structural steel encasement system examples

<http://www.british-gypsum.com/literature/white-book/steel-encasements/gyplyner-encase>

Software and lecture notes

1D HEAT software and lecture notes (in digital form and as a booklet) will be distributed during the first day of Split Summer School.

