

UČNI NAČRT PREDMETA / COURSE SYLLABUS

Predmet: POŽARNA VARNOST
Course Title: FIRE SAFETY

Študijski program in stopnja Study Programme and Level	Študijska smer Study Field	Letnik Academic Year	Semester Semester
MAG Tehniška varnost, 2. stopnja	/	2.	3.
USP Technical Safety, 2 nd Cycle	/	2 nd	3 rd

Vrsta predmeta / Course Type:

obvezni / Mandatory

Univerzitetna koda predmeta / University Course Code:

TV2A2

Predavanja Lectures	Seminar Seminar	Vaje Tutorial	Klinične vaje Work	Druge oblike študija	Samost. delo Individual Work	ECTS
45	/	30 LV	/	/	75	5

Nosilec predmeta / Lecturer:

Izr. prof. dr. Simon Schnabl / Dr. Simon Schnabl, Associate Professor

Jeziki / Languages:

Predavanja / Lectures: slovenski / Slovenian

Vaje / Tutorial: slovenski / Slovenian

Pogoji za vključitev v delo oz. za opravljanje študijskih obveznosti:

Študent oz. kandidat mora imeti predmet opredeljen kot študijsko obveznost.

Prerequisites:

The course has to be assigned to the student.

Vsebina:

Aktivna in pasivna požarna zaščita
 Ukrepi za preprečevanje širjenja požara po objektu
 Obnašanje materialov in konstrukcij ob požaru
 Izbor požarnih scenarijev, napoved razvoja požara po fazah.
 Izbor in izračun projektnih požarov
 Ocena požarne nevarnosti
 Izdelava koncepta požarne varnosti
 Način projektiranja požarne varnosti s klasičnimi in alternativnimi predpisi
 Postopek projektiranja požarne varnosti s požarnovarnostnim inženirstvom
 Analiza rezultatov izračunov projektnih požarov

Content (Syllabus outline):

Active and passive fire protection
 Measures to prevent the spread of fire by the building
 Behaviour of materials and structures during fire
 Selection of fire scenarios, forecast the development of a fire in stages.
 Selection and calculation of design fires
 Assessment of the fire hazard
 A concept of fire safety
 Method of fire safety design with traditional and alternative regulations
 The process of designing fire safety with fire safety engineering
 Analysis of the results of calculations of project

Metode požarnovarnostnega inženirstva
Uporaba računalniških programov v
požarnem projektiranju.

Vsebina vaj:

Račun požarne obtežba

Račun razvoja požara v prostoru, uporaba
enoconskih in dvoconskih modelov
(računalniški program)

Simulacije evakuacije

Izdelava koncepta požarne varnosti za
enostaven objekt, izbira ustrezne pasivne in
aktivne zaščite

fires

Methods of fire protection engineering
The use of computer programs in fire design.

Tutorial:

Calculation of design fire load

Development of fire in fire compartment with
help of one and two zone models (software)

Simulations of evacuations

Development of fire assessment for simple
building, choose the appropriate passive and
active fire measures

Temeljna literatura in viri / Readings:

- An Introduction to Fire Dynamics, D. Drysdale, Wiley, 2. izdaja (1998)
- Enclosure Fire Dynamics, B. Karlsson, J. Quintere, 2002
- The SFPE Handbook - Fire Protection Engineering, 2nd Edition, Boston, Massachusetts, 1995;

Dodatna literatura:

- Fire Engineering Design Guide, Centre for Advanced Engineering, University of Canterbury, New Zealand, 1994;
- Custer, L.P., Meacham, B.J. Introduction to Performance – Based Fire Safety, NFPA, 1997
- Alpert, R. L., »Calculation of Response Time of Ceiling-Mounted Fire Detectors,« Fire Technology, Vol 8:(3), National Fire Protection Association, Quincy, MA, pp. 181-195 (1972).
- Principles of Fire Protection Chemistry and Physics, R. Friedman, NFPA, 3. izdaja (1998)
- DD 240: Part 1: 1997; BSI, Fire Safety Engineering in Buildings, Part 1. Guide to the application of fire safety engineering principles;
- Draft British Standard Code of Practice for the Application of Fire Safety Engineering Principles to Fire Safety in Buildings, Working Draft 1993;
- Evans, D. D. and Stroup, D. W., »Methods to Calculate the Response of Heat and Smoke Detectors Installed Below Large Unobstructed Ceilings,« Natl. Bur. Stand. (U.S.), NBSIR 85-3167 (1985).
- Tehnična smernica TSG - 1 - 001: 2010. Požarna varnost v stavbah. Ministrstvo za okolje in prostor: 60 str Smernice SZPV

Cilji in kompetence:

Pri predmetu bodo študenti spoznali več načinov načrtovanja požarne varnosti v objektu, postopke za izdelavo ocene požarne varnosti ter metode za ovrednotenje ustreznega koncepta požarne varnosti. Predmet je zastavljen tako, da sledi sodobnim trendom razvoja požarnega inženiringa in tako ponuja študentom spoznavanje in delo z nekaterimi uveljavljenimi požarnimi

Objectives and Competences:

In this course students will learn several ways to design fire safety in the facility, procedures for assessment of fire safety and the proper methods to evaluate the concept of fire safety. The course is designed in a way that follows the modern trends in the development of fire engineering and also offers students learn about and work with some of the established fire computer models and procedures for the

računalniškimi modeli ter postopki za napovedi razvoja požara v prostoru nastanka požara.

prediction of fire in the room of origin.

Predvideni študijski rezultati:

Znanje in razumevanje

Študentje naj bi pridobil osnovna teoretska in praktična znanja, ki so potrebna za razumevanje različnih postopkov, ki jih inženir, ki se ukvarja s požarno varnostjo nujno potrebuje pri vsakodnevnih odločitvah.

Uporaba

Študentje bodo spoznali tako osnovna znanja na področju teorije gorenja in gašenja, metode za oceno požarnih nevarnosti ter izdelavo koncepta požarne varnosti in temeljne inženirske metode (matematične modele, enostavne računske metode in računalniške modele), ki jih inženir pri svojem delu potrebuje za načrtovanje požarne varnosti v objektu.

Refleksija

Teoretska in praktična znanja bo lahko študent uporabil pri reševanju praktičnih in teoretskih problemov (študij in praksa). Spoznanja o zmogljivostih in omejitvah posameznih metod v praksi pomenijo osnovo za mnoge pomembne odločitve.

Prenosljive spretnosti

Pri predmetu bo študent pridobil kompleksna znanja, uporabna pri zahtevnih odločitvah na področju požarne varnosti.

Intended Learning Outcomes:

Knowledge and Comprehension

Students should acquire basic theoretical knowledge and practical skills that are needed to understand the various processes by an engineer who deals with fire safety indispensable for daily decisions.

Application

Students will also learn basic skills in the theory of burning and extinguishing methods for assessing fire hazards and making the concept of fire safety and basic engineering methods (mathematical models, numerical methods and computer models) by an engineer in his work requires planning for fire safety the facility.

Analysis

Theoretical and practical knowledge will be used by the student in solving practical and theoretical problems (study and practice). Knowledge of the capabilities and limitations of each method in practice is the basis for many important decisions.

Skill-transference Ability

In this course the student will acquire complex knowledge useful with difficult decisions in the field of fire safety.

Metode poučevanja in učenja:

Predavanja
Seminar
Vaje

Learning and Teaching Methods:

Lectures
Seminar
Tutorial

Načini ocenjevanja:

Pisni izpit
Seminarska naloga

Delež (v %) /

Weight (in %) **Assessment:**

Pisni izpit	50%	written exam
Seminarska naloga	50%	coursework

Reference nosilca / Lecturer's references:

- **SCHNABL, Simon**, PLANINC, Igor, TURK, Goran, SRPČIČ, Stane. Fire analysis of timber composite beams with interlayer slip. Fire safety journal, ISSN 0379-7112. [Print ed.], 2009, letn. 44, št. 5, str. 770-778, ilustr., doi: 10.1016/j.firesaf.2009.03.007. [COBISS.SI-ID 4598369]
- **SCHNABL, Simon**, SAJE, Miran, TURK, Goran, PLANINC, Igor. Fire analysis of wooden composite

beams with interlayer slip. V: ATTARD, Thomas (ur.). Applied Mechanics in the Americas. Vol. 12 : Proceedings of the Tenth Pan American Congress of Applied Mechanics : PACAM X, Grand Oasis Resort, Cancun, Mexico, 7.-11. January 2008. Fresno: California State University, 2008, str. 41-44, ilustr. [COBISS.SI-ID 3866977]

- **SCHNABL, Simon**, PLANINC, Igor, TURK, Goran. Thermomechanical fire analysis of timber composite beams with interlayer slip. V: WCTE 2008 : conference proceedings. Miyazaki, Japan: s.n., 2008, str. 1-8, graf. prikazi. [COBISS.SI-ID 4205665]

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