UČNI NAČRT PREDMETA / COURSE SYLLABUS	
Predmet:	ODKRIVANJE IN GAŠENJE POŽAROV
Course Title:	FIRE DETECTION AND SUPPRESSION

Študijski program in stopnja Study Programme and Level	Študijska smer Study field	Letnik Academic Year	Semester Semester
UŠP Tehniška varnost, 1. stopnja	**/**	**3.**	**6.**
USP Technical Safety, 1st Cycle	**/**	**3rd**	**6th**

Vrsta predmeta / Course Type	obvezni / Mandatory
Univerzitetna koda predmeta / University Course Code:	TV122

Predavanja Lectures	Seminar Seminar	Vaje Tutorial	Klinične vaje Work	Druge oblike študija	Samost. delo Individ. Work	ECTS
45	**/**	**30 SV**	**/**	**/**	**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:	**Prerequisites:**
Študent oz. kandidat mora imeti predmet opredeljen kot študijsko obveznost.	The course has to be assigned to the student.

Vsebina:	**Content (Syllabus Outline):**
1. Sistemi in naprave za odkrivanje in javljanje požara a. vrste b. sestavni deli in lastnosti c. preskušanje, nadzor in vzdrževanje 2. Sistemi in naprave za prenos signala in alarmiranje a. vrste b. sestavni deli in lastnosti c. preskušanje, nadzor in vzdrževanje 3. Sistemi in naprave za kontrolo dima pri požaru a. nastajanje dima pri požaru b. načini kontrole dima c. odvod z naravnim prezračevanjem (elementi, dimenzioniranje in izvedba)	1. Fire detection systems and devices a. types b. design and characteristics c. testing, control and maintenance 2. Fire notification system a. types b. design and characteristics c. testing, control and maintenance 3. Smoke and heat control system in the case of fire a. smoke production b. types of smoke control c. natural smoke control by ventilation (elements , design and implementation) d . mechanical smoke control by forced ventilation (elements , design and

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d. odvod s prisilnim prezračevanjem (elementi, dimenzioniranje in izvedba) 4. Gašenje a. mehanizmi gašenja b. sredstva za gašenje (voda, pena, prah, inertni plini, haloni) c. principi gašenja požarov, če gorijo plini, tekočine in trdne snovi 5. Gozdni požari: preventive, pravočasno zaznavanje in organizacija gašenja ter gašenje. 6. Prenosne naprave in oprema za gašenje a. ročni gasilniki (vrste, področje uporabe in dimenzioniranje) b. prevozni gasilniki (vrste, področje uporabe in dimenzioniranje) c. cevi in nastavki za gašenje (vrste, dimenzije spojke) d. priročna oprema za gašenje 7. Notranja in zunanja hidrantna mreža in oskrba z vodo a. vrste, sestavni deli 8. Oskrba z vodo za gašenje a. viri vode, dimenzioniranje, izvedba črpališč za vodo za gašenje (bazeni, jezera, tekoče vode) 9. Sprinklerski sistemi a. vrste, sestavni deli 10. Drugi vgrajeni sistemi za gašenje z vodo a. vrste, sestavni deli 11. Vgrajeni sistemi za gašenje s peno a. vrste, sestavni deli 12. Vgrajeni sistemi za gašenje s plini a. vrste, sestavni deli	implementation) 4. Fire suppression a. suppression mechanisms b. Suppression agents (water, foam, powder, inert gases , halons) c. Principles of fire fighting in the case of burning gases, liquids and solids 5. Forest fires: prevention, timely detection, organization of fire-fighting and fire-fighting. 6. Portable and movable fire extinguishers a. hand-held fire extinguishers (type , scope and design) b. movable fire extinguishers (type, scope and design) c. hoses and nozzles for fire-fighting (type , dimensions of couplings) d. handy equipment for fire-fighting 7. Indoor and outdoor hydrant network and water supply a. types, components 8. Water supply for extinguishing fires a. water resources, design, construction of pumping stations for fire-fighting water (pools, lakes, rivers and brooks) 9. Fire sprinkler systems a. types, components 10. Other installed water fire suppression systems a. types, components 11. Foam fire suppression systems a. types, components 12. Gas fire suppression systems a. types, components

Temeljni literatura in viri / Readings:

- R.Gagnon; Design of Water-Based Fire Protection Systems, 1997, 458 str. (30%)
- DiNenno P.J., The SFPE Handbook of Fire Protection Engineering, National Fire Protection Engineers, Third Edition, ISBN: 087765-451-4, 2002.(15 %)
- Drysdale, D., An Introduction to Fire Dynamics, 2nd edition, Wiley and Sons, 1998, 451 str. (30%)
- Omi N.P., Forest Fire contemporary world issues, ABC-CLIO's, ISBN 1-85109-443-1, 2005. (15%)
- *Ferguson L.H.,Janicak C.A.,* Fundamentals of Fire Protection for the Safety Professional, The Scarecrow Press, Inc., ISBN 0-86587-988-5, 2005. (15 %)

Dopolnilna literatura:

- Cowley J., Fire Safety at See, IMAREST, ISBN 1-902536-42-8, 2002.

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- Cote A.E., Fire protection Handbook, National Fire Protection Association, ISBN: 0-87765-474-3, 2003.
- Schroll R.C., Industrial Fire Protection Handbook, Second Edition, CRC Press, ISBN 1-58716-058-7, 2003.
- Karlsson B., Quintiere J.G., Enclosure Fire Dynamics, CRC Press, 2000.
- Cox G., Combustion Fundamentals of Fire, Academic Press Limited, 1996.
- Turns S.R., An Introduction to Combustion Concepts and Application, Third Edition, McGrawHill 2012, ISBN 978-007-108687-5.
- Furness A., Muckett M., Introduction to Fire Safety Management, Elsevier Ltd., ISBN: 978 0 7506 8068 4, 2007.
- Marc J. Assael M.J., Kakosimos K.E., FIRES, EXPLOSIONS, AND TOXIC GAS DISPERSIONS Effects Calculation and Risk Analysis, CRC Press Taylor and Francis Group, ISBN: 978-1-4398-2675-1, 2010.
- NFPA predpisi
- Smernice SZPV

Cilji in kompetence:	**Objectives and Competences:**
Pri predmetu študenti spoznajo osnovne operacije odkrivanja, javljanja in gašenja požarov. Srečajo se z opremo, njeno vgradnjo, zanesljivostjo itd. Glede na produkte gorenja spoznajo sisteme za odkrivanje požarov, srečajo pa se tudi z posameznimi vrstami prenosnih, prevoznih in vgrajenih naprav za gašenje. (Namen predmeta je dati študentu osnovna znanja, ki bodo predvsem v drugostopenjskem študiju vsaj delno podkrepljena tudi s praktičnimi primeri.)	In this course students learn the basic operations of detection, fire alarm and fire extinguishing, they learned about the equipment, its installation and reliability, etc.. Depending on the products of combustion, different fire detection systems and individual types of portable, mobile and suppression systems for fire extinguishing are introduced. (The purpose of the course is to give students the basic skills, which will be supported at the second level with practical examples.)

Predvideni študijski rezultati:	**Intended Learning Outcomes:**
<u>Znanje in razumevanje</u> Študentje naj bi pridobil osnovna teoretska in praktična znanja, ki so potrebna za razumevanje procesov odkrivanja, javljanja in alarmiranja požarov ter gašenja in vpliva posameznih vrst gasil na razvoj požara.	<u>Knowledge and Comprehension</u> Students should acquire basic theoretical and practical knowledge necessary for understanding the processes of fire detection, fire alarm and fire-extinguishing. They should be aware on the impact of certain types of fire suppression agents on fire development.
<u>Uporaba</u> Študent bo spoznal osnove aktivne požarne zaščite, osnove gašenja in vpliva teh komponent na razvoj požara v objektu.	<u>Application</u> Student will learn the basics of active fire protection, basic concepts of fire-fighting and the impact of these factors on the development of a fire in the building.
<u>Refleksija</u> Spoznanja o zmogljivostih in omejitvah posameznih metod v praksi omogočajo kitično obnašanje pri praktičnem delu.	<u>Reflection</u> Knowledge of the capabilities and limitations of each method in practice allow the critical behavior in practical work.

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Prenosljive spretnosti	Skill-tranference Ability
Pri predmetu bo študent pridobil osnovna znanja, uporabna tudi na drugih področjih in pri drugih predmetih: Osnove tehniške in požarne varnosti, Fizika, Kemija, Matematika, Gorenje in dinamika požarov, Osnove procesne tehnike, Nevarne snovi, Varstvo okolja, Požarna varnost v objektih, Intervencije in reševanje, Požarni praktikum in Inženirske metode v požarni varnosti, Inštrumentalna analiza, monitoring, sistemi.	In this course the student will acquire basic skills useful in other areas and in other subjects: Fundamentals of technical and fire safety, Physics, Chemistry, Mathematics, Fire and Fire Dynamics, Fundamental of processing techniques, Hazardous materials, Environmental protection, Fire safety of buildings, Intervention and rescuing, Engineering methods in fire safety, Instrumental analysis, monitoring, systems.

Metode poučevanja in učenja:	**Learning and Teaching Methods:**
• predavanja • vaje v predavalnici • vaje v računalnici ali v laboratoriju in na terenu	• lectures • exercises in the classroom • exercises in the computer room or in the laboratory and in the field

Načini ocenjevanja:	Delež (v %) / Weight (in %)	**Assessment:**

Oceno sestavljajo:
• 10% domače naloge
• 20% kolokviji
• 30% seminar/projekt
• 40% izpit (pisni in ustni)
 	
• za zaključeno oceno je potrebno:
  ○ napisati seminar in domače naloge
  ○ opraviti izpit pozitivno
Ocene od 1-5 (negativno), 6-10 (pozitivno)
	10%
	20%
	30%
	40%
		Type (examination, oral, coursework, project):
		• 10% homeworks
		• 20% midterm exmas
		• 30% seminar work/project work
		• 40% examination (oral or written)
		
		For passing, it is necessarily to complete a seminar work and homeworks, and pass the exam.
		Marks:
		1-5 fail
		6-10 pass

Reference nosilca / Lecturer's References:

- **SCHNABL, Simon**, TURK, Goran, PLANINC, Igor. Uklon lesenih stebrov pri požaru = Buckling of timber columns subjected to fire. V: Kuhljevi dnevi, 23. september 2010, Ljubljana. ŠIROK, Brane (ur.), EBERLINC, Matjaž (ur.). Zbornik del. Ljubljana: SDM - Slovensko društvo za mehaniko, 2010, str. 207-214, graf. prikazi. [COBISS.SI-ID 5132385]
- **SCHNABL, Simon**, TURK, Goran, PLANINC, Igor. Fire resistance of timber columns. V: CECCOTTI, Ario (ur.), KUILEN, Jan-Willem van de (ur.). WCTE 2010 : conference proceedings. Riva del Garda [Italy]: s.n., 2010, str. 1-7, ilustr. [COBISS.SI-ID 5069409]
- **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]

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