

## UČNI NAČRT PREDMETA / COURSE SYLLABUS

**Predmet:** TEHNIŠKA VARNOST  
**Course Title:** TECHNICAL SAFETY

Študijski program in stopnja Study Programme and Level	Študijska smer Study Field	Letnik Academic Year	Semester Semester
MAG Tehniška varnost, 2. stopnja	/	2.	4.
USP Technical Safety, 2 <sup>nd</sup> Cycle	/	2 <sup>nd</sup>	4 <sup>th</sup>

**Vrsta predmeta / Course Type:**

obvezni / Mandatory

**Univerzitetna koda predmeta / University Course Code:**

TV2A1

Predavanja Lectures	Seminar Seminar	Vaje Tutorial	Klinične vaje Work	Druge oblike študija	Samost. delo Individual Work	ECTS
45	/	15 LV + 15 SV	/	/	75	5

**Nosilec predmeta / Lecturer:**

doc. dr. Sabina Huč / Dr. Sabina Huč, Assistant 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:**

Principi tehniške varnosti  
 Zakonodaja na področju tehniške varnosti  
 Kvalitativne metode in njih uporaba  
 Kvantitativne metode za oceno tveganj  
 Uporaba računalniških programov za oceno tveganj  
 Tveganja na delovnem mestu  
 Analize vzrokov nezgod Root cause analize  
 Tveganje posameznika  
 Skupinsko tveganje  
 Izdelava varnostnih poročil  
 Interpretacija rezultatov varnostnih analiz

**Content (Syllabus outline):**

Principles of Technical Safety  
 Legislation on the field of technical safety  
 Qualitative methods and their use  
 Quantitative methods for risk assessment  
 Use of computer codes for risk assessment  
 Work place risks  
 Root cause analysis  
 Individual risk  
 Societal risk  
 Safety reports  
 Interpretation of the safety assessment results

**Temeljna literatura in viri / Readings:**

Glavna literatura:

- AIChE: Guidelines for Technical Management of Chemical Process Safety, New York 1989

(30%)

- Ian Sutton: Process Reliability and Risk Management, Van Nostrand New York, 1992 (20%)

**Pomožna literatura:**

- J.X.Wang, M.L.Roush: What Every Engineer should know about Risk Engineering and Management, Marcel Decker INC. , New York 2000
- ACSNI: Organizing For Safety, Health and Safety Commission, April 1993,
- Lloyd's Register The Engineering Council: Guidelines on Risk Issues, UK 1993
- Perrow C.: Normal Accidents, Living with High-Risk Technologies, Basic Books, New York, 1985
- Arendt et al: Evaluating Process Safety in the Chemical Industry, A Manager's Guide to Quantitative Risk Assessment, Chemical Manufacturers Association, Washington, USA, 1989
- Clemen, Reilly: Making Hard Decisions, PWS- Kent Publishing Company, 1991

**Cilji in kompetence:**

Študentje naj bi spoznali, kako zbrati informacije o tveganjih ter kako te informacije lahko koristijo pri načrtovanju preventivnih ukrepov za zagotavljanje varnosti in kako lahko s pomočjo vedenja o tveganjih lahko načrtujemo svoje dejavnosti, da bodo varne in tudi prijazne do zaposlenih ter da bodo ob morebitnih nezgodah posledice čim manjše.

**Objectives and Competences:**

Students will learn how to gather information on risks and how this information can be used for planning of preventive measures for safety assurance and how can we by knowledge about risks plan activities to be safe and employee friendly and in the case of accidents to have as small as possible consequences.

**Predvideni študijski rezultati:**

Znanje in razumevanje

Študentje naj bi pridobil osnovna teoretska in praktična znanja, ki so potrebna za razumevanje tveganja različnih vrst. Razumeli bodo kateri so elementi tveganj. Kako lahko zmanjšujemo tveganja in s kakšnimi ukrepi povečujemo varnost. Razumel bo vlogo človeka v socio-tehnoloških sistemih in razumel zakaj je tako pomembna povezava človek stroj.

Uporaba

Znanja bo lahko uporabi pri problemih nevarnih postopkov in sistemov iz različnih področij človeškega delovanja.

Refleksija

Teoretska in praktična znanja bo lahko študent uporabil pri reševanju praktičnih in teoretskih problemov. Spoznanja o zmogljivostih in omejitvah metod tehniške varnosti mu bodo koristila pri sprejemanju tako operativnih,

**Intended Learning Outcomes:**

Knowledge and Comprehension

Knowledge and Comprehension

Students will acquire the basic theoretical and practical skills to understand different risks. They will understand the elements of the risks. How can we reduce the risks and with what measures we can enhance safety. He will understand the role of human in the socio-technological systems and understand why the connection between the man and machine is so important.

Application

Knowledge will be used during problems of dangerous procedures and systems in different areas of human activity

Analysis

Theoretical and practical skills student will use during practical and theoretical problems solving. His recognition of capabilities and limitations of technical safety methods will enable him while taking strategic, tactical and I

taktičnih in tudi pri strateških odločitvah	operational decisions.
<u>Prenosljive spretnosti</u> Pridobil si bo tako analitske spretnosti za reševanje problemov kot tudi komunikacijske spretnosti, ki jih bo potreboval pri vsakdanjem delu.	<u>Skill-transference Ability</u> He will get analytical skills as well as communication skills needed during every day work.

**Metode poučevanja in učenja:**

Predavanja  
Seminarske vaje  
Seminarska naloga s področja tveganj

**Learning and Teaching Methods:**

Lectures  
Seminar exercises  
Seminar work from the field of risks

**Načini ocenjevanja:**

A) Seminarska naloga  
B) Izvedba in predstavitev projekta  
C) Pisni izpit  
  
Skupna ocena mora biti 6 ali več (uspešno).

Delež (v %) /  
Weight (in %)

**Assessment:**

A) Seminar work  
B) Project and its presentation  
C) Written exam  
  
Grade should be 6 or higher (successful)

**Reference nosilca / Lecturer's references:**

- SEBERA, Václav, PEČNIK, Jaka Gašper, AZINOVIĆ, Boris, MILCH, Jaromír, **HUČ, Sabina**. Wood-adhesive bond loaded in mode II : experimental and numerical analysis using elasto-plastic and fracture mechanics models. *Holzforschung*, ISSN 1437-434X. [Online ed.], 2020, str. 1-13. <https://www.degruyter.com/view/journals/hfsg/ahead-of-print/issue.xml>, doi: [10.1515/hf-2020-0141](https://doi.org/10.1515/hf-2020-0141).
- HOZJAN, Tomaž, KARLOVŠEK, Jurij, HANŽIČ, Lucija, **HUČ, Sabina**, PLANINC, Igor. Analytical method for determination of crack development in concrete ring due to restrained shrinkage. V: KAHYA, Volkan (ur.). *Advancements in civil engineering and architecture. Volume 1, Civil engineering*. Trabzon: Golden light publishing; Dynamic academy. 2019, str. 1381-1389, ilustr.
- HUČ, Sabina**, SVENSSON, Staffan, HOZJAN, Tomaž. Hygro-mechanical analysis of wood subjected to constant mechanical load and varying relative humidity. *Holzforschung : International Journal of the Biology, Chemistry, Physics and Technology of Wood*, ISSN 0018-3830. Tiskana izdaja, 2018, letn. 72, št. 10, str. 863-870, ilustr., doi: [10.1515/hf-2018-0035](https://doi.org/10.1515/hf-2018-0035).