

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 nd Cycle | / | 2 nd | 4 th |

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).