ERASMUS+ Jean Monnet Module: Workplace and Process Safety in Next Generation Europe - Teaching for Learning
Safety4EU
http://safety4eu.znrfak.ni.ac.rs/

Co-funded by the European Union

Newsletter No. 2 Dec 2024

O projektu

Zakonodavstvo o bezbednosti na radnom mestu i procesima je ključno za obezbeđivanje dobrobiti za skoro 170 miliona radnika širom Evrope. Oblast bezbednost na radu i u tehnološkim procesima (WPS) doživela je značajan rast, intenziviranje i promene poslednjih godina. Kako konkurencija postaje sve intenzivnija a resursi oskudniji, kompanije su pod pritiskom da preispitaju svoja ulaganja, uključujući i ona u bezbedonosne mere. Na žalost, ekonomski pritisci u mnogim zemljama dovode do smanjenja ili nestanka WPS obrazovanja na akademskom nivou. Modul Safety4EU ima za cilj da unapredi obrazovanje iz oblasti WPS na Univerzitetu u Nišu (UNI) korišćenjem inovativnog pristupa nastavi i učenju, prilagođenog potrebama naprednih studenata osnovnih studija, studenata master studija UNI, kao i mladih profesionalaca u sektoru bezbednosti i zdravlja na radu.

Ciljevi projekta

Glavni specifični ciljevi projekta su:
- Doprinos boljoj akademskoj pokrivenosti EU WPS politika, propisa, standarda i najboljih praksi
- Podsticanje akademskog unapređenja WPS naglašavajući njen značaj
- Efikasna primena IT servisa i alata za rešavanje konkretnih WPS problema
- Unapređenje saradnje između akademske zajednice, profesionalaca i društva u celini
- Proširenje dometa EU vrednosti i WPS na širu publiku

Tim zadužen za realizaciju Modula

Koordinator projekta: Dr Milan Protić, vanr. prof. Fakulteta zaštite na radu u Nišu
Predavači:
- Dr Milan Gocić, red. prof. Građevinsko-arhitektonskog fakulteta u Nišu
- Dr Evica Stojiljković, red. prof. Fakulteta zaštite na radu u Nišu
- Dr Snežana Živković, red. prof. Fakulteta zaštite na radu u Nišu
- Dr Tamara Rađenović, doc. Fakulteta zaštite na radu u Nišu
- Dr Ana Vukadinović, doc. Fakulteta zaštite na radu u Nišu
- Dr Srđan Glišović, red. prof. Fakulteta zaštite na radu u Nišu
- Dr Miomir Raos, red. prof. Fakulteta zaštite na radu u Nišu
- Dr Viša Tasić, naučni savetnik Instituta za rudarstvo i metalurgiju Bor
- Dr Dejan Vasović, vanr. prof. Fakulteta zaštite na radu u Nišu.

Kursevi na Safety4EU modulu

Safety4EU modul koherentno je struktuiran i sistemski vođen. U okviru modula predviđeni su sledeći kursevi:
- Uvod u Evropske integracije
- EU regulativa u oblasti bezbednosti na radu i u tehnološkim procesima
- Analiza podataka, programiranje i interpretacija
- Bezbednost u tehnološkim procesima – Učenje iz studija slučaja
- Opasnosti i konsekvence u industriji
- Disperzioni modeli i modeli izvora
- Ergonomski rizici
- Uvod u mašinsko učenje u oblasti bezbednosti na radu i u tehnološkim procesima
- Kvantitativna ocena rizika
- On-line merenje u radnoj sredini za identifikaciju opasnih supstanci
- Psihosociološki rizici u radnoj sredini
- Ekonomski aspekti u bezbednosti na radu i u tehnološkim procesima

Diseminacija projekta

*Od juna 2024. nakon završetka predavanja i dodele sertifikata za polaznike prve generacije modula rađena je intenzivna diseminacija projekta. Publikovan je rad u časopisu **Facta Universitatis**, Series: Working and Living Environmental Protection*

FACTA UNIVERSITATIS
Series: **Working and Living Environmental Protection** Vol. 21, N° 1, 2024, pp. 19 - 35
https://doi.org/10.22190/FUWLEP240414002P

Review Paper

OVERVIEW OF COMMON METHODS FOR FIRE TESTING

UDC 614.842

Milan Protić[1], Nikola Mišić[1], Miomir Raos[1], Milena Mančić[1], Marjan Popović[2]

[1]University of Niš, Faculty of Occupational Safety, Niš, Republic of Serbia
[2]Miphem, Belgrade, Republic of Serbia

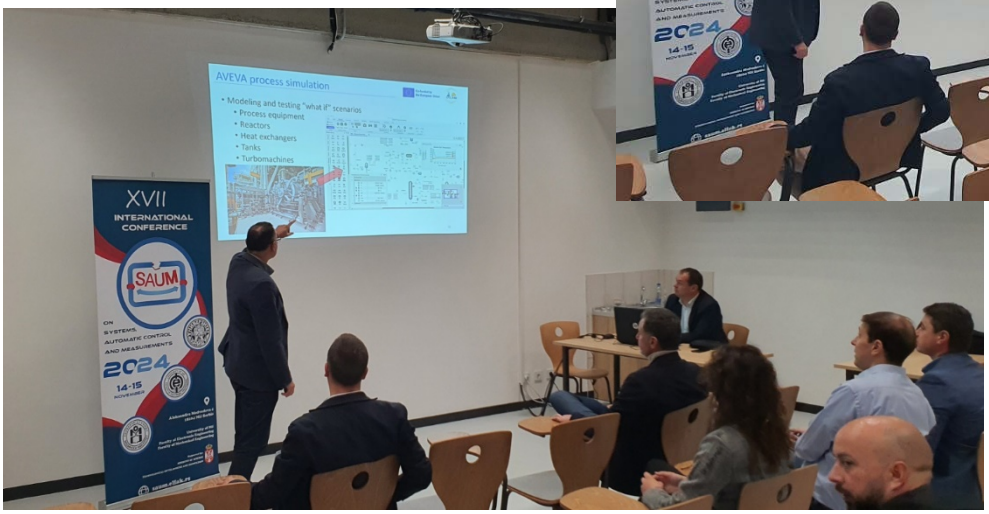
ORCID iDs:		
	Milan Protić	https://orcid.org/0000-0003-4957-7882
	Nikola Mišić	https://orcid.org/0000-0003-2314-4851
	Miomir Raos	https://orcid.org/0000-0001-5586-0276
	Milena Mančić	https://orcid.org/0000-0002-6181-2286
	Marjan Popović	N/A

Abstract. *Fire testing is critical for assessing the behavior of building materials under fire conditions, providing indispensable insights into important variables such as flammability, heat release rate, and smoke production. This paper provides an overview of common fire testing methods, including the procedures for test selection, sample preparation, data collection, and analysis. These fire testing methods are outlined in standards issued by world-respected standardization bodies such as ISO, EN, ASTM, and UL. These standards guarantee and ensure the consistency and reliability of prescribed methods. Moreover, this paper presents a detailed description of a custom-made installation hosted at the Fire Protection Laboratory at the Faculty of Occupational Safety, University of Niš, used for evaluating the flammability parameters of a broad spectrum of materials. This hyphenated installation, comprising a mass loss calorimeter and an FTIR gas analyzer, can be used for comprehensive and simultaneous real-time measurement of flammability parameters and fire effluent analysis.*

Key words: *fire testing, ignitability, flame spread, fire effluents, heat release rate, mass loss calorimeter, gas analyzer.*

Projekat je predstavljen na međunarodnoj stručnoj konsultaciji: "Transport of Dangerous Goods" održanoj 7. novembra 2024. godine na Saobraćajnom fakultetu u Doboju, RS

Projekat je predstavljen na međunarodnoj konferenciji SAUM održanoj 14. i 15. novembra 2024. godine na Elektronskom Fakultetu u Nišu



Na međunarodnoj stručnoj konsultaciji: "Transport of Dangerous Goods" predstavljen je rad "Modeling Thermal Runaway Reactions: A Simulation Approach for Esterification Process" koji je napisan u sklopu Safety4EU projekta

Modeling Thermal Runaway Reactions: A Simulation Approach for Esterification Process

Milan Protić[1*], Milan Gocić[2], Ana Bjelić[1], Miomir Raos[1]

[1] Faculty of Occupational Safety, University of Niš, 18000 Niš, Serbia
[2] Faculty of Civil Engineering and Architecture, University of Niš, 18000 Niš, Serbia

[*] Correspondence: milanprotic@gmail.com

Abstract: Thermal runaway reactions that are characterized by rapid temperature and pressure increases due to uncontrolled exothermic reactions, represent a major safety concern in the industry. This study presents a detailed methodology for modeling thermal runaway behavior using the esterification of acetic anhydride with methanol as a case study. The reaction, which is highly exothermic, is simulated under adiabatic conditions to represent a cooling system failure scenario. The study emphasizes the derivation of differential equations governing the reaction kinetics, temperature, and pressure changes, providing a transparent step-by-step explanation of the modeling process. The methodology was validated by comparing the simulated temperature profile with experimental data from previous studies, showing strong agreement, particularly in predicting the reaction's steady-state temperature. This study provides a clear, reproducible approach to modeling thermal runaway reactions, offering detailed insights into the underlying dynamics of temperature and pressure changes. The findings contribute to the broader understanding of thermal runaway phenomena and offer a valuable tool for predicting and managing risks in industrial chemical processes, enhancing safety protocols and reducing the potential for catastrophic failures. This methodology can be applied to other exothermic reactions, making it a versatile resource for improving process safety in chemical manufacturing.

Keywords: Runaway reactions, Modeling, Safety, AVEVA Process simulation, Python, Esterification, Exothermic reactions

Konkurs za upis druge generacije polaznika na Žan Mone modul "Bezbednost na radu i u tehnološkim procesima u Evropi sledeće generacije - Safety4EU" je u toku i biće otvoren do 07.02.2025. godine.

Univerzitet u Nišu objavljuje konkurs za upis druge generacije polaznika na modul "**Bezbednost na radu i u tehnološkim procesima u Evropi sledeće generacije - Safety4EU**" u školskoj 2024/2025. godini u okviru projekta Žan Mone kao deo ERAZMUS+ programa.

POTREBNA DOKUMENTACIJA ZA PRIJAVU

- Popunjen prijavni formular;
- Fotokopija uverenja o statusu studenta sa prepisom položenih ispita i osvojenim ESPB bodovima ili fotokopija diplome o završenim osnovnim, master ili integrisanim akademskim studijama.

Prijave dostaviti elektronskom poštom na adresu **safety4eu@gmail.com**

Rok za podnošenje prijava je petak, 07.02.2025. godine.

Pravila i uslove konkursa pogledajte ***ovde***

Prijavni formular preuzmite ***ovde***

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Education and Culture Executive Agency (EACEA). Neither the European Union nor EACEA can be held responsible for them.