

Programme of STE2024

Author underlined → presenting author

Thursday 3 October 2024	
8:30	STE2024 Opening (Room B032)
	Session 1 – Learning mechanisms I (Chair: LFM da Silva and AM Ferreira)
	Room B032
8:40	The effects of listening context on the retention and application of information from a podcast (STE24_22) <u>T Metsäkoivu</u> (Aalto University, Finland), T Kauppinen
9:00	What makes students motivated and engaged in online courses? (STE24_21) <u>J Tavaiila</u> (Aalto University, Finland), T Kauppinen
9:20	Continuous learning supporting development of knowledge and competencies in science and educational technology (STE24_36) <u>M Veermans</u> (University of Turku, Finland)
9:40	Exploring factors influencing pre-service teacher's systems thinking at technology and engineering: Empirical evidence from Slovenia (STE24_10) <u>B Kurent</u> (University of Ljubljana, Slovenia), S Avsec
10:00	Cross-curricular deployment of STEM language and communication learning routines (STE24_40) Z El-Naggar, E Skilton, <u>T Chau</u> (Arcadia University, PA, USA), LA Mauger, K Dean, A Macalalag, N Stauch, A Abd El-Aziz, FJ Merlino, H Elserafy, R Abouserie
10:20	Approaching introductory STEM courses through a transdisciplinary lens (STE24_41) <u>LA Mauger</u> (21st Century Partnership for STEM Education, PA, USA), S Vokos, DL Smith, <u>EM Walter</u> (California State University Fresno, CA, USA), A Macalalag, Z El-Naggar, A Abd El-Aziz, FJ Merlino, H Elserafy, R Abouserie
10:40-11:00	COFFEE BREAK (Room under the Auditorium)
	Session 2 – Learning mechanisms II (Chair: AZ Sampaio and A Macalalag)
	Room B032
11:00	Enhancing mechanical engineering education through augmented reality: A case study on mechanism and machine theory (STE24_2) J Puig-Ortiz, L Jordi Nebot, <u>R Pàmies-Vilà</u> (Universitat Politècnica de Catalunya, Spain)
11:20	Teaching industrial data science: A lab module on chemical process digitization (STE24_46) R Machado, H Vendas, R Assis dos Santos, C Barata, HA Matos, <u>PSF Mendes</u> (University of Lisbon, Portugal)
11:40	Interest and engagement in science through junior scientific initiation: Construction of PET bottle rockets in southern Brazil (STE24_5) <u>OR Santos</u> (Federal Technological University of Paraná, Brazil), CM Sitko, MC Batista

12:00	Architectural design education in an age of uncertainties (STE24_6) <u>DCKK Kowaltowski</u> (University of Campinas - UNICAMP, Brazil), N Bernardi, CA Cenci Jr.	
12:20	Interactive MATLAB graphical user interface tool for teaching real applications of image processing: Wideband spectrograms for spectrum sensing (STE24_7) <u>A Rojas</u> (National Institute of Astrophysics, Optics, and Electronics (INAOE), Mexico), G Jovanovic Dolecek	
12:40	A self-determination theory approach to blended learning in engineering mechanics (STE24_37) <u>C Della</u> (University of Glasgow, UK), G Peevers, K Kok, J Shah, OC Ming, JH Choo	
13:00-14:00	LUNCH BREAK (Room under the Auditorium)	
14:00	Workshop 1 – Fostering student conceptual understanding in introductory engineering courses using research-based cooperative-group worksheets (Chair: CH Kautz)	
16:00-16:20	COFFEE BREAK (Room under the Auditorium)	
	Session 3 – Learning mechanisms III (Chair: M Veermans and BA Becker)	
	Room B032	
16:20	Potential of the non-formal space Polo Astronomico Rodolpho Caniato to impact the continued training of elementary school teachers in southern Brazil (STE24_13) <u>CM Sitko</u> (Federal Technological University of Paraná, Brazil), OR Santos, MC Batista	
16:40	Learn from anywhere with augmented reality (AR) (STE24_16) <u>T Rizzi</u> (University of Trento, Italy), T Kauppinen	
17:00	BIM methodology empowered with virtual reality technology: Immersion and interaction (STE24_19) <u>AZ Sampaio</u> (University of Lisbon, Portugal), RS Sarmento, AM Gomes	
17:20	WikiMec: A tool to improve autonomous learning of classical mechanics (STE24_20) A Barjau, E Bosch, D Clos, <u>R Pàmies-Vilà</u> (Universitat Politècnica de Catalunya, Spain)	
17:40	Investigating how biomedical science students understand complexity (STE24_33) <u>ST Anderson</u> (The University of Queensland, Australia), K Colthorpe	
18:00	Inspiring engineering education: Service learning in manufacturing projects for ecological entities (STE24_31) <u>A Fabregat-Sanjuan</u> (Universitat Rovira i Virgili, Spain), A Mayolas, O Balsells, V Ismael-Biosca, F Huera-Huarte, R Pàmies-Vilà	
19:00	Poster session and RECEPTION	
Learning mechanisms		
Poster 1	Designing and implementing a collaborative inquiry-oriented teaching program on food justice issues (STE24_27)	<u>LH Chen</u> (Tamkang University, Taiwan), ZL Peng, HH Weng, CY Lin

Poster 2	Development of an interactive tool to support laboratorial classes in adhesive bonding (STE24_42)	<u>EAS Marques</u> (University of Porto, Portugal), RJC Carbas, A Akhavan-Safar, LFM da Silva
Poster 3	Enhancing teaching in mechanical engineering through video and artificial intelligence: A professor perspective (STE24_24)	<u>MM Kasaei</u> (INEGI, Portugal), A Akhavan-Safar, R Beygi, LFM da Silva
Poster 4	Designing sustainable online communities for higher education (STE24_45)	<u>T Kauppinen</u> (Aalto University, Finland), T Metsäkoivu, T Rizzi, J Tavaiila, J Angouri
Poster 5	Enhancing learning in mechanical engineering through video and artificial intelligence: A student perspective (STE24_3)	<u>A Akhavan-Safar</u> (INEGI, Portugal), MM Kasaei, R Beygi, LFM da Silva
Poster 6	Virtual tools to support the teaching of curricular units in engineering fields (STE24_47)	<u>RJC Carbas</u> (INEGI, Portugal), EAS Marques, FC Sousa1, CSP Borges1, TP Duarte, JAS Almacinha, JJM Machado, LFM da Silva
Poster 7	Evaluation of current teaching and learning practices in engineering education to industry 4.0 (STE24_50)	<u>NI Morar</u> (City University of London, UK), R Roy
Poster 8	Expeditionary learning around Europe (STE24_51)	<u>S Rouvrais</u> (IMT Atlantique, France), A Audunsson, A Barus, S Silalahi
Poster 9	Navigating the intersection: Technology-enabled learning environments and the future of jobs (STE24_53)	<u>TO Bello</u> (Obafemi Awolowo University, Nigeria), OV Animola
Poster 10	Improving visualization skills for isometric drawings using YouTube videos (STE24_54)	<u>PB Nkosi</u> (University of Limpopo, South Africa), NN Diale
Poster 11	Networking for engagement and re-design in STEM teaching (NERDS)!: Exploring outcomes from a faculty teaching camp using applied improvisation and storytelling (STE24_55)	<u>EM Walter</u> (California State University, USA), AJ Ressler, A Mendez
Poster 12	'I have heard the voice of my colleagues and my students': Enhancing STEM pedagogy through collaboration with Kazakhstani teacher educators (STE24_57)	<u>O Nuta</u> (Nazarbayev University, Kazakhstan), <u>A Yembergenova</u> (Nazarbayev University, Kazakhstan), K Malone, B Goodman, A Azhigaliyeva, A Amrenova
Diversity and inclusiveness		
Poster 13	Engineering technology students' intercultural and human-centered design competency impact: Short-term South American study abroad (STE24_15)	<u>RD Webster</u> (Purdue University, USA), JM Ramos
Poster 14	Beyond the doctorate: Is engineering career progression gender bias? (STE24_18)	<u>CMC Ferreira</u> (INEGI, Portugal), M Ribas, BD Simões, EAS Marques, RJC Carbas, LFM da Silva

Poster 15	Developing university STEM programs using culturally relevant socio-scientific issues (STE24_39)	<u>LA Mauger</u> (21st Century Partnership for STEM Education, Wayne PA, USA), S Vokos, DL Smith, EM Walter, <u>A Macalalag</u> (Arcadia University, PA, USA), Z El-Naggar, A Abd El-Aziz, FJ Merlino, H Elserafy, R Abouserie
Poster 16	Integrating and engaging students in the first year of Mechanical Engineering at FEUP (STE24_56)	<u>CFM Guedes</u> (University of Porto, Portugal), T Duarte, A de Jesus
Assessment		
Poster 17	Evaluating the effectiveness of adaptive testing in a power engineering technology course (STE24_4)	MJ Turner, <u>RD Webster</u> (Purdue University, USA)
Poster 18	What is this green thing? Determining the psychometric properties of a test related to the concept of "plant blindness" (STE24_23)	R Adamkova, <u>M Kubiato</u> (JE Purkyne University, Czech Republic)
Poster 19	Assessing scientific publication indices of Mechanical Engineering faculties in Portugal (STE24_25)	<u>VCMB Rodrigues</u> (INEGI, Portugal), AM Lopes, LFM da Silva
Poster 20	The invariant nature of students' grades in engineering programmes (STE24_52)	<u>JP Pêgo</u> (University Porto, Portugal), A Freitas

Friday 4 October 2024	
	Session 4 – Learning mechanisms IV (Chair: C Della and P Shekhar)
	Room B032
8:40	Engineering technology students' demonstration of iterative product design without a design process diagram (STE24_11) MJ Turner, RD Webster (Purdue University, USA)
9:00	Enhancing conceptual comprehension of electrical quantities through the Blinker visualization tool (STE24_14) D Rihtaršič (University of Ljubljana, Slovenia), M Lavrič, K Susman
9:20	Energy teaching and the Joule experiment (STE24_44) R Lopes Coelho (University of Lisbon, Portugal)
9:40	Improvement of teaching for digital signal processing course (STE24_26) C Aviles-Cruz (Autonomous Metropolitan University, Mexico), A Zúñiga-López, C Benavidez-Alvares, A Ferreyra-Ramírez
10:00	A preliminary study on customizing education and training of modern manufacturing technologies for diverse learner profiles and organizational demands (STE24_28) A Huusko (University of Turku, Finland), H Piili, M Veermans
10:20	Developing an online course for educators in disciplines outside computing on how computing will affect their disciplines (STE24_30) BA Becker (University College Dublin, Ireland)
10:40-11:00	COFFEE BREAK (Room under the Auditorium)
	Session 5 – Diversity and inclusiveness (Chair: S Avsec and AM Lopes)
	Room B032
11:00	Integrating systems and design thinking for enhanced engagement in sustainable and inclusive design (STE24_8) S Avsec (University of Ljubljana, Slovenia), M Jagiełło-Kowalczyk, A Żabicka, A Gawlak, J Gil-Mastalerczyk
11:20	Empowering women in STEAM: Promoting equality with "Associação Beatriz Ângelo" (STE24_9) BD Simões (INEGI, Portugal), C Freire, H Lopes, S Diogo, A Branco, D Costa, R Zimmerler, P Soares, P Tamagnini, R Gaio, LFM da Silva
11:40	Advancing equity and inclusivity in STEM mentorship: Leveraging co teaching and universal design for learning (STE24_12) N Stauch (California Polytechnic State University, USA), K Dean (Arcadia University, PA, USA), K Payne
12:00	Developing student agency through authentic application of socio-scientific issues in STEM classrooms (STE24_17) B Mathers (Arcadia University, PA, USA), J Johnson (Mercyhurst University, Erie, Pennsylvania, USA)
12:20	Fostering diversity and inclusiveness in science and technology education: A culturally responsive approach at Dessalines S.T.E.A.M Academy (STE24_32) R Philippeaux (Dessalines S.T.E.A.M Academy, Massachusetts, USA), T-A Williams
12:40	Exploring factors related to engineering students' enrollment in entrepreneurship courses (STE24_29) P Shekhar (New Jersey Institute of Technology, USA), CF Rodriguez-Hernandez
13:00-14:00	LUNCH BREAK (Room under the Auditorium)

	Room B032
14:00	Workshop 2 – New strategies for teaching current topics using cybersecurity and AI as use case studies (Chair: C Toregas and D Zeichick)
16:00-16:20	COFFEE BREAK (Room under the Auditorium)
	Session 6 – Assessment (Chair: LFM da Silva and AM Ferreira)
	Room B032
16:20	Socioscientific Issues: Teachers’ perspectives on the successes and challenges of grades 6-12 students in social justice STEM education (STE24_1) <u>AZ Macalala</u> (Arcadia University, Pennsylvania, USA), A Kaufmann, A Ricketts
16:40	University outreach as part of the engineering curriculum: Challenges and opportunities at the University of São Paulo, Brazil (STE24_48) <u>AN Rodrigues da Silva</u> (University of São Paulo, Brazil), L Montanari
17:00	Pre-service teachers’ prevalent misconceptions in electrical technology (STE24_34) <u>A Mutsvangwa</u> (North-West University, South Africa), S Mlambo
17:20	Implementing G-STEAM education in schools: In-service teacher perspectives, challenges and curricular impacts (STE24_35) <u>S Rantanen</u> (University of Turku, Finland), X Huang, M Veermans
17:40	Transfer of learning through authentic assessments in mechanics of solids (STE24_38) <u>A Tan</u> (Singapore Institute of Technology, Singapore), C Della, JB Jasin, LHI Lim, CM Ong, V Wang, A Molina-Cristobal
18:00	Advantages of implementing an active interdisciplinary final exam for mechanical engineering bachelor's degree candidates (STE24_43) <u>D Persano Adorno</u> (Università di Palermo, Italy), Ni Pizzolato
20:00	STE 2024 BANQUET (Porto Caves)