STE2026
5th International Conference on Science and Technology Education
1-2 October 2026 · FEUP, Porto - Portugal

Programme of STE2026

Author underlined → presenting author

Thursday 1 October 2026		
8:30	**STE2026 Opening (Room B032)**	
	Session 1A – Learning mechanisms I (Chair: C Toregas and T Kauppinen)	**Session 1B – Mechanical engineering education (Chair: LFM da Silva and AM Ferreira)**
	Room B032	**Sala de Atos**
8:40	Technology teachers' understanding of educational technologies for creative lesson delivery: Results from pre- and post-training analysis **(STE26_3)** PB Nkosi (University of Limpopo, South Africa)	Teaching advanced joining processes through interactive digital laboratory tools **(STE26_16)** EAS Marques (University of Porto, Portugal), RJC Carbas, VCMB Rodrigues, LFM da Silva
9:00	Systems thinking and product assessment: A DSRP-based study of students' artefacts in design, technology and engineering education **(STE26_7)** B Kurent (University of Ljubljana, Slovenia), S Avsec	Accessible virtual reality tool for mechanical engineering education **(STE26_55)** J Puig-Ortiz (Universitat Politècnica de Catalunya, Spain), L Jordi Nebot, R Pàmies-Vilà
9:20	Evaluation of a new engineering teaching approach through a quasi-experimental study and student perceptions **(STE26_13)** MCBV Soares (University of Porto, Portugal), BD Simões, AM Lopes, LFM da Silva	How generative AI is revolutionizing CNC machining education: Teachers' uses of generative AI and acceptance of CNC technology in Slovenian K–12 schools **(STE26_20)** S Avsec, J Jerina, D Rupnik (University of Ljubljana, Slovenia)
9:40	Apollo Vs Artimus mission control: Technology, CCATS, and UNIVAC 494 systems **(STE26_34)** S Miller (Eastern New Mexico University – Ruidoso, USA)	Assessing augmented reality as a learning tool in engineering laboratory practice: Effects on student performance and perception **(STE26_32)** S Llorca-Algarra, MA Ramos-Fernandez, D Gómez-Barquero, O Murcia-Chaparro, L Montuori, M Cañada-Soriano, B Llopis-Mengual, B Velázquez-Martí, R Royo, G Vilariño-Feltrer (Universitat Politècnica de València, Spain), M Sancho, A Ortiz Bas

10:00	A BIM-based computational design tool for teaching parametric urban design and optimization in construction engineering **(STE26_23)** B Abdelshahid (American University in Cairo, Egypt), K Nassar	Design and pilot evaluation of a hybrid AI model for machine elements education **(STE26_26)** R Gabrovšek (University of Ljubljana, Slovenia), S Avsec, D Rihtaršič
10:20	How should buildings of architecture schools be designed to function as a teaching tool? **(STE26_28)** DCCK Kowaltowski (University of Campinas -UNICAMP, Brazil), CHB Pereira, VG da Silva, DC Moreira	Traditional, Video-based, or AI-assisted learning? A comparative study in engineering education **(STE26_19)** MM Kasaei (INEGI, Portugal), A Akhavan-Safar, EAS Marques, MCBV Soares, RJC Carbas, LFM da Silva
10:40-11:00	**COFFEE BREAK (Room under the Auditorium)**	
	Session 2A – Learning mechanisms II (Chair: S Avsec and A Macalalag)	**Session 2B – Engineering education (Chair: D Persano Adorno and C Della)**
	Room B032	**Sala de Atos**
11:00	What ten years of data about a cyber competition reveal about workforce development **(STE26_31)** D Zeichick (California State University, CA, USA)	Project-based learning in an undergraduate manufacturing engineering course **(STE26_48)** JPG Magrinho (University of Lisbon, Portugal), MB Silva
11:20	Assessing the impact of technology exposure on educational outcomes: A structural equation modelling **(STE26_33)** HR Ghulami (University of Bologa, Italy), S Capacci, A Montanari	International project-based learning in engineering: The Unite! manufacturing project as a model for cross-institutional collaboration **(STE26_49)** R Jerez-Mesa (Universitat Politècnica de Catalunya, Spain), JPG Magrinho, P Schumann, JA Travieso-Rodriguez, P Groche, MB Silva
11:40	Didactic model of high-tech applications in education **(STE26_36)** B Urankar (University of Ljubljana, Slovenia), D Rihtaršič, M Čepič	Beyond equations: Engaging future engineers through active learning pathways in electromagnetism **(STE26_50)** D Persano Adorno (Università di Palermo, Italy), N Pizzolato
12:00	Beyond memorization: Cultivating creative thinking in introductory biology **(STE26_40)** LA Mauger (Delaware Valley University, PA, USA)	Enhancing student engagement in engineering programming modules using technology-enhanced learning tools **(STE26_51)** Y Kim (University of Glasgow, UK), C Della
12:20	Cognitive and motivational effects of optional scaffolds in phylogenetic tree reading **(STE26_41)** J Großschedl (University of Cologne, Germany), N Großmann, R Gutowski	Blended learning and student engagement in engineering mechanics: A self-determination theory perspective **(STE26_52)** C Della (University of Glasgow, UK), K Kok, J Shah

12:40	Apprenticeship as pedagogy: Rethinking how technical knowledge is learned, with cybersecurity as a case study **(STE26_42)** T Coulson (California State University, USA), A Hysell	AI-supported micro-scaffolding in experiential robotics education: A classroom-based study **(STE26_37)** A Rihtaršič (University of Ljubljana, Slovenia), R Gabrovšek
13:00-14:00	**LUNCH BREAK (Room under the Auditorium)**	
	Special session - How to teach with AI? (Chair: LFM da Silva and AM Ferreira)	
	Room B032	
14:00	Theory-grounded opportunities for AI support in science education **(STE26_1)** CP Rosé (Carnegie Mellon University, USA)	
14:40	Teaching in the age of AI: Strategic challenges for higher education **(STE26_4)** AM Camanho (University of Porto, Portugal)	
15:20	Empowering competence: Case studies on AI-enhanced learning without compromising student mastery **(STE26_2)** IT Sanusi (University of Eastern Finland, Finland)	
16:00-16:20	**COFFEE BREAK (Room under the Auditorium)**	
16:20	**Debate / Question time on 'How to teach with AI' (Chair: Costis Toregas and Nigel A Jones)** Carolyn Penstein Rose (Carnegie Mellon University, USA) Ismaila Temitayo Sanusi (University of Eastern Finland, Finland) Ana Maria Camanho (University of Porto, Portugal) Beatriz Simões (University of Porto, Portugal) Ana Rita Serra (Education Lead at Microsoft Portugal, Portuagl)	
	Room B032	
18:30	**Poster session and RECEPTION (Room under the Auditorium)**	
Learning mechanisms		
Poster 1	A manga book for adhesive bonding education: development and planned evaluation **(STE26_12)**	MCBV Soares (University of Porto, Portugal), BD Simões, CMC Ferreira, VCMB Rodrigues, EAS Marques, RJC Carbas, LFM da Silva
Poster 2	Teaching differential equations through system dynamics: First-order, second-order, and partial differential equation applications in AnyLogic **(STE26_30)**	K Nassar (The American University in Cairo, Egypt), M Hagag
Poster 3	Immersive STEM learning through augmented reality: Insights from the BioS4You AR 2.0 project **(STE26_53)**	D Persano Adorno (University of Palermo, Italy), T Mallahnia, V Koch, A-L Antsma, S Konstanti, N Pizzolato
Mechanical engineering education		
Poster 4	A video-guided web platform for specimen preparation in postgraduate mechanical engineering education **(STE26_19)**	RJC Carbas (University of Porto, Portugal), EAS Marques, LFM da Silva

Poster 5	A modular virtual learning environment for interactive engineering education: design and implementation of a multi-system platform **(STE26_57)**	M Matin (INEGI, Portugal), RJC Carbas, EAS Marques, MM Kasaei, A Akhavan-Safar, LFM da Silva
Diversity and inclusiveness		
Poster 6	From content to civic action? Examining the impact of SSI workshops on Brazilian science teachers **(STE26_6)**	AZ Macalalag (Arcadia University, PA, USA), AL de Oliveira, ALR Lima, MDA Aguilera
Assessment		
Poster 7	A chain-based approach to automated evaluation of argumentative writing **(STE26_22)**	N Takahashi, J Oyler, M Flammia, A Sykes, A Reznitskaya (Montclair State University, New Jersey, USA), E Chukharev
AI in teaching		
Poster 8	Measuring synergy in human–AI collaboration **(STE26_45)**	L Chenyu, T Kauppinen (Aalto University, Finland)
Poster 9	Universal design and artificial intelligence as a creative symbiosis to teach architectural design **(STE26_59)**	CAC Junior (UNICAMP, Brazil), N Bernardi, DCCK Kowaltowski
Poster 10	Controlled by the AI platform: How physical and digital workspaces shape worker autonomy and the implications for higher education **(STE26_61)**	TO Mavhunga (University of the Witwatersrand, South Africa)

Friday 2 October 2026	
	Session 3 – AI in teaching I (Chair: R Lopes Coelho and P Shekhar)
	Room B032
8:40	Integrating generative artificial intelligence into planar mechanism simulation for engineering education **(STE26_5)** M Mulero-Gironella, L Jordi Nebot, J Puig-Ortiz, R Pàmies-Vilà (Universitat Politècnica de Catalunya, Spain)
9:00	From users to creators: Fostering AI literacy through experiential learning with embedded AI **(STE26_8)** R Gabrovšek (University of Ljubljana, Slovenia), D Rihtaršič
9:20	Financial literacy in digital and AI-supported education: A PRISMA systematic review **(STE26_10)** N Drnovšek (University of Ljubljana, Slovenia), S Avsec, F Lovšin Kozina
9:40	District transformation through science teacher leadership **(STE26_14)** A Eisenkraft (University of Massachusetts Boston, USA)
10:00	AI agent research companion **(STE26_43)** T Kauppinen (Aalto University, Finland), M Zechner, I Tittonen, K Laszczyk, T Watanabe, W Chuda, F Narita, H Kurita, L Rova, Y Jia
10:20	Artificial intelligence in primary STEAM education: A scoping review of STEAM pedagogies and teacher roles **(STE26_38)** S Rantanen (University of Turku, Finland), M Veermans
10:40-11:00	**COFFEE BREAK (Room under the Auditorium)**
	Session 4 – AI in teaching II (Chair: D Zeichick and JP Pêgo)
	Room B032
11:00	A topic modelling approach for uncovering research themes in artificial intelligence applications for engineering and sciences education **(STE26_24)** K Abdelhady, M Haggag (The American University in Cairo, Egypt)
11:20	AI-generated microlearning podcasts in civil engineering: a two-cohort pilot **(STE26_25)** A González (University College Dublin, Ireland)
11:40	Multi-agent generative AI for self-directed learning **(STE26_44)** Y Xiao, T Kauppinen, A Prata (University of Lisbon, Portugal)
12:00	Developing a python-focused AI coding agent for numerical methods and machine learning education in engineering programs **(STE26_29)** K Nassar (The American University in Cairo, Egypt), M Hagag
12:20	AI, education, and understanding physics **(STE26_34)** R Lopes Coelho (University of Lisbon, Portugal)
12:40	Transitioning to AI-powered science teacher education: What counts for securing epistemic access? **(STE26_60)** E Mavhunga (University of University of the Witwatersrand, South Africa)
13:00-14:00	**LUNCH BREAK (Room under the Auditorium)**
	Session 5 – Diversity and inclusiveness (Chair: BD Simões and LA Mauger)
	Room B032
14:00	Learning, exchange and co-creation in an international community of educational practice **(STE26_46)** C Toregas (The George Washington University, USA), N Jones (King's College London, UK)

14:20	Self-selection in entrepreneurship education courses: An examination of engineering students' enrollment data **(STE26_27)** P Shekhar (New Jersey Institute of Technology, USA), A Bhatnagar, VR Gazula
14:40	Beyond the doctorate: is engineering career progression gender bias? **(STE26_9)** CMC Ferreira (INEGI, Portugal), M Ribas, BD Simões, EAS Marques, RJC Carbas, LFM da Silva
15:00	Inclusive by design: Universal design for learning as a framework for expanding access for all learners in science and technology education **(STE26_54)** KD Dean (Arcadia University, PA, USA)
15:20	Visual narratives for development of steam identity before stereotypes set in young children **(STE26_15)** BD Simões (INEGI, Portugal), LFM da Silva
15:40	TAMAGO: designing an interactive, unplugged experience based on embodied learning to support computational thinking education in early childhood **(STE26_56)** S Abreu (Universidade da Madeira, Portugal), M Barreto
16:00-16:20	**COFFEE BREAK (Room under the Auditorium)**
	Session 6 – Assessment (Chair: LFM da Silva and AM Ferreira)
	Room B032
16:20	Peer observation and communities of practice as institutional strategies for faculty development in science and technology education **(STE26_47)** JP Pêgo (University of Porto, Portugal), AS Conde
16:40	Preparing teachers to facilitate argumentation through theory-driven simulation **(STE26_21)** A Reznitskaya (Montclair State University, New Jersey, USA), A Sykes, J Oyler, M Flammia, E Chukharev
17:00	Integrating technology and education readiness to support user story mapping–based training design **(STE26_39)** A Huusko (University of Turku, Finland), H Piili
17:20	Scientific publication indices at FEUP and mechanical engineering departments in Portugal **(STE26_11)** VCMB Rodrigues (INEGI, Portugal), AM Lopes, LFM da Silva
17:40	Mentoring as a tool for inclusion and belonging in engineering education: The FEUP experience **(STE26_58)** J Bispo (University of Porto, Portugal), B Lima, J Peres, IM Ribeiro, MMSM Bastos, TMGP Duarte
18:00	The future of engineering pedagogy: Traditional vs. AI learning **(STE26_17)** A Akhavan-Safar (INEGI, Portugal), MM Kasaei, EAS Marques, VCMB Rodrigues, RJC Carbas, LFM da Silva
20:00	**STE 2026 BANQUET (Porto Caves Calém)**