Programme

STE 2020
1st International Conference on Science and Technology Education

Porto – Portugal
15-16 October 2020
## PROGRAMME OF STE2020

Author underlined → presenting author

### Thursday 15 October 2020

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<tr>
<th>Time</th>
<th>Session</th>
<th>Chair(s)</th>
<th>Presenting Author(s)</th>
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<tr>
<td>8:40</td>
<td>STE2020 Opening (Room B032)</td>
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<tr>
<td>8:40</td>
<td><strong>Session 1 – Epistemologies</strong></td>
<td>(Chair: LFM da Silva and A Coelho)</td>
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<td><strong>Room B032</strong></td>
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<tr>
<td>9:00</td>
<td>Remarks on 40+ years of mechanical engineering teaching (STE20_29)</td>
<td>PMST de Castro (University of Porto, Portugal)</td>
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<td>9:40</td>
<td>Relationship between interest, motivation, and achievements in science (STE20_24)</td>
<td>C Wang (University of Macau, China), T Cui (University of Macau, China), J Liu</td>
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<td>10:00</td>
<td>The teaching of Engineering, a 50 year perspective (STE20_20)</td>
<td>RD Adams (University of Oxford, UK)</td>
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<td>10:20</td>
<td>Serendipitous Campus (STE20_38)</td>
<td>A Coelho (University of Porto, Portugal), T Rocha, L Merz, A Haberman-Lawson, C Keane-Davies</td>
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<td>10:40-11:00</td>
<td><strong>COFFEE BREAK (Room under the Auditorium)</strong></td>
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<td></td>
<td><strong>Session 2 – Learning mechanisms I</strong></td>
<td>(Chair: AZ Sampaio and M Noll)</td>
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<td><strong>Room B032</strong></td>
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<td>11:00</td>
<td>Entrepreneurship competencies for managerial and STE (STE20_55)</td>
<td>BE Moscoso (Universidad Central del Ecuador, Ecuador), A Carballosa</td>
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<td>11:20</td>
<td>Virtual and actual combined operation teaching in robot engineering innovation training (STE20_8)</td>
<td>XD Pan (Harbin Institute of Technology, China), H Hua, Y Jiang</td>
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<td>11:40</td>
<td>Introduction of BIM methodology in civil engineering education: Curricular programs adaptation (STE20_12)</td>
<td>AZ Sampaio (University of Lisbon, Portugal)</td>
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<td>12:00</td>
<td>Moodle-enabled virtual lab for fieldbus process control (STE20_14)</td>
<td>V Viegas (CINAV–Escola Naval, Portugal), JM Dias Pereira</td>
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<td>12:20</td>
<td>Advanced Joining Processes Unit: Research oriented on objectives (STE20_15)</td>
<td>EAS Marques (INEGI, Portugal), RJC Carbas, LFM da Silva</td>
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<td>12:40</td>
<td>How are quiz scores related to students’performance in blended-learning? (STE20_53)</td>
<td>M Sacré (Université de Liège, Belgium.), D Lafontaine, M-C Toczek</td>
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<td>13:00-14:00</td>
<td><strong>LUNCH BREAK (Room under the Auditorium)</strong></td>
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<td><strong>Session 3 – Learning mechanisms II</strong></td>
<td>(Chair: PMST de Castro and GJ Dolecek)</td>
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<td><strong>Room B032</strong></td>
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<td>14:00</td>
<td>Impact of COVID-19 on the Integrated Master in Mechanical Engineering of FEUP (STE20_21)</td>
<td>J Soares, JM Paiva, M Cruz, T Rocha (University of Porto, Portugal), LFM da Silva</td>
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14:20 Virtual education in times of COVID-19: An opportunity for entrepreneurship education for engineering majors in Latin America (STE20_54)
BE Moscoso, A Carballosa, MA Guerra (University of Cienfuegos Carlos Rafael Rodriguez, Cuba)

14:40 Teaching random variables: Demo program for product of m independent uniform variables (STE20_22)
GJ Dolecek (National Institute INAOE, Mexico)

15:00 Epistemology of energy for engineering students (STE20_34)
SM Lord (University of San Diego, USA), JA Mejia, GD Hoople, DA Chen

15:20 Inquiry-based environments for signal processing training in bio-engineering education (STE20_39)
D Persano Adorno (University of Palermo, Italy)

15:40 The global context of entrepreneurship to strengthen the training of entrepreneurial engineers in atin America – Case Ecuador (STE20_56)
BE Moscoso, SS Izurieta, A Carballosa, MA Guerra (University of Cienfuegos Carlos Rafael Rodriguez, Cuba)

16:00-16:20 COFFEE BREAK (Room under the Auditorium)

16:20 Professional courses requested by the construction industry: BIM concept and practice (STE20_13)
AZ Sampaio (University of Lisbon, Portugal)

16:40 Inclusive education strategies: Teaching human anatomy to students with intellectual disabilities (STE20_10)
CR Mendonça, M Noll (Instituto Federal Goiano, Brazil), EA Silveira, NN Guimarães, PC Moreira

17:00 Fiber reinforced polymer composite skateboards – design, fabrication and experimental investigation (STE20_44)
NF Montanarella (EPFL, Switzerland), A Vassilopoulos

17:20 Assessing the impact of laboratorial activities on core curricular units of the Integrated Master in Mechanical Engineering (MIEM) at FEUP (STE20_27)
AM Lopes (University of Porto, Portugal), LFM da Silva, J Seabra

17:40 Similarities, differences and origin to connect entrepreneurial, managerial and engineering education (STE20_57)
BE Moscoso (Universidad Central del Ecuador, Ecuador), A Carballosa

18:00 Teaching and learning factories for empowering people in added-value manufacturing systems and technologies (STE20_58)
M Machado (INEGI, Portugal), C Santos, A Simões, A Almeida, R Pinto, G Gonçalves

19:00 Poster session and RECEPTION

Learning mechanisms

Poster 1 Nanotechnology learning: A lab activity study of a thin film module (STE20_7)
MIJ Jean (Fujian University of Technology, China), CW Liu, QD Chen, MT Sheen

Poster 2 The experience of anatomic dissection of the abdominal wall and learning in human anatomy (STE20_11)
CR Mendonça, M Noll (Instituto Federal Goiano, Brazil), NN Guimarães, ACML Moreira, SOL Moreira, JT Arruda, PC Moreira

Poster 3 A chat about sedentarism in adolescence: An educational practice (STE20_60)
RMF Silva, CM Felício, JC Ferreira, M Noll (Instituto Federal Goiano, Brazil)

Poster 4 The association between immersion experiences and visual attention distributions in a learning game context (STE20_50)
M-T Cheng (National Changhua University of Education, Taiwan), YY Teng, W-C Chou

Learning systems

Poster 5 European Adhesive Bonder - A targeted training for Portuguese professionals harmonized with European directives (STE20_5)
AQ Barbosa (INEGI, Portugal), LFM da Silva, A Loureiro, EAS Marques, RIC Carbas, S de Barros

Poster 6 Advanced Joining Processes Unit: A fully independent research group (STE20_25)
RIC Carbas (INEGI, Portugal), EAS Marques, LFM da Silva

Diversity and inclusiveness

Poster 7 Correlating entrance data and first year academic performance of students enrolled in the Integrated Master in Mechanical Engineering (MIEM) at FEUP (STE20_36)
TMGP Duarte (University of Porto, Portugal), AM Lopes, LFM da Silva
### Session 5 – Learning systems
(Chair: X Pan and AQ Barbosa)

**Room B032**

**9:00**
AdTech project - European harmonized training system focus on adhesive bonding technologies *(STE20_4)*

AQ Barbosa (INEGI, Portugal), A Loureiro, LFM da Silva, A Almeida, T Rosado, A Casero, E Meiβ, H Balaska, M Uran, R Almeida

**9:20**
Reformulation of the Integrated Master in Mechanical Engineering (MIEM) at FEUP in two cycles of study (Bachelor and Master) *(STE20_18)*

LFM da Silva (University of Porto, Portugal), AM Lopes, J Seabra

**9:40**
Grasp the challenge of digital transformation in SMEs - A training course geared towards decision-makers *(STE20_48)*

A Azevedo (INESC TEC, Portugal), A Almeida

**10:00**
FEUP Mentoring: Promoting integration through support and experience sharing *(STE20_37)*

IM Ribeiro (University of Porto, Portugal), TP Duarte, MMSM Bastos, AA Sousa

**10:20**
Reformulation challenge for Projeto FEUP: doing better with less! *(STE20_40)*

M Torres (University of Porto, Portugal), S Ferreira

10:40-11:00 **COFFEE BREAK (Room under the Auditorium)**

### Session 6 – Diversity and inclusiveness I
(Chair: JL Jensen and AM Ferreira)

**Room B032**

**11:00**
Religious audiences and evolution: A road to reconciliation *(STE20_2)*

SM Bybee, AM Corero, DG Ferguson, M Mann, JL Jensen (Brigham Young University, USA)

**11:20**
Who are the students of scientific initiation in the Brazilian federal institutes? *(STE20_9)*

T Galvão, AF Mmelo, M Noll (Federal Institute of Education, Science and Technology of Goiás, Brazil)

**11:40**
Pilot experience for raising awareness of computer engineering students about the diversity lack in the technological sector *(STE20_52)*

A Garcia-Holgado, A Vázquez-Ingelmo, FJ García-Peñalvo (University of Salamanca, Spain), CS González-González

**12:00**
Suubi (Hope) for STEM: The potential of strengthening STEM education in Uganda *(STE20_21)*

R Kasumba (International Center for Child Health and Development, Uganda), J Muwanga, P Nabunya, V May, R Rugirrello, PA Laker, FM Ssewamala

**12:20**
Increasing of Brazilian students at FEUP: causes and educational challenges *(STE20_35)*

MQ dos Reis (INEGI, Portugal), TMGP Duarte, LFM da Silva

13:00-14:00 **LUNCH BREAK (Room under the Auditorium)**

### Session 7 – Diversity and inclusiveness II
(Chair: CF Castro and A Lindell)

**Room B032**

**14:00**
COVID-19 offers a case study in global crisis management: How will we pivot to the future and address the climate emergency? *(STE20_59)*

WC Kyle, Jr (University of Missouri, USA)

**14:20**
Sustainable development goals as a premise of student teachers’ STEAM learning project *(STE20_31)*

A Lindell (University of Jyväskylä, Finland), K Fenyvesi

**14:40**
Diversity in Canadian, Brazilian and Portuguese science and technology textbooks *(STE20_43)*

T Zanon (Concordia University Montreal, Canada), T Tajmel

**15:00**
International student mobility: An empirical study based on FEUP mechanical engineering data *(STE20_26)*

CF Castro (University of Porto, Portugal), MR Barbosa

**15:20**
Comparison of 1st year student conceptions of their future roles as engineers between Belgium, Ireland and the Netherlands *(STE20_47)*

GN Saunders-Smith (Delft University of Technology, The Netherlands), S Craps, D Carthy, G Langie

16:00-16:20 **COFFEE BREAK (Room under the Auditorium)**
### Session 8 – Assessment

*(Chair: EAS Marques and GN Saunders-Smits)*

**Room B032**

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<th>Time</th>
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<tr>
<td>16:20</td>
<td>Developing a research topic based on a systematic review by bibliometrics indexes <em>(STE20_3)</em></td>
<td>AR Souza (University of Porto, Portugal), ASMSG Teixeira, NMM Ramos</td>
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<td>16:40</td>
<td>The effectiveness of a simple tool to practice communication skills: A case study across five European Engineering Universities <em>(STE20_32)</em></td>
<td>M Leandro Cruz (Delft University of Technology, The Netherlands), S Sá, D Mesquita, RM Lima, GN Saunders-Smits</td>
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<td>17:00</td>
<td>Affordances of 3D VR technologies in teaching science to neurodivergent learners: A case study of five middle grade students with ADD/ADHD <em>(STE20_41)</em></td>
<td>RL Hite (Texas Tech University, USA), GM Childers (Texas Tech University, USA), MG Jones</td>
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<td>17:20</td>
<td>Simulation and plotting are fully mediated by prediction making to promote conceptual gain in high school chemistry <em>(STE20_46)</em></td>
<td>C Chen (Harvard University, USA), G Sonnert, P Sadler, S Sunbury</td>
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<td>17:40</td>
<td>Evolution of a civil engineering course unit’s assessment: from old-fashioned to XXI century digital <em>(STE20_51)</em></td>
<td>JP Pêgo (University Porto, Portugal), A Freitas</td>
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<td>20:00</td>
<td><strong>STE 2020 BANQUET (Porto caves)</strong></td>
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