Contents

Collaborative Learning

Scratch as Educational Tool to Introduce Robotics .......................... 3
Pedro Plaza, Elio Sancristobal, German Carro, Manuel Castro,
Manuel Blázquez, Javier Muñoz, and Mónica Álvarez

Design and Set-up of an Automated Lecture Recording
System in Medical Education .................................................. 15
Herwig Rehatschek

Collaborative Learning Advancing International Students .............. 21
Ana Virtudes, Ilda Inacio Rodrigues, and Victor Cavaleiro

Collaborative Learning of DC Transients in Series Circuit
with MATLAB as a Learning Aid .............................................. 29
Gargi Basu and Urmila Kar

The Practical Experiences with Educational Software
for Modelling Interactive Collaborative Teaching ....................... 41
Stefan Svetsky, Oliver Moravcik, Pavol Tanuska,
and Iveta Markechova

Exploring Student Interest of Online Peer Assisted Learning
Using Mixed-Reality Technology ............................................. 48
Sasha Nikolic and Benjamin Nicholls

Monitoring the Knowledge Building Process in a CSCL
Environment: A Case Study from Turkey .................................. 55
Gülgün Afacan Adamır

Improving Online Interaction Among Blended Distance Learners
at Makerere University ......................................................... 63
Harriet M. Nabushawo, Paul B. Muyinda, Ghislain M. N. Isabwe,
Andreas Prinz, and Godfrey Mayende
A Technological Proposal Using Virtual Worlds to Support Entrepreneurship Education for Primary School Children .......... 70
Angela Pereira, Paulo Martins, Leonel Morgado, Benjamim Fonseca, and Micaela Esteves

Social Life in Virtual Universities .......................................................... 78
Jozef Hvorecký and Monika Dávideková

Evaluating Collaborative Learning Using Community of Inquiry Framework for a Blended Learning Formal Methods Course .......... 86
Saad Zafar, Naurin Farooq Khan, and Seema Hussain

The “Architectural Jewels of Lublin” Game as a Tool for Collaborative Interactive Learning of History ......................... 96
Marek Milosz and Jerzy Montusiewicz

Acquiring the History of the City with Collaborative Game Based Learning ................................................................. 106
Dariusz Czerwinski, Marek Milosz, Patryk Karczmarczyk, Mateusz Kutera, and Marcin Najda

Engineering Pedagogy

Work-in-Progress: Lean Education/Lean Innovation .......................... 119
Andrei Neagu, Doru Ursutiu, and Cornel Samoila

Using PBL and Rapid Prototyping Resources to Improve Learning Process .......................................................... 124
Jovani Castelan and Rosemere Damasio Bard

Influence of Study Skills on the Dropout Rate of Universities: Results from a Literature Study ........................................ 133
Nilüfer Deniz Bas, Robert Heininger, Matthias C. Utesch, and Helmut Krcmar

Electrical Engineering Students’ Achievement in Measurement Accuracy of Digitized Signals – Work in Progress .................. 145
Nissim Sabag and Elena Trotskovsky

How Does Indirect Feedback Affect the Attitude in Higher Software Engineering Education? .......................... 149
Martina Kuhn

“We Don’t Want to Know Their Names!” ............................................. 157
Evgenia Sikorski, Cristina Urbina, Michael Canz, and Evelyn Großhans
Internet of Vehicles Demo System for Autonomous Driving
Applications Used in Engineering Education .......................... 169
Gerald Kalteis, Gabriele Schachinger, Bernhard Miksovsky,
Martin Potocnik, and Rezek Michael

New Concept of Learning Mathematics .............................. 176
Anil Baburao Satpute

How to Bring a Graduate Program Closer to Employers’ Needs? .......................... 183
Laurent Veillard, Stéphanie Tralongo, Catherine Galli,
Abdelaziz Bouras, and Michel Le Nir

A Constructivist Approach to the use of Case Studies in teaching Engineering Ethics ........................................ 193
Diana Adela Martin, Edward Conlon, and Brian Bowe

Measuring the Increase in Students’ Comprehension in a Flipped Introductory Calculus Course ............................... 202
Rahmad Dawood, Mohd. Syaryadhi, Muhammad Irhamsyah,
and Roslidar

Training Using Professional Simulators in Engineering Education:
A Solution and a Case Study ........................................ 208
Dorin Isoc

Engineering Students’ Solutions to Accuracy Problems in Analog Electronics Course ........................................ 218
Elena Trotskovsky and Nissim Sabag

The Necessity of Competency Development in Engineering Informatics Education in the Light of Students’ Characteristics ........ 224
Zita Tordai and Ildikó Holik

Assessing the Needs of Technical Intelligentsia for Professional Development ........................................ 233
Ekaterina Makarenko, Larisa Petrova, Alexander Solovyev,
and Vjatcheslav Prikhodko

Plagiarism Deterring by Using a Sociocybernetic System .......... 239
Dorin Isoc

Systemic Approach to In-house Training in English for Technical University Staff ........................................ 252
Inga Slesarenko, Irina Zabrodina, and Maria Netesova

Inbound International Faculty Mobility Programs in Russia:
Best Practices ......................................................... 260
Artem Bezrukov, Julia Ziyatdinova, Phillip Sanger, Vasily G. Ivanov,
and Natalia Zoltareva
Effect of an Emotional Video on Skin Conductance Response of Respondents in Dependence on Personality Type .......................... 266
Martin Malcik and Miroslava Miklosikova

Motivation of Adolescents to the Study of Technical Branches as a Priority of the Czech Education System ............................ 275
Pavel Andres, Alena Vališová, Petr Svoboda, and Lenka Mynaříková

Psychology and Pedagogical Maintenance of Formation of Career Competence of Future Engineers ............................... 287
Khatsrinova Olga and Vasily G. Ivanov

Collaborative Project-Based Learning in Training of Engineering Students ...................................................... 293
Gulnara F. Khasanova and Phillip A. Sanger

Work in Progress: Real-Time Annotations of Video-Lectures ...... 299
Marco Ronchetti

The Perception of the One-Semester International Academic Mobility Programme by Students of Computer Science .............. 305
Marek Milosz and Elżbieta Milosz

Mobile Learning Environments and Applications

Influence of the Mobile Digital Resources (MDR) Conceptual Model in Motivation of Disadvantaged Students ........................ 317
Maria José Albert Gómez, Clara Pérez Molina, María García Párez, Isabel Ortega Sánchez, and Manuel Castro

The Math Trail as a Learning Activity Model for M-Learning Enhanced Realistic Mathematics Education: A Case Study in Primary Education .......................................................... 323
Georgios Fessakis, Paschalina Karta, and Konstantinos Kozas

Teachers’ Feedback on the Development of Virtual Speaking Buddy (VirSbud) Application ............................................ 333
Radzuwan Ab Rashid, Saiful Bahri Mohamed, Mohd Fazry A. Rahman, and Syadiah Nor Wan Shamsuddin

Mobile Learning Environments Application M-Tais Timor: A Study of East Timor ......................................................... 339
Hariyanto Santoso, Ofelia Cizela da Costa Tavares, and Suyoto

Mobile Learning Zoo: A Case Study of Indonesia .................... 348
Jourgi Epardi, Oktavianus Teguh Prayitno, and Suyoto

Learning to Read and Identifies the Level of Hearing Disability Early Age Using a Mobile Learning Application ..................... 355
Paulus Haba Lena, Wayan Rupika Jimbara, and Suyoto
Mobile Pocket KalDik: Dynamic and Interactive Academic Calendar ........................................ 363
Amaya Andri Damaini, Ginanjar Setyo Nugroho, and Suyoto

Learning Style and Consciousness Factors in E-Learning System on Information Security ..................................... 371
Kiyoshi Nagata, Yutaka Kigawa, and Tomoko Aoki

Mobile Device or Personal Computer for Online Learning – Students’ Satisfaction in Yemeni Universities ............ 383
Daniela Tuparova, Abdul Rahman Al-Sabri, and Georgi Tuparov

Cryptography Applied to the Internet of Things .................. 390
Javier Sanchez Guerrero, Robert Vaca Alban, Marco Guachimboza, Cristina Páez Quinde, Margarita Narváez Ríos, and Luis Alfredo Jimenez Ruiz

Be Active and Explore ...................................... 399
Magdalena Brzezinska

New Learning Models and Applications

PDM Field Study and Evaluation in Collaborative Engineering Education ........................................................ 407
Andreas Probst, Detlef Gerhard, and Martin Ebner

Soundcool Project: Collaborative Music Creation ................. 416
Elena Robles Mateo, Jaime Serquera, Nuria Lloret Romero, and Jorge Sastre Martínez

The Application of Action Research to Review Modern Techniques in Manufacturing Systems ....................... 421
Sungyoul Lee

Analysis of Behaviors of Participants in Meetings ................. 427
Eiji Watanabe, Takashi Ozeki, and Takeshi Kohama

Educational Effects for University Students Through Multiple-Years Participation in Out-of-Curriculum Project Activities ................................ 439
Makoto Hasegawa

Presentation Skills of Mentor Teachers .......................... 450
Istvan Simonics

A Two-Sided Approach of Applying Software Engineering Perspectives in Higher Education ............................... 460
Rebecca Reuter, Martina Kuhn, and Jürgen Mottok
Peer Review as a Tool for Person-Centered Learning: Computer Science Education at Secondary School Level .......................... 468
Dominik Dolezal, Renate Motschnig, and Robert Pucher

Can Pair Programming Address Multidimensional Issues in Higher Education? ........................................ 479
Marco Klopp, Carolin Gold-Veerkamp, Martina Kuhn, and Joerg Abke

PTD: Player Type Design to Foster Engaging and Playful Learning Experiences ........................................... 487
Johanna Pirker, Christian Gütl, and Johannes Löffler

The Use of New Learning Technologies in Higher Education Classroom: A Case Study ............................. 499
Micaela Esteves, Angela Pereira, Nuno Veiga, Rui Vasco, and Anabela Veiga

Innovation of CAD/CAE System Teaching at Upper Secondary Education ........................................ 507
Peter Kuna, Alena Hašková, Miloš Palaj, Miloslav Skačan, and Ján Záhorc

The Playful Approach to Teaching How to Program: Evidence by a Case Study ........................................ 516
Matthias C. Utesch, Victor Seifert, Loina Prifti, Robert Heininger, and Helmut Krcmar

New Approach to Architectural Design Education ................................................................. 528
Yunus Turan Pekmezci and Taybuğa Aybars Mamalı

An Iterative Approach for Institutional Adoption and Implementation of Flipped Learning: A Case Study of Middle East College ................................................. 534
Dhivya Bino, Kiran Gopakumar Rajalekshmi, Chandrasekhar Ramaiah

Evaluation of Early Introduction to Concurrent Computing Concepts in Primary School .......................... 543
Eleni Fatourou, Nikolaos C. Zygouris, Thanasis Loukopoulos, and Georgios I. Stamoulis

Flipped Classroom Method Combined with Project Based Group Work ................................................. 553
Ilona Béres and Márta Kis

“Let’s Go… Kahooting” – Teachers’ Views on C.R.S. for Teaching Purposes ........................................ 563
Marianthi Batsila and Charilaos Tsishouridis
<table>
<thead>
<tr>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introducing “Kodu” to Implement Cross Curricular Based Scenarios in English for K-12 Learners</td>
<td>572</td>
</tr>
<tr>
<td>Marianthi Batsila, Charilaos Tsihouridis, and Anastasios Tsihouridis</td>
<td></td>
</tr>
<tr>
<td>On Legal Support for Engineering Activities: A New Managerial Project</td>
<td>582</td>
</tr>
<tr>
<td>Svetlana Barabanova, Vasily G. Ivanov, Raushaniya Zinurova, and Maria Suntsova</td>
<td></td>
</tr>
<tr>
<td>ICT Used to Teach Geography to Primary School Children – An Alternative Teaching Approach</td>
<td>592</td>
</tr>
<tr>
<td>Despina M. Garyfallidou and George S. Ioannidis</td>
<td></td>
</tr>
<tr>
<td>Charilaos Tsihouridis, Dennis Vavougios, and George S. Ioannidis</td>
<td></td>
</tr>
<tr>
<td>Concept Proposal for Integrating Awareness of Sustainability Through Student Assignments</td>
<td>613</td>
</tr>
<tr>
<td>Monika Dávideková and Michal Greguš ml.</td>
<td></td>
</tr>
<tr>
<td>Interactive Teaching Methods as Human Factors Management Tool in Dangerous Goods Transport on Roads</td>
<td>619</td>
</tr>
<tr>
<td>Jelizaveta Janno and Ott Koppel</td>
<td></td>
</tr>
<tr>
<td>The IntersTICES-Type Activity (ITA) and Its Impact on Pre-service Teacher Trainers’ e-Learning Culture</td>
<td>629</td>
</tr>
<tr>
<td>Genny Villa</td>
<td></td>
</tr>
<tr>
<td>A Look-Back to Jump Forward: From an Ancient Innovation Culture to the Exploration of Emerging Pedagogies in Engineering</td>
<td>638</td>
</tr>
<tr>
<td>Francisca Barrios, Melanie Cornejo, Brian O’Hara, and Francisco Tarazona-Vasquez</td>
<td></td>
</tr>
<tr>
<td>Student Performance and Learning Experience in MOOCs: The Possibilities of Interactive Activity-Based Online Learning Materials</td>
<td>649</td>
</tr>
<tr>
<td>János Ollé and Žolt Namestovski</td>
<td></td>
</tr>
<tr>
<td>Work in Progress: An Investigation on the Use of SCORM Based Pre-class Activities in the Flipped Classrooms</td>
<td>654</td>
</tr>
<tr>
<td>R. D. Senthilkumar</td>
<td></td>
</tr>
<tr>
<td>Collaborative Learning Supported with Mediawiki Platform in Technical University Environment</td>
<td>660</td>
</tr>
<tr>
<td>Ján Mojžiš, Štefan Balogh, Michal Ásványi, and Ivana Budinská</td>
<td></td>
</tr>
<tr>
<td>Openness of Academic Staff for Educational Innovation in Hungarian HEIs</td>
<td>666</td>
</tr>
<tr>
<td>Maria Kocsis Baan, Edina Espán, and Adrienn Nehézy</td>
<td></td>
</tr>
</tbody>
</table>
A Remote Mode Master Degree Program in Sustainable Energy Engineering: Student Perception and Future Direction .......................... 673
Udalamattha Gamage Kithsiri, Amagaha Pathirage Thaushka Sandaruwan Peiris, Tharanga Wickramarathna, Kumudu Amarawardhana, Ruchira Abeyweera, Nihal N. Senanayake, Jeevan Jayasuriya, and Torsten H. Fransson

An Empirical Study on the Use of Gamification on IT Courses at Higher Education ......................................................... 684
Balázs Barna and Szabina Fodor

Academic-Industry Partnerships

Research Oriented Learning in a Research Association – Evaluated in a Maturity Model ............................................. 695
Kerstin Haas and Jürgen Mottok

Preparing Future Career Ready Professionals: A Portfolio Process to Develop Critical Thinking Using Digital Learning and Teaching .... 702
Jennifer Rowley, Jennifer Munday, and Patsie Polly

A Creative Ecosystem to Improve the Students Adaptation to Current Trends in IT Companies ............................... 708
František Babič and Vladimír Gašpar

Development of the Intelligent System of Engineering Education for Corporate Use in the University and Enterprises ..................... 716
Alexander Afanasyev, Nikolay Voit, Irina Ionova, Maria Ukhanova, and Vyacheslav Yepifanov

Innopolis University, a Center of a Newly-Developed IT Hub in Russia: The Results of Four Years of Academic Operation ........... 728
Tanya Stanko, Oksana Zhirosh, and Petr Grachev

A Design Framework for Interdisciplinary Communities of Practice Towards STEM Learning in 2nd Level Education .................. 739
Kieran Delaney, Michelle O’Keeffe, and Olga Fragou

Adaptive and Intuitive Environments

An Approach for Ontologically Supporting of Space Orientation Teaching of Blind Pupils Using Virtual Sound Reality .................. 753
Dariusz Mikulowski

Implementation of Mobile Testing System for Control of Students’ Educational Outcomes .................................................. 760
Tetiana Bondarenko and Oleksandr Kupriyanov
Cloud Monitoring of Students’ Educational Outcomes on Basis of Use of BYOD Concept ........................................ 766
Denys Kovalenko and Tetiana Bondarenko

A Concept for an Intelligent Tutoring System to Support Individual Learning Paths in Software Development Courses ........ 774
Veronika Thurner, Philipp Chavarroche, Axel Böttcher, and Daniela Zehetmeier

Problems and Educational Responses in the Age of Digital Technologies ......................................................... 784
Anita Gramigna and Giorgio Poletti

Model of M-Learning by Multimedia Content Delivery from mCloud to Mobile Devices ........................................ 795
Danco Davcev, Goran Jakimovski, and Snezana Scepanovic

Assess and Enhancing Attention in Learning Activities ....................... 803
Dalila Durães, Javier Bajo, and Paulo Novais

The General Model of the Cloud-Based Learning and Research Environment of Educational Personnel Training .......... 812
Mariya Shyshkina

Project Based Learning and Real World Experiences

Introducing Project Based Learning into Traditional Russian Engineering Education .................................................. 821
Phillip A. Sanger, Irina V. Pavlova, Farida T. Shageeva, Olga Y. Khatsrinova, and Vasily G. Ivanov

Recoil – Measurement, Simulation and Analysis ................................ 830
Monika Grasser, Mayer Florian, Hanzlovich Christian, Moschner Gerald, and Silke Bergmoser

Topic Oriented Mixed-Method System (TOMMS) .......................... 840
Mathew Docherty and Kurt Gaubinger

Developing Assessment for a Creative Competition ...................... 852
Zsuzsa Pluhár

Modbus Protocol as Gateway Between Different Fieldbus Devices - a Didactic Approach ........................................ 860
Armando Cordeiro, Paulo Costa, Vitor Fernão Pires, and Daniel Foito

Industrial Automation Self-learning Through the Development of Didactic Industrial Processes .............................. 872
Armando Cordeiro, Manuel Abraços, Luís Monteiro, Euclides Andrade, Vitor Fernão Pires, and Daniel Foito
Escargot Nursery – An EPS@ISEP 2017 Project .......................... 884
Lauri Borghuis, Benjamin Calon, John MacLean, Juliette Portefaix,
Ramon Quero, Abel Duarte, Benedita Malheiro, Cristina Ribeiro,
Fernando Ferreira, Manuel F. Silva, Paulo Ferreira, and Pedro Guedes

Wearable UV Meter – An EPS@ISEP 2017 Project ....................... 896
Elin Lönnqvist, Marion Cullié, Miquel Bermejo, Mikk Tootsi,
Simone Smits, Abel Duarte, Benedita Malheiro, Cristina Ribeiro,
Fernando Ferreira, Manuel F. Silva, Paulo Ferreira, and Pedro Guedes

Challenge Based Learning: The Case of Sustainable Development Engineering at the Tecnologico de Monterrey, Mexico City Campus .............................................. 908
Jorge Membrillo-Hernández, Miguel de J. Ramírez-Cadena,
Carlos Caballero-Valdés, Ricardo Ganem-Corvera,
Rogelio Bustamante-Bello, José Antonio Benjamin-Ordoñez,
and Hugo Elizalde-Siller

Juraj Miština, Jana Jurinova, Roman Hrmo, and Lucia Kristofiakova

A Method to Design a Multi-player Scenario to Experiment Risk Management in a Digital Collaborative Learning Game: A Case of Study in Healthcare ........................................... 926
Catherine Pons Lelardeux, Michel Galaup, David Panzoli,
Pierre Lagarrigue, and Jean-Pierre Jessel

The Role of Foreign Aid in Education and Development: Field Experiences, Examples from East Africa .......................... 936
Ibolya Tomory

Crowdsourcing Project as Part of Non-formal Education ............... 943
György Molnár and Zoltán Szűts

Serious Games Development as a Tool to Prevent Repetitive Strain Injuries in Hands: First Steps ........................... 954
Hélder Freitas, Filomena Soares, Vítor Carvalho, and Demetrio Matos

Author Index ............................................................................. 965