## **Contents**

## Part I

# **Special Issue**

# Applications of Engineering Education Research—Part 2 Building Engineering Communities Guest Editors

# Susan M. Lord—University of San Diego, San Diego, CA, USA Cynthia J. Finelli—University of Michigan, Ann Arbor, MI, USA

Ahmad Ibrahim	1029-1030	Editorial
Susan M. Lord and Cynthia J. Finelli	1031	Guest Editorial
Maria Dobryakova and Isak Froumin	1032-1041	Higher Engineering Education in Russia: Incentives for Real Change
Lisa C. Benson, Kurt Becker, Melanie M. Cooper, O. Hayden Griffin and Karl A. Smith	1042–1048	Engineering Education: Departments, Degrees and Directions
Natalie A. Tran and Mitchell J. Nathan	1049–1060	The Effects of Pre-Engineering Studies on Mathematics and Science Achievement for High School Students
Stacy S. Klein-Gardner, Sean P. Brophy, Melanie J. Aston and Cynthia B. Paschal	1061–1071	Biomedical Imaging Education: Safe, Inexpensive Hands-On Learning
Glenn W. Ellis, Alan N. Rudnitsky and Mary A. Moriarty	1072–1082	Theoretic Stories: Creating Deeper Learning in Introductory Engineering Courses
Teri Reed-Rhoads, P. K. Imbrie, Kamyar Haghighi, David F. Radcliffe, Sean Brophy, Matthew W. Ohland and Eric Holloway	1083–1096	Creating the Ideas to Innovation Learning Laboratory: A First-Year Experience Based on Research
Lisa C. Benson, Marisa K. Orr, Sherrill B. Biggers, William F. Moss, Matthew W. Ohland and Scott D. Schiff	1097–1110	Student-Centered Active, Cooperative Learning in Engineering
Shane Brown and Cara Poor	1111-1119	In-Class Peer Tutoring: A Model for Engineering Instruction
Martin McCarthy	1120–1133	The Application of Social Learning Theory and Communities of Practice to a Complex, Ill-Defined Domain in Engineering
Denis Gillet	1134–1143	Tackling Engineering Education Research Challenges: Web 2.0 Social Software for Personal Learning
David Franquesa, Josep-Llorenç Cruz, Carlos Álvarez, Fermín Sánchez, Agustín Fernández and David López	1144–1155	The Social and Environmental Impact of Engineering Solutions: from the Lab to the Real World
Donald D. Carpenter, Trevor S. Harding, and Cynthia J. Finelli	1156–1165	Using Research to Identify Academic Dishonesty Deterrents Among Engineering Undergraduates

## Part II

Contributions in: Qualifications recognition, students attitudes, motivational factors—learning quality evaluation, Evaluation of engineering schools performance, entrepreneurship, Computer Integrated Manufacturing, Control Systems laboratories and simulations, Power Hydraulics, Thermal Modeling, Capstone Projects, Signal Processing

Marcia R. Friesen	1166–1178	Development of an Engineering Qualifications Recognition Program for Immigrant Professionals: a Case Study
Qaiser Malik, Matthew J. Koehler, Punya Mishra, Neeraj Buch, Michael Shanblatt and Steven J. Pierce	1179–1191	Understanding Student Attitudes in a Freshman Design Sequence
Hoda Baytiyeh and Mohamad K. Naja	1192–1199	Students' Enrollment in Engineering: Motivational Factors
Miladin Stefanovic, Danijela Tadic, Slavko Arsovski, Zora Arsovski and Aleksandar Aleksic	1200–1209	A Fuzzy Multicriteria Method for E-learning Quality Evaluation

Elif Kongar, Jani Macari Pallis and Tarek M. Sobh	1210–1219	Non-parametric Approach for Evaluating the Performance of Engineering Schools
Miri Yemini and Jehuda Haddad	1220–1229	Engineer–Entrepreneur: Combining Technical Knowledge with Entrepreneurship Education—The Israeli Case Study
Mustafa Yüzükirmizi	1230–1240	Educational Computer Integrated Manufacturing (CIM) Labs in Turkey: A Field Study
T. D. Murphey and J. S. Falcon	1241-1248	Programming from the Ground Up in Control Laboratories
Michael A. Fleming and Robert G. Landers	1249–1265	Design and Implementation of a Linear Axis Rapid Development System for Education
Raúl Barrio, Eduardo Blanco, Jorge Parrondo and Joaquín Fernández	1266–1274	Using Home-made Virtual Labs in Higher Education: An Experience in Teaching Power Hydraulics
Juan-Jesus Luna-Rodriguez, Daniel Tocados-Castro, Marta Varo-Martinez, Pilar Martinez-Jimenez and Vicente Barranco-Lopez	1275–1284	Simul-Therm: A MATLAB/Simulink Blockset of Thermal Modelling and Simulation for Engineering Education
Hussain Al-Rizzo, Seshadri Mohan, Melissa Reed, Dwayne Kinley, Zak Hemphill, Chris Finley, Amanda Pop Doug Osborn and Wayne Crolley	1285–1304 <b>e</b> ,	Directional-Based Cellular e-Commerce: Undergraduate Systems Engineering Capstone Design Project
Begoña García Zapirain, Amaia Méndez Zorrilla Ibon Ruiz Oleagordia and Javier Vicente Sáez	1305–1313	Developing Signal Processing Applications using MultiPAS in Accordance with the Bologna Requirements
	1314	Guide for Authors