



World Transactions
on
Engineering and Technology
Education

Editor-in-Chief
Zenon J. Pudlowski
World Institute for Engineering and Technology Education (WIETE)
Melbourne, Australia

World Transactions on Engineering and Technology Education



Association of Taiwan Engineering
Education and Management
(ATEEM)
Taipei, Taiwan



Commonwealth Science and
Technology Academy for Research
(C-STAR)
Chennai, India



Faculty of Architecture
Slovak University of Technology
in Bratislava
Bratislava, Slovakia



Polytechnic Institute
of New York University
New York, USA



Piraeus University of
Applied Sciences
Piraeus-Athens, Greece



UNIVERSITY OF BOTSWANA
University of Botswana
Gaborone, Botswana

Published by:

World Institute for Engineering and Technology Education (WIETE)
141 The Boulevard, Ivanhoe East, Melbourne, VIC 3079, Australia

E-mail: info@wiete.com.au

Internet: <http://www.wiete.com.au>

© 2017 WIETE

ISSN 1446-2257

Articles published in the World Transactions on Engineering and Technology Education (WTE&TE) have undergone a formal and rigorous process of peer review by international referees.

This Journal is copyright. Apart from any fair dealing for the purpose of private study, research, criticism or review as permitted under the Copyright Act, no part of this Journal may be reproduced by any process without the written permission of the publisher.

Responsibility for the contents of these articles rests upon the authors and not the publisher. Data presented and conclusions developed by the authors are for information only and are not intended for use without independent substantiating investigations on the part of the potential user.

World Transactions on Engineering and Technology Education

EDITOR-IN-CHIEF

Prof. Zenon J. Pudlowski
World Institute for Engineering and Technology Education (WIETE)
141 The Boulevard, Ivanhoe East, Melbourne, VIC 3079, Australia
Tel/Fax: +61 3 94994339, E-mail: zenon.pudlowski@wiete.com.au
Internet: <http://www.wiete.com.au>

MANAGER & ASSOCIATE EDITOR

Dr Dianne Q. Nguyen
World Institute for Engineering and Technology Education (WIETE),
Melbourne, Australia

ASSOCIATE EDITORS

Dr Ian R. Dobson
Mrs Dorota I. Pudlowski
Ms Krystyna Wareing
Monash University, Melbourne, Australia
World Institute for Engineering and Technology Education (WIETE),
Melbourne, Australia
Independent Communications Consultant, Crawley, West Sussex, England, UK

ADVISORY BOARD MEMBERS

Prof. Hosni I. Abu-Mulaweh
Dr Stanislav Avsec
A/Prof. Kristijan Breznik
Prof. Samuel C-C. Chang
Prof. Colin U. Chisholm
A/Prof. Chih-Hsien Huang
Prof. Ahmad Ibrahim
Prof. Krzysztof Kluszczyński
Prof. Romanas V. Krivickas
Prof. Sabina Kuc
Dr Wojciech Kuczborski
Prof. Viljan Mahnič
Prof. George Metaxas
Prof. Andrew Nafalski
Dr Zorica Nedic
Prof. Derek O. Northwood
Prof. Robert Špaček
Prof. David W.S. Tai
Prof. Steven Thatcher
Prof. Jacek Uziak
Prof. Algirdas V. Valiulis
Indiana University-Purdue University Fort Wayne, Fort Wayne, Indiana, USA
University of Ljubljana, Ljubljana, Slovenia
International School for Social and Business Studies; College of Industrial
Engineering, Celje, Slovenia
National Taiwan Normal University, Taipei, Taiwan
Glasgow Caledonian University, Glasgow, Scotland, UK
Ming Chi University of Technology, New Taipei City, Taiwan
Yorkville University, Toronto, Ontario, Canada
Silesian University of Technology, Gliwice, Poland
Kaunas University of Technology, Kaunas, Lithuania
Cracow University of Technology, Kraków, Poland
Private Consultant & WIETE, Perth, Australia
University of Ljubljana, Ljubljana, Slovenia
Piraeus University of Applied Sciences Piraeus-Athens, Greece
University of South Australia, Mawson Lakes, Adelaide, Australia
University of South Australia, Mawson Lakes, Adelaide, Australia
University of Windsor, Windsor, Canada
Slovak University of Technology in Bratislava, Bratislava, Slovakia
Hungkuang University, Taichung, Taiwan
Central Queensland University, Cairns, Australia
University of Botswana, Gaborone, Botswana
Vilnius *Gediminas* Technical University, Vilnius, Lithuania

Contents

Z.J. Pudlowski	Editorial	93
T.P. Tsai, J. Lin, L.C. Lin & J. Li	A blended learning lesson design for an EPUB3 e-book-based course	94
Nizaruddin, Muhtarom & Sugiyanti	Improving students' problem-solving ability in mathematics through game-based learning activities	102
K. Breznik & H. Rezk	The mission statements of public research centres in Egypt	108
L.S. Riza, R. Awaludin, H. Sutarno, Munir & A.P. Wibawa	A model for auto generating sets of examination items in educational assessment by using fuzzy c-means	114
A. Gero, Y. Stav & N. Yamin	Use of real world examples in engineering education: the case of the course <i>Electric Circuit Theory</i>	120
T.Y.E. Siswono, A.W. Kohar, A.H. Rosyidi & S. Hartono	Primary school teachers' beliefs and knowledge about mathematical problem-solving and their performance in a problem-solving task	126
M. Ayub & O. Karnalim	Predicting outcomes in <i>Introductory Programming</i> using J48 classification	132
Y. Luo, X. Li & R. Yin	The dictionary use strategy for writing in English by engineering students - a case study	137
H. Hendriana	Teachers' hard and soft skills in innovative teaching of mathematics	145
M.A. Mizar, M. Amin, M. Ashar & Marsono	Performance test of machine groundnuts husk peeling using a rotary multi-disc system - a case study	151
Y. Zhu, Y. Chen, T. Pan & H. Liu	SPIED: an international maker education practice of China, Japan and Korea	157
R.D. Mahande & Jasruddin	Utilisation study of mobile technology at a vocational high school	162
Y. Zu & M. Xu	Research on the teaching reform of a <i>Single Chip Microcomputer</i> course based on the concept of CDIO	169
N. Amaliyah, Sapriya & E. Maryani	A trans-disciplinary approach and inquiry-based learning model of social studies	174
Ratnadewi, R.P. Adhie, Y. Hutama, J. Christian & D. Wijaya	Implementation and performance analysis of AES-128 cryptography method in an NFC-based communication system	178
M. Kuimova, D. Burleigh, X. Maldague & D. Startseva	Academic exchange programmes to enhance foreign language skills and academic excellence	184
S. Maf'ulah, D. Juniati & T.Y.E. Siswono	The aspects of reversible thinking in solving algebraic problems by an elementary student winning National Olympiad medals in science	189
H. Upu, Djadir & S. Asyari	The fifth graders' mathematisation process in solving contextual problems	195
Index of Authors		200