

**World Institute for Engineering and Technology Education
(WIETE)**

1st WIETE Annual Conference

on

**Engineering and Technology
Education**

New Opportunities and Challenges

Pattaya, Thailand

22 and 25 February 2010

**CONFERENCE
PROCEEDINGS**

edited by

Zenon J. Pudlowski

1st WIETE Annual Conference on Engineering and Technology Education

WIETE Partners



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



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



Department of Electrical and
Power Engineering,
AGH University of Science &
Technology, Cracow, Poland



Institute of Technology
Harapan Bangsa
Bandung, Indonesia



M. Kumarasamy College of
Engineering, Thalavapalayam,
Karur, India



Maharashtra Academy of
Engineering and Educational
Research
Pune, Maharashtra, India



MEPCO Schlenk Engineering
College (MEPCO), Sivakasi
Tamil Nadu, India



Polytechnic Institute
of New York University
New York, USA



Russian Association of
Engineering Universities
Moscow, Russia



Technological Education Institute
of Piraeus
Piraeus-Athens, Greece

1st WIETE Annual Conference on Engineering and Technology Education

EDITOR

Prof. Zenon J. Pudlowski
World Institute for Engineering and Technology Education (WIETE)
34 Hampshire Road, Glen Waverley, Melbourne, VIC 3150, Australia
Tel/Fax: +61 3 85550953, E-mail: zenon.pudlowski@wiete.com.au
Internet: <http://www.wiete.com.au>

ASSOCIATE EDITORS

Dr Ian R. Dobson
Ms Krystyna Wareing
Monash University, Melbourne, Australia
Independent Communications Consultant, Crawley, West Sussex, England, UK

ASSISTANT EDITORS

Ms Elena A. Danilova
Ms Dianne Q. Nguyen (Manager)
WIETE & Monash University, Melbourne, Australia
WIETE & Monash University, Melbourne, Australia

REFEREES

Prof. Hosni I. Abu-Mulaweh
Prof. Efrossini C. Kalkani
Prof. Nikos J. Mourtos
Prof. Andrew Nafalski
Prof. Cezar Scarlat
Prof. Algirdas V. Valiulis
Indiana University-Purdue University Fort Wayne, USA
National Technical University of Athens, Athens, Greece
San José State University, San José, USA
University of South Australia, Adelaide, Australia
University *Politehnica* of Bucharest, Bucharest, Romania
Vilnius *Gediminas* Technical University, Vilnius, Lithuania

Published by:

World Institute for Engineering and Technology Education (WIETE)
34 Hampshire Road, Glen Waverley, Melbourne, VIC 3150, Australia

E-mail: info@wiete.com.au
Internet: <http://www.wiete.com.au>

© 2010 WIETE

ISBN: [978-0-9807664-0-0]

Papers published in the Conference Proceedings of the 1st WIETE Annual Conference on Engineering and Technology Education have undergone a formal and rigorous process of peer review by international referees.

These Proceedings are 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 these Proceedings may be reproduced by any process without the written permission of the publisher.

Responsibility for the contents of these papers 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.

1st WIETE Annual Conference on Engineering and Technology Education

Conference Proceedings

Contents

Z.J. Pudlowski	Preface	6
A. Kalanidhi & K. Manivannan	Enriching research in academic institutions (Opening Address)	7
H.P. Sjursen	Global, integrated engineering education: a curriculum for the 21 st Century (Opening Address)	10
A.F. Nesterov & V.M. Zhurakovskiy	New challenges for Russian institutions of higher engineering education and their realisation through the priority national project	17
L.G. Boussiakou & E.C. Kalkani	Learning through technology, using the Internet at home for first year engineering students	20
E.A. Danilova & Z.J. Pudlowski	Public understanding of engineering: consequences and solutions	28
J. Machotka, Z. Nedić, A. Nafalski & Ö. Göl	Collaboration in the remote laboratory NetLab	34
A. Nafalski, Z. Nedić, J. Machotka, Ö. Göl, J.M.M. Ferreira & I. Gustavsson	Student and staff experiences with international collaboration in the remote laboratory NetLab	40
J.M.M. Ferreira, Z. Nedić, J. Machotka, A. Nafalski & Ö. Göl	International collaborative learning using remote workbenches for 8-bit microcontroller courses	46
I. Gustavsson, K. Nilsson, J. Zackrisson & L. Håkansson	Open your laboratories for remote access to offer experimenting for students on-campus or off-campus 24/7	52
S. Wiak, D. Jeske, M. Krasuski & R. Stryjek	An innovative interactive e-learning platform	58
P. Anastasiadis & G. Metaxas	Sustainable city and risk management	64
W. Makasiranondh, S.P. Maj & D. Veal	Remote teaching environment for internetworking students in Thailand	68
P. Vohra, M. Tahernezehadi & R. Kasuba	A system for generating and sustaining interest in engineering	74
L.G. Boussiakou, A. Al-Mozeini & E.C. Kalkani	Handwriting in homework associated with student performance	79
N.I. Katsiadramis, A.V. Sotiropoulou, Z.G. Pandermarakis & G. Metaxas	Experimental and comparative study on the characteristics of self-levelling mortar for optimisation with marble as aggregate	85
A.S. Rocha, M. Veerachamy, V.K. Agrawal & S.K. Gupta	Jatropha liquid gold – the alternative to diesel	91
D.Q. Nguyen & Z.J. Pudlowski	The internationalisation of environmental engineering education and its significance in creating the future of the environmental engineering profession	97

A. Materka, P. Dębiec, M. Strzelecki, S. Hausman & S. Wiak	A secure Internet database system for teaching and research information management at the Technical University of Łódź	102
S. Pushenko	Double-Masters programmes as a way for international student collaboration	108
G. Kabouridis	An innovative approach to face the first-year mechanical engineering students' conceptual difficulties in engineering design	110
G. Hassapis, S. Tzortzidou, V. Alexandrov & C.D. Kloos	A trans-European, multi-departmental course on network and e-business centred computing	114
K. Yoshida, M. Takasugi & T. Suzuki	Analyses of loci of bamboomerangs and their educational effects	119
S. Thatcher	Development of a low cost flight simulator to enhance students' learning of technical and non-technical flight skills	123
Index of Authors		128