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## **Recent Researches in Engineering Education**

*Proceedings of the 11<sup>th</sup> International Conference on  
Engineering Education (EDUCATION '15)*

*Salerno, Italy, June 27-29, 2015*

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*University of Salerno  
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**Preface**

This year the 11th International Conference on Engineering Education (EDUCATION '15) was held in Salerno, Italy, June 27-29, 2015. The conference provided a platform to discuss basic science in engineering education, engineering education reforms, organization of laboratories, management of educational institutes, research and development in engineering education, mechanical engineering education etc. with participants from all over the world, both from academia and from industry.

Its success is reflected in the papers received, with participants coming from several countries, allowing a real multinational multicultural exchange of experiences and ideas.

The accepted papers of this conference are published in this Book that will be sent to international indexes. They will be also available in the E-Library of the WSEAS. Extended versions of the best papers will be promoted to many Journals for further evaluation.

Conferences such as this can only succeed as a team effort, so the Editors want to thank the International Scientific Committee and the Reviewers for their excellent work in reviewing the papers as well as their invaluable input and advice.

The Editors



## Table of Contents

<b>Plenary Lecture 1: Applying Information Technology into the Role-Based E-Learning</b>	12
<i>Hung-Jen Yang</i>	
<b>Plenary Lecture 2: Innovation in Physics Education for Engineering Schools</b>	13
<i>Joseph Quartieri</i>	
<b>Teachers' and Students' Perceptions of Presence in Virtual Reality Instruction</b>	15
<i>M. Gail Jones, Rebecca Hite, Gina Childers, Elysa Corin, Mariana Pereyra, Katherine Chesnutt, Tim Goodale</i>	
<b>Knowledge Management from a Paradox Perspective - Siemens Healthcare's Approach To Organizational Tensions in the Field of Knowledge Management</b>	25
<i>Oliver Wolfarth, Eva Gattnar, Brigitte Stroetmann, Okan Ekinici</i>	
<b>About Signorini's Principle of the Gyroscopic Effect</b>	32
<i>Maria Iannone, Ettore Laserra</i>	
<b>Architecture of a Platform for Building Context-Aware Educational Mobile Services</b>	36
<i>Alexander Samochadin, Dimitri Timofeev, Maxim Maslov</i>	
<b>Project-Based Learning: An Engineering Design Centered Model</b>	41
<i>Can Saygin, Emily Bonner, Betty Travis Oscar Chavez, Guadalupe Carmona</i>	
<b>Evolution of Attitudes and Motivations of Male and Female Students Towards Physics and its Learning at both High School and Engineering University Degrees</b>	47
<i>Endika Arandia, Kristina Zuza, Jenaro Guisasola</i>	
<b>Competition and Collaboration in Teaching Software Project Management</b>	53
<i>Costin-Anton Boiangiu, Alexandru Constantin, Diana Deliu, Alina-Teodora Mirion</i>	
<b>Direct Calculation of the Direction Cosines for a Rigid Body Through the Generalized Lagrange Identity</b>	59
<i>Maria Iannone, Ettore Laserra</i>	
<b>Higher Education Versus Practical Life from the Viewpoint of Competences</b>	63
<i>Andrea Bencsik, Renata Machova</i>	
<b>Impact of Video-Tutorials in Optical Communication Laboratory Subjects</b>	72
<i>Noemí Merayo, Juan C. Aguado, Ramón J. Durán, Ignacio De Miguel, Patricia Fernández, Rubén M. Lorenzo, Evaristo J. Abril</i>	
<b>CLIL Supporting Academic Education in Business Engineering Management</b>	78
<i>Suzana Carmen Cismas, Ion Dona, Gabriela Andreiasu</i>	
<b>Future-Oriented Practice in Higher Education</b>	88
<i>Erika Török, Zsuzsanna Kovács</i>	

<b>Relativistic Effects in a Moving Point Charge</b>	92
<i>C. Guarnaccia, J. Quartieri, L. Sirignano</i>	
<b>Epistemological, Historical, and Didactic Aspects of University Teaching Faculty Professional Knowledge of Probability</b>	97
<i>José I. Barragués, Adolfo Morais</i>	
<b>Independence and Cooperation in Teaching Software Project Management</b>	105
<i>Costin-Anton Boianuiu, Adrian-Cosmin Firculescu, Nicolae Crețu, Ana-Elena Zugravu</i>	
<b>E-Service Security; Acceptance Perspective</b>	113
<i>Hamed Taherdoost, Shamsul Sahibuddin, Neda Jalaliyoon</i>	
<b>Some Considerations on Environmental Education of Traffic and Transportation Engineers in the Republic of Serbia</b>	120
<i>Nataša Tomić-Petrović</i>	
<b>An Operatorial Method for Solving PDEs Useful in Financial Engineering and Physics Fields</b>	126
<i>Joseph Quartieri</i>	
<b>Applying the Open Government Principles to the Strategic Planning Process for Higher Education Institutions: A Sound Practice</b>	131
<i>José Manuel Fera-Dominguez, Cristina Moreno-Carmona, Alicia Troncoso Lora</i>	
<b>Tertiary Education via CLIL in Engineering and Management</b>	134
<i>Suzana Carmen Cismas, Ion Dona, Gabriela Andreiasu</i>	
<b>A Model for Program Planning in Emerging Technology Promotion</b>	142
<i>Hung-Jen Yang, Miao-Kuei Ho</i>	
<b>A Systems Engineering Educational Framework for Economic Growth in Spain within a European Centred Aerospace Market</b>	150
<i>Jose M. Arias</i>	
<b>Innovation at University Teaching by Incorporating Information and Communication Technologies: an Educational Proposal to Assess ICT Competence for Education (CIE)</b>	160
<i>Yasbley Segovia Cifuentes, Darwin Andrés Díaz Gómez</i>	
<b>Focus Group Analysis on Prospective CLIL Programs in USAMV MIEADR &amp; BUCHAREST POLYTECHNIC: Advantages, Facilities and Target Student Groups</b>	171
<i>Suzana Carmen Cismas, Ion Dona, Gabriela Andreiasu</i>	
<b>Towards ‘the Best of Both Worlds’: What Learning Activities are Conducted Where?</b>	179
<i>Alberth, Emil Wiramihardja, Wa Kuasa, Siam, Asrun Lio, Aris Badara</i>	
<b>Training Video on Low-Skilled Workers</b>	187
<i>Rula Sharqi, Ammar Kaka</i>	
<b>USAMV MIEADR 2015 Students’ Scientific Symposium Assessed by CLIL Criteria</b>	196
<i>Suzana Carmen Cismas, Ion Dona, Gabriela Andreiasu</i>	

<b>Cultural Engineering in Teaching and Learning: A Study in Kendari as a Multiethnic City in Indonesia</b>	206
<i>Aris Badara, Asrun Lio, Alberth, Hilaluddin Hanafi, Wa Kuasa Baka</i>	
<b>Mind Maps Impacting Students' Concept Processing and Presentation Strategies in Management Engineering</b>	211
<i>Suzana Carmen Cismas, Ion Dona, Gabriela Andreiasu</i>	
<b>Developing an Instrument for Assessing Interest in Teaching STEM Content</b>	217
<i>Hung-Jen Yang, Miao-Kuei Ho, Hsieh-Hua Yang</i>	
<b>The Impact of Education on Juvenile Delinquency and its Global Economic Implications. Challenges and Problems</b>	227
<i>Ramona Birău, Mihai Antonescu</i>	
<b>Students' Learning Styles Progression in Tertiary Education</b>	230
<i>Suzana Carmen Cismas, Ion Dona, Gabriela Andreiasu</i>	
<b>Applying Cloud Technology in Healthcare Professionals in Taiwan</b>	236
<i>Hsieh-Hua Yang, Wen-Hui Han, Miao-Kuei Ho, Hung-Jen Yang</i>	
<b>Hybrid Filter with Wavelet Denoising and Anisotropic Diffusion Filter for Image Despeckling</b>	247
<i>Simranjit Kour, Bikrampal Kaur</i>	
<b>Authors Index</b>	252

## Plenary Lecture 1

### Applying Information Technology into the Role-Based E-Learning



**Professor Hung-Jen Yang**  
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**Abstract:** Role-play as a means of involving learners in experiential learning opportunities has been a characteristic of user-centered learning environments for many years. Developments in the digital environment have enabled the design of more sophisticated role play environments in which learners deal with the complexity and ambiguity of real-life issues and the same time develop their knowledge of the advantages and limitations of online communication. E-Learning add a further 'real-world' quality to role-plays. Issues would be presented include:

- Effective online role plays
- Authentic role-based e-learning activities
- Assessment and evaluation in role-based e-learning

A careful analysis of the strengths and learning information flows of online role play, and is realistic about possible difficulties. Providing guidance for both newcomers and experienced professionals who are developing their online teaching repertoire, it would be an invaluable resource for information system designers, IT engineers, and system analyzers.

**Brief Biography of the Speaker:** Hung-Jen Yang got master of industrial technology from University of North Dakota USA in 1989 and Ph.D. of Industrial education and technology from the Iowa State University, USA in 1991. From 1991 to 1994, he worked as an associate professor in Ping-Tong University of Education and was in charge of computer center to promote computer assist instruction and internet-working service. After 1994, he is working for the department of industrial technology education in the National Kaohsiung Normal University. National Science Council in Taiwan had contracted with Dr. Yang for more than twenty research projects in last twenty years. He also supports Ministry of Education by creating information system of teacher in-service education. Technology education and teacher education are two major educational research areas focused by Dr. Yang. Other than educational research, he is also involved deeply with topics of STEM education, knowledge engineering, communication technology, electronic engineering, and automation technology.

## Plenary Lecture 2

### Innovation in Physics Education for Engineering Schools



#### Professor Joseph Quartieri

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ITALY

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**Abstract:** Physics is one of the first relevant courses that a student of any Engineering course has to deal with. Usually General Physics courses (Mechanics and Electromagnetism) are held at the first year of the degree course and Physics Professors have to deal with a low background knowledge of the students.

During the almost 40 years of experience as a professor in the Physics courses for Engineering schools, the author developed a unitary path, mainly in the Mechanics and Electromagnetism study, that helps the student to go through the many problems that occur.

In this plenary lecture, the author will give a general overview of this path and will present some of the many “glittering stones” that he found in these years. This personal approach makes the Physics education much easier and understandable, even for students that do not have a strong knowledge in Mathematics, Field Theory, etc.

**Brief Biography of the Speaker:** Prof. Joseph Quartieri, now, is full professor of Applied Physics in the Engineering Faculty of University of Salerno. He belongs to the Industrial Engineering Department of the same University. From 1997-98 up to now, he is the coordinator of all the Physics courses in the Engineering Faculty. From 2006 to 2012 he was also in charge of Medical Physics course at Medicine and Surgery Faculty of University of Salerno and for a few years he was elected in the administration board of the University of Salerno.

He got graduated cum laude in Nuclear Physics at Naples University in 1974. From 1980 to 1986 he worked as researcher at National Research Centre (CNR). From 1980 he took several teaching positions as assistant professor, and in 1985 he became associated professor, in Structure of Matter, at Engineering Faculty of Rome University “Tor Vergata”. From 1997 he moved to the Engineering Faculty of Salerno University, where became full professor of Experimental Physics. He got a scientific association with the National Institute for Nuclear Physics (INFN), in the Salerno’s group and also worked in the European Organization for Nuclear Research at CERN in Geneva. He is author of hundreds of papers in several relevant international journals.



## Authors Index

Abril, E. J.	72	Dona, I.	78, 134, 171	Lorenzo, R. M.	72
Aguado, J. C.	72	Dona, I.	196, 211, 230	Machova, R.	63
Alberth	179, 206	Durán, R. J.	72	Maslov, M.	36
Andreiasu, G.	78, 134, 171	Ekinci, O.	25	Merayo, N.	72
Andreiasu, G.	196, 211, 230	Feria-Dominguez, J. M.	131	Mirion, A.-T.	53
Antonescu, M.	227	Fernández, P.	72	Morais, A.	97
Arandia, E.	47	Firculescu, A.-C.	105	Moreno-Carmona, C.	131
Arias, J. M.	150	Gattnar, E.	25	Pereyra, M.	15
Badara, A.	179, 206	Gómez, D. A. D.	160	Quartieri, J.	92, 126
Baka, W. K.	206	Goodale, T.	15	Sahibuddin, S.	113
Barragués, J. I.	97	Guarnaccia, C.	92	Samochadin, A.	36
Bencsik, A.	63	Guisasola, J.	47	Saygin, C.	41
Birău, R.	227	Han, W.-H.	236	Sharqi, R.	187
Boiangiu, C.-A.	53, 105	Hanafi, H.	206	Siam	179
Bonner, E.	41	Hite, R.	15	Sirignano, L.	92
Carmona, G.	41	Ho, M.-K.	142, 217, 236	Stroetmann, B.	25
Chavez, B. T. O.	41	Iannone, M.	32, 59	Taherdoost, H.	113
Chesnutt, K.	15	Jalaliyoon, N.	113	Timofeev, D.	36
Childers, G.	15	Jones, M. G.	15	Tomić-Petrović, N.	120
Cifuentes, Y. S.	160	Kaka, A.	187	Török, E.	88
Cismas, S. C.	78, 134, 171	Kaur, B.	247	Wiramihardja, E.	179
Cismas, S. C.	196, 211, 230	Kour, S.	247	Wolfarth, O.	25
Constantin, A.	53	Kovács, Z.	88	Yang, H.-H.	217, 236
Corin, E.	15	Kuasa, W.	179	Yang, H.-J.	142, 217, 236
Crețu, N.	105	Laserra, E.	32, 59	Zugravu, A.-E.	105
De Miguel, I.	72	Lio, A.	179, 206	Zuza, K.	47
Deliu, D.	53	Lora, A. T.	131		