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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





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## 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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University of Salerno

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.