Guest Editorial

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It is a great honor for me to have been invited to present before you the editorial remarks for this special issue of the International Journal of Online Engineering (iJOE). The issue is dedicated to six selected papers which were presented in the IEEE Global Engineering Education Conference (EDUCON2011), which was organized jointly by the IEEE and Princess Sumaya University for Technology (PSUT), Jordan, in the period 4-6 April 2011. EDUCON2011 was in fact the second of a series of conferences that will rotate among central locations in IEEE Region 8, Europe, Middle East and North Africa. The theme of the conference was "Learning Environments and Ecosystems in Engineering Education". Its main aim was to provide an interdisciplinary forum for academic, research and industrial collaboration in engineering education by presenting newest research results and practical show cases. In this its goal was to bridge the gap between pure academic research and real world experiences. The conference covered the following areas:

Area 1: Educational Methods and Learning Mechanisms in Engineering Education

Area 2: Learning in Transition and Engineering Education Ecosystems

Area 3: Infrastructure and Technologies for Engineering Education

Area 4: Innovative Materials, Teaching and Learning Experiences in Engineering Education

Area 5: Excellence in Engineering Education

Area 6: Knowledge and Competencies in Engineering Education

This special issue of the iJOE contains six papers related to engineering education, mainly from area 4. The first paper, "Offering Students a Selection of Multiple Class B/AB Power Amplifiers as a Remote Laboratory" by Olaf H. Graven and Dag A. H. Samuelsen, describes a remote laboratory setup for conducting experiments on a class B/AB power amplifier, addressing the problems related to running experiments requiring temperature matching between transistors and bias diodes, in order to avoid thermal runaway in the transistors.

The second paper, "Low Cost Implementation of Remote Lab with Large Number of Configurations for a BJT Amplifier" by Dag A. H. Samuelsen and Olaf H. Graven, is a demonstration on how to construct an advanced yet low cost remote lab for experiments for an module in analogue electronics at an electrical engineering course at second year bachelor level. The remote lab is designed for running experiments on a normal BJT common emitter amplifier circuit, while maintaining the possibility for the students to use a wide range of different setups.

The third paper, "Tele-Operated Laboratories for Online Production Engineering Education Platform for E-Learning and Telemetric Experimentation (PeTEX)" by C. Terkowsky, C. Pleul, I. Jahnke, and A.E. Tekkaya, looks at the development of tele-operated experimentation platform produced during the EU-funded project PeTEX. This e-Learning platform aims at the design and implementation of educational and training applications in the field of production engineering. The principle goal of this project was to establish individual and group oriented learning for different target groups like students and professional workers within a platform-system capable to serve a multi-lingual learning community.

The fourth paper, "Design and Evaluation of an Instructional Solar Energy Technologies Lab" by M. Al-Addous and C. B. Class, presents a design for a solar energy lab that allows students to plan, install and evaluate different system architectures and gain relevant practical experiences. The addressed learning outcomes are analyzed based on the 13 learning outcomes defined by the Accreditation Board for Engineering and Technology (ABET) as well as based on the taxonomy levels of the cognitive domain after Bloom.

The fifth paper, “An Empirical Evaluation of Technical Drawing Didactic in Virtual Worlds” by S. Murad, I. Passero, R. Francese and G. Tortora”, proposes a 3D virtual world environment and a didactic experience for training young students in an environment capable of supporting the engineering practices based on technical drawing. The proposed system trains students to build, in the simulated environment, simple objects represented with 2D drawings so they are not only pushed to move themselves between different dimensionality spaces, but also they benefit of the 3D spaces for moving and exploring the models they are building. An empirical evaluation, conducted as a controlled experiment, has provided enthusiastic results in terms of user performances and impressions.

The last paper, ‘A VISIR Lab Server for the iLab Shared Architecture” by Danilo Garbi Zutin, Michael E. Auer and Ingvar Gustavsson, describes the work carried out at the Carinthia University of Applied Sciences towards integrating VISIR-based labs on the iLab architecture. The Virtual Systems in Reality (VISIR) project is carried out by the Blekinge Institute of Technology, Sweden and features a platform for performing experiments in different domains.

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EDUCON2011 Conference Chair

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