WORKSHOPS @ ICEE 2012

A set of parallel workshops on interesting Engineering Education related topics are provided to the participants as a part of the topical program of ICEE 2012. The main goal of the workshops is to gather colleagues interested in the topic together and enable an active collaborative discussion on the issue.

The workshops will take place on Thursday (August 2). Each workshop includes 2 hours active working time. The workshops are presented below.

Registration to the workshops will take place during the first days of the conference. You will find the workshop descriptions and the registration lists on the notice board near the ICEE 2012 Front Desk at the conference venue. **Please register yourself to the workshop you prefer by writing your name on the workshop's registration list by Wednesday (August 1) at 1 PM (13:00) at the latest.**

If there is a low number of participants to a certain workshop, the workshop facilitator will decide whether the workshop will be organized or not. The confirmed list of workshops and the locations will be published on the conference notice board before the end of the topical program on Wednesday.

WS #1: Better Engineers with CDIO

Workshop facilitator: *Dr. Juha Kontio*
                                      Turku University of Applied Sciences, Finland

The CDIO (conceive-design-implement-operate) is an international initiative to develop engineering education. Over 70 universities around the world are using CDIO to educate better engineers. In this workshop you will learn the main elements of CDIO, understand how CDIO can support education development and how CDIO leads to better engineers. The workshop will engage the participants to study CDIO with active learning methods.

WS #2: Enhance your Teaching utilizing Automatic Assessment with Immediate Feedback

Workshop facilitator: *Dr. Mikko-Jussi Laakso*
University of Turku, Finland

ViLLE is a collaborative education platform which makes it possible for teachers to create virtual courses and automatically assessed exercises of different kinds easily. All created material can be utilized, commented and evaluated by other teachers. Moreover, ViLLE automatically gathers data about students' learning behavior and results while they are using the system. During the workshop, you'll get more information on the platform and learn how to use ViLLE. See more: http://ville.cs.utu.fi (see video) or test some exercises from: https://ville.utu.fi/?demo=start

WS #3: Producing Innovation Competencies through Innovation Pedagogy, Theory and Practice

Workshop facilitators: *Dr. Liisa Kairisto-Mertanen & Dr. Ari Putkonen,*
Turku University of Applied Sciences, Finland

The world needs innovative engineers. A new pedagogical approach developed in Turku University of Applied sciences emphasizes the importance of educating our future professionals in all fields of education in such a manner that they are able to participate in the different innovation processes when entering working life. The aim of this workshop is to give the participants an idea about innovation pedagogy and discuss the methods which can be used in engineering education when targeting to create innovation competencies. The aims of the workshop are to discuss the innovation competencies and demonstrate a method where students can practice their innovation skills in exciting manner. Through the product development simulation students learn and get feedback about the economical results of their decisions, market dynamics, project management, personnel management, scheduling, as well as issues concerning collaboration of the group itself.

WS #4: The Attributes of a Global Engineer Project

Workshop facilitator: *Dr. Stephen P. Hundley, Purdue School of Engineering and Technology,*
Indiana University-Purdue University Indianapolis, USA

For the past three years, the American Society for Engineering Education (ASEE) Corporate Member Council's Special Interest Group for International Engineering Education developed, presented, and vetted with its stakeholders a series of attributes representing the desired competencies and characteristics needed by engineers in order to effectively live and work in a global context. A global online survey was launched to validate the performance and proficiency levels of each attribute, including the stages at which attributes were essential to the preparation, performance, and employability of global engineers. This workshop will describe the stakeholder-driven process to identify and define attributes of a global engineer, including survey development and sampling procedures; present a summary of key findings-to-date; highlight the recommendations and implications of how findings should be used to enhance engineering education; and engage participants in brief focus group discussion to permit additional input and perspectives on The Attributes of a Global Engineer Project.

WS #5: Database as a CS/E Competency: A Software Engineering Attribute

Workshop facilitator: Dr. Fred Springsteel, Emeritus Professor, Missouri University
PhD, U Washington, Seattle

Computer science and engineering majors must prove many competencies, but can graduate without taking even one course in the design of a modern, relational database (RDB). Then, their first job will require them to interface with a large RDB of some kind; ALL important facts are kept in them. Using a spreadsheet like Excel can be learned by the average computer user. Not so with a relational DBMS like Oracle, or even Access. One first must learn the relational model, and data modeling, then DB design and something about DB administration. This takes at least one course. People in other CSE specialties will deny this, because they don't want their students to take any course not considered "hard-core." This workshop will assemble principles from experts and software engineering leaders who will attest to this thesis: the biggest step in writing smart. Sharable code is imagining the data structures and their transformations via the algorithms that are written to implement the program's purpose, to solve a problem in symbol manipulation, for example. This was said by the great computer scientist Charles Simonyi (BS, UC-Berkeley; PhD Stanford) in the 1986 book, Programmers at Work, MS Press, where he was the first of 19 interviewed: Question: "Is that [data structures] the biggest step? SIMONYI: "Absolutely that is the biggest step... For the most part the code writes itself, but it is the data structures I maintain that are the key." Every CS major has to learn to use Data Structures; the smarter software engineers, in my 35 years' experience, take DB I to know DBMS, which in effect are re-usable high-powered data structures. The workshop will be interactive and involve team exercises in programming problems that were inspired by Jon Bentley's classic book, Programming Pearls.

WS #6: Object-Oriented Modeling Tool Applied to Engineering and Informatics Education

Workshop facilitator: Profa. Dra. Clara Amélia de Oliveira
Federal University of Santa Catarina (UFSC), Brazil

This workshop presents and discusses, with participants, principles of complex approach modeling in education. The informatics tool titled Object-Oriented is adequate to treat complex systems which is synonymous of real world or integrative ones. It will be presented and commented the Object-Oriented modeling tool characteristics: abstraction, knowledge vertical hierarchy and inheritance principle, encapsulation and modularity. Each principle will be associated with a proposed educational model under Object-Oriented knowledge representational modeling tool support. It will be presented an educational model divided in four modules: knowledge approach concerning curricular development; communication teacher/student; subject evaluation, and, instrumentation from educational environment. After a discussion about pedagogic experiences it is time to answer questions like: what are the core principles from complex approach in education? What are the common principles in each educational module? What is the signification of the term innovation under complex approach vision? How the educational environment is affected and modified by insertion of complex view in education? What are the practical exigencies to implement such kind of educational model? How Object-Oriented knowledge representational paradigm can contribute to building complex models in education.