

## Workshop Description

### TITLE

Practical workshop in competence based e-learning environment

### ABSTRACT

*Participants attending this workshop in conference will learn how learning environment with competence-based approach is functioning in real learning process. They can work as (virtual) students, solving tasks, making lab experiments and can follow how their actions in the system. Access to the website will be open for participants prior to the conference and therefore it is possible to follow forgetting mechanism in working.*

### WORKSHOP CONTENT

The workshop participants can work just as students do in the interactive web based learning environment ISC. Participants can solve both practical and theoretical tasks and follow how the system treats students' progress during learning. The competencies available during workshop are from different areas: electrical circuits, electronics, signals, math, operating systems, microcontrollers, nanotechnology etc. Some simple sets are from K12 areas.

### WORKSHOP AGENDA

Workshop is organized in the following way. Participants register before to book a place and lab kit for 1 hour time slots. Average time for one solution may be about 1 – 4 minutes depending on complexity and pre-knowledge. Ability levels are determined by automatic analysis of answers.

Competences can be chosen manually in high and medium granularity view or automatic suggestion. Current state and prediction of ability levels for up to 1 year are available during workshop and after. Participants will have early connection to the site; they can login, solve some problems, look into the site (lab), view lab kits, and book their time slots. One person can book several time slots but recommendation is not more than 2 slots without break.

Available time slots will be determined on the basis of booking information one week before conference. Registration is open during the conference but selection of time slots may be limited. Potential participants can also see more presentations illustrating students' behavior, learning tracks etc in advance before and/or after logging into ISC.

Teacher's views will only be available on site.

### PRE-KNOWLEDGE

Basic mathematical, electrical and/or computer skills.

### PRESENTERS AND BRIEF BIO

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Kadri Umbleja is third year PhD student in Department of Computer Control in Tallinn University of Technology. She has worked on the ISC e-learning system for more than five years and written multiple papers about competence-based learning and its benefits. Her research interests in addition to competence-based approach are visualization, data-mining, symbolic data analysis.

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Martin Jaanus. PhD, is Associate Professor in Department of Computer Control in Tallinn University of Technology. He has worked on the ISC e-learning system more than 10 years, composed most of lab assignments in this learning environment, and designed devices, included in HomeLabKit..His research interest are also in electronics.

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Vello Kukk is professor of Circuit Theory and Design, Tallinn University of Technology; he is Senior member of IEEE.