

Special Session: The Laboratory in Modern Engineering Education

A fundamental strength of many engineering courses is engaging students in engineering experiments and laboratory work to foster the connection between theories and their appropriate practical applications. These experiments range from a basic verification of fundamental laws to the analysis of complex relationships, e.g. of phenomena in manufacturing processes, and the derived results. Aiming at fostering the conceptual understanding in order to develop employability for engineers, the learning environment requires a carefully adjusted setup, e.g. regarding the lab objectives or learning & teaching activities.

The objective of this Special Session is to stimulate an open discussion and a reflection of experience in the use of experiments in engineering education. It furthermore intends to discuss concepts of different engineering labs and their special characteristics. Finally, aspects should be carved out to achieve intended learning outcomes more effectively in the lab course.

The topics of paper contributions include (but are not limited to):

- Novel Methods, Practices, and Approaches of Laboratory Teaching & Learning
- New Technologies, Infrastructures and Methods of Distance Learning with Labs
- Remote and/or On-Site Laboratory Experience
- Developing Knowledge, Skills and Competencies in Engineering Education
- Learning Objectives, Activities, and adequate Assessments for Lab Work
- Integrating Novel Topics and Tasks into Lab Work (e.g. Employability, Sustainability, Creativity, etc.)
- Interdisciplinary Teaching & Learning Approaches
- Merging Formal and Informal Learning in the Lab
- Teaching & Learning Experience in Practical Engineering Education
- Attracting, Engaging and Retaining Human Talent for Engineering
- Future Capabilities and Constraints of Lab Work in Engineering Education

The described track is structured as a double session follows:

- Two *full paper* contributions (6-8 pages) for keynote speeches, 30 minutes each
- Six *short paper* (3-5 pages) / *work in progress* (2-4 pages) contributions, 15 minutes each
- Closing interactive discussion

Chairs of the Program Committee:

Prof. Dr.-Ing. Dr.-Ing. E. h. A. Erman Tekkaya

Prof. Dr. Uwe Wilkesmann

Prof. (a. D.) Dr. Dr. h. c. Johannes Wildt

Prof. Dr. sc. Dr.-Ing. Dr. h.c. Michael E. Auer

Christian Pleul, M.Sc. M.Eng.

Claudius Terkowsky Dipl.-Paed.

Publication:

All accepted papers will be included in the EDUCON2014 proceedings, published by IEEE and listed in IEEE Explore.

Important Dates

11 Nov 2013 Complete Paper Submission

16 Dec 2013 Notification of Acceptance

31 Jan 2014 Author Registration and Payment Deadline

3-5 Apr 2014 EDUCON2014