

Invitation: 7. Lunch für gute Lehre

Lecture:

Tuesday, 24 of October 2017: 12.00 to 14.00 hrs

Workshop:

Tuesday, 24 of October 2017: 15.00 to 18.00 hrs and
Wednesday, 25 of October 2017: 9.00 to 14 hrs

Educating engineers who can engineer – the CDIO approach

CDIO is an international approach for engineering education reform, aiming for a better relationship between the academic and professional aspects. The main idea is to better align engineering education with professional practice and with student motivation. Curriculum development emphasises the need for deeper working understanding of the disciplinary fundamentals, while supporting student development of personal and professional skills and abilities.

As we want to educate graduates who can actually engineer, we should not only give students an education *about* technology, but also an education *in* engineering. Therefore the acronym of the Initiative comes from what engineers do when they develop and deploy products, processes and systems: Conceiving, Designing, Implementing and Operating.

The CDIO Initiative was founded by MIT in the USA and three Swedish universities: KTH Royal Institute, Chalmers, and Linköping University. It is a vibrant community, which has grown steadily and now consists of more than 130 institutions worldwide (see www.cdio.org). The 14th annual conference is in Kanazawa, Japan, on June 28-July 2, 2018. Deadline for abstracts is November 15.

LECTURE

CDIO – the idea, the methodology for curriculum reform, and the international community

The main idea of the CDIO approach is that engineering education should be better aligned with professional practice and with student motivation. Why is this desirable? The curriculum development methodology is to integrate development of engineering skills with the acquisition of technical knowledge throughout the program. How is disciplinary knowledge related to engineering skills? How can CDIO be implemented? CDIO Initiative is now a community that consists of more than 130 CDIO Collaborators. How can this community contribute to your agenda for change?

WORKSHOP

Developing engineering education with the CDIO approach

In this workshop we will deepen the discussion about CDIO and go deeper into its practical application in engineering programs and courses. We will investigate strategies for program development, and for improving student learning both in subject-based and project-based courses. The aim is to enable cost-effective and sustainable development inspired by CDIO principles, also enabling more stimulating roles for both teachers and students.

Contents include:

- Curriculum design and methods for faculty collaboration
- Subject courses
 - How can we improve the contribution of subject courses, both deeper working understanding of fundamentals and engineering skills?
 - How can we improve student learning while we only have a given level of resources?
- Project-based courses
 - How can we assess students individually in a group setting?
 - How can we assess the most complex professional skills fairly and without spending much more teacher time?
- Change strategies and organisational limitations

Kristina Edström (kristina@kth.se) is Associate Professor in *Engineering Education Development* at KTH Royal Institute of Technology. Since 1997 she leads and participates in educational development activities at KTH, in Sweden and internationally. She has been a key person in the development of the CDIO approach since 2001, serves on the international CDIO Council and is a co-author of Crawley et al. (2014) *Rethinking Engineering Education: The CDIO Approach*, Springer. Kristina was awarded the KTH Prize for Outstanding Achievements in Education in 2004 and elected lifetime honorary member of the KTH Student Union in 2009. Kristina has a M.Sc. in Engineering from Chalmers, Gothenburg, Sweden. In her research she takes a critical perspective on the *why*, *what* and *how* of educational development. Kristina is the next Editor-in-Chief of the *European Journal of Engineering Education* from 2018.

Crawley, E. F., Malmqvist, J., Östlund, S., Brodeur, D. R., & Edström, K. (2014). *Rethinking Engineering Education: The CDIO Approach*. Cham: Springer.

Edström, K., & Kolmos, A. (2014). PBL and CDIO: complementary models for engineering education development. *European Journal of Engineering Education*, 39(5), 539-555.

Please register via email:

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Place:

TU Berlin

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