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March 24 15:30 ~ 17:00

Bldg.#23, Innovation and Design Studio

Introductory Workshop

Helene Leong

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Co-chair of CDIO Asian Region



Helene Leong is responsible for faculty development and leading new educational initiatives in the Polytechnic. She has been in charge of the implementation of CDIO in SP since 2006 and has conducted numerous workshops on the CDIO approach to rethinking engineering education around Asia. Prior to joining SP, she was a senior curriculum specialist in the Ministry of Education (Singapore) involved in the development and introduction of the teaching of critical and creative thinking skills in schools in Singapore. She has conducted numerous workshops on promoting Critical and Creative Thinking, and Creative Problem Solving for teachers. In recent years, she has conducted workshops on the implementation of CDIO for educational institutions in Vietnam, Thailand, Malaysia and Indonesia, and led a 3 year project on the implementation of Academic Quality Management in Vietnam.

Designing a CDIO Programme: The CDIO Syllabus and Standards

More than 100 Institutions of Higher Learning (IHL) around the world have adopted the CDIO Framework to reform their engineering programmes. Among these IHLs, there are two common concerns: the over emphasis of the teaching of theory in relation to engineering practice and the call by industry for work place skills such as design, teamwork and communications to be better developed.

To address these concerns, the CDIO collaboration proposed 2 key documents, the CDIO syllabus and the CDIO standards. These documents act as guides for the development of student capability to conceive-design-implement-operate and to be “ready to engineer”, and a range of competencies necessary for engineers to work in a modern team based environment. While the 2 documents describe best practices for the development of a CDIO programme, each institution is encouraged to adapt the CDIO approach to its own context.

In this talk, I will share how Singapore Polytechnic has adapted the CDIO syllabus and standards to reform its engineering programmes. SP, a CDIO collaborator since 2004, implemented its reformed engineering curriculum in 2008. In 2010, we improved the CDIO implementation in SP with the introduction of Design Thinking in order to develop innovative thinking in our students. In 2012, we further enhanced our engineering programmes with the implementation of an Intrinsic Motivation Model. Together with CDIO and Design Thinking, the Intrinsic Motivation model aim to develop the Creative Confidence in students where they have the spirit to be innovative and embrace new ideas and challenges.