

Project Title :	Fostering an Innovation Mind-set in a MakerSpace environment via flipped/flicked Cornerstone Design Framework
Leading University :	The Hong Kong University of Science and Technology
Participating UGC-funded University(ies) :	The Hong Kong Polytechnic University, The University of Hong Kong
Project Leader(s) :	Professor Ben Y B CHAN, Associate Director, Center for Engineering Education Innovation; Assistant Professor of Engineering Education, Department of Civil and Environmental Engineering, School of Engineering, The Hong Kong University of Science and Technology

The word “Innovation” is often overused but is not addressed enough, especially in the education sector. This is especially true in the modern setting where technological advancements, including crowdfunding and 3D printing, have turned the production process from factory-orientated to customer-centered. It is generally agreed that innovation cannot be made to happen and does not depend on the effort involved, which makes it extremely difficult to teach and measure in a curriculum. However, if we consider innovation as the end result or product of an engineering design process, it is possible to define the “innovability” of a person, or the prerequisites needed for someone to be able to innovate. The project is indeed a consortium of innovative ideas for modern innovation mindset development. The 3 major components of the proposed framework are:-

1. Student-centered MakerSpace initiative
2. “Flipped Laboratory” modelling and prototyping modules (powered by Open edX platform)
3. Integrated cornerstone design course for first year students.

All three components are unique initiatives in Hong Kong and their integration means that students can create things freely at any time. Lack of venue, tools or technical skills will no longer be a constraint for Hong Kong students. The cornerstone design course aims to provide first-year students with the insight to innovate and practice engineering design processes in a systematic manner.

The research ground work in this project will contribute to the whole education sector and the assessment instrument will be applicable to all design-based courses. The interactive online learning materials and the flipped laboratory approach will also significantly enhance the creation and prototyping ability of the coming generations. The cornerstone design concept has been proven to be a best practice in higher education for design thinking development. The design team will scale up the scope of the course by inviting students from partner universities to participate when the framework is fully developed.

This is not an engineering project! The MakerSpace initiative and the Flipped Laboratory are intended to cultivate innovators and provide a one-stop technical and professional advice service to those who have no engineering background.