

Practice School: A STEM Model for Higher Education in Thailand

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ABSTRACT

As an emerging economy, Thailand needs educational reforms to drive the country into a more knowledge-based society to ensure its long-term sustainability. King Mongkut's University of Technology Thonburi (KMUTT), located in Bangkok, Thailand, has a long history of excellence in science and technology, and is a pioneer in adopting new learning paradigms. The STEM (Science, Technology, Engineering, and Mathematics) educational model has been implemented at KMUTT in the form of the practice school model, starting with Chemical Engineering in 1997 in a new curriculum called Chemical Engineering Practice School (ChEPS). ChEPS is a two-year international Master's degree curriculum, which requires that all its students go through one semester of compulsory full-time work-integrating learning (WIL) in the second year. The practice school is structured in such a way that students learn better and faster at placement companies because of the real-life nature of projects, the industry's commitments, and the presence of full-time KMUTT staff who work closely with the students. Companies benefit tremendously from the output generated by interned students.

Following the success story of ChEPS, KMUTT expanded the practice school model to a number of other graduate curricula, namely food engineering, tapioca starch industry, bioinformatics and systems biology, biotechnology, and biopharmaceutical engineering. While each curriculum has its own operational challenges, students in each program are able to develop active and self-learning as well as soft skills such as English proficiency, team building, and communications. So far, this teaching and learning paradigm has proven very successful and beneficial to all three stakeholders, namely the university, the industry, and the student. Finally, the win-win-win practice model is gaining a lot of traction and is being emulated at several other universities in Thailand.