

## Developing Problem Solving Skills through a Project-Based Course as Part of a Lifelong Learning for Engineering Students

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**Abstract :** The purpose of this paper is to investigate how engineering students' motivation and interests are maintained in their journeys. In recent years, different pedagogies of teaching, including entrepreneurship, experiential and lifelong learning, as well as dream builder, etc., have been widely used for education purposes. University advocates hands-on practice, learning by experiencing and experimenting throughout different courses. Students are not limited to gaining knowledge via traditional lectures, laboratory demonstrations, tutorials, and so on. The capability to identify both complex problems and their corresponding solutions in daily life are one of the criteria/skill sets required for graduates to obtain their careers at professional organizations and companies. A project-based course, namely Mechatronic Design and Prototyping, was developed for students to design and build a physical prototype for solving existing problems in their daily lives, thereby encouraging them as an entrepreneur to explore further possibilities to commercialize their designed prototypes and launch them to the market. Feedbacks from students show that they are keen to propose their own ideas freely with guidance from the instructor instead of using either suggested or assigned topics. Proposed ideas of the prototypes reflect that if students' interests are maintained, they acquire the knowledge and skills they need, including essential communication, logical thinking, and, more importantly, problem solving for their lifelong learning journey.

**Keywords :** problem solving, lifelong learning, entrepreneurship, engineering

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