

Applying Project Management and Design Thinking for Quality Improvement: A Case Study of Computer Engineering Students' Projects

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Abstract

Most undergraduate engineering programs delivered in Thai public universities require senior students to conduct an engineering project of their own. Quality of senior projects is considered as crucial concrete evidence of the program success. It enforces students to integrate all knowledge they learn throughout the four-year engineering program to create their masterpiece that responds to stakeholders' needs.

Given this, the Engineering Project is a required course in all engineering programs of Kasetsart University, including computer engineering one. However, based on previous records, the quality of students' engineering projects varied in terms of difficulty and completeness. Therefore, the Computer Engineering undergraduate program was redesigned by adding an "engineering project preparation" course to provide guidelines and prepare students to perform engineering projects to produce higher-quality work.

This article aims to present a case study of the improvement of the quality of the senior project, utilizing the concepts of project management (PM) & design thinking (DT), by comparing the year-on-year results at different periods of time. The data were obtained from October 2022 to March 2025. The study divided the students into 3 groups: Group A, B, and C, with different approaches of project management (PM) and design thinking (DT)

By comparing the quality of senior projects of each group, it is obvious that the earlier PM and DT concepts delivered to the students, the better quality of the senior projects were developed.

Keywords: quality improvement, project management, design thinking