

A Project-Based Learning Approach in the Course of 'Engineering Skills' for Undergraduate Engineering Students

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Abstract : A summary of experiences, recommendations, and lessons learnt in the application of PBL in the course of "Engineering Skills" in the School of Engineering at Australian College of Kuwait in Kuwait is presented. Four projects were introduced as part of the PBL course "Engineering Skills" to 24 students in School of Engineering. These students were grouped in 6 teams to develop their skills in 10 learning outcomes. The learning outcomes targeted skills such as drawing, design, modeling, manufacturing and analysis at a preliminary level; and also some life line learning and teamwork skills as these students were exposed for the first time to the PBL (project based learning). The students were assessed for 10 learning outcomes of the course and students' feedback was collected using an anonymous survey at the end of the course. Analyzing the students' feedbacks, it is observed that 67% of students preferred multiple smaller projects than a single big project because it provided them with more time and attention focus to improve their "soft skills" including project management, risk assessment, and failure analysis. Moreover, it is found that 63% of students preferred to work with different team members during the course to improve their professional communication skills. Among all, 62% of students believed that working with team members from other departments helped them to increase the innovative aspect of projects and improved their overall performance. However, 70% of students counted extra time needed to regenerate momentum with the new teams as the major challenge. Project based learning provided a suitable platform for introducing students to professional engineering practice and meeting the needs of students, employers and educators. It was found that students achieved their 10 learning outcomes and gained new skills developed in this PBL unit. This was reflected in their portfolios and assessment survey.

Keywords : project-based learning, engineering skills, undergraduate engineering, problem-based learning

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