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Abstract for Day 2

Challenges In The Development Of Experimental Courses Series For Multi-Disciplinary Undergraduate Students

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The Hong Kong University of Science and Technology (HKUST) aims to engage undergraduate students in making contributions to the community as well as create and facilitate educational and leadership opportunities. Undergraduate students are encouraged to utilize their engineering knowledge and technology knowhow innovatively in projects contributing to the society. We collaborate with School of Business, School of Science and faculty from School of Humanity and Social Science, and Interdisciplinary Program Office to design an undergraduate courses series to embed engineering knowledge and service leadership into two experiential learning in 2015.

In order to encourage multi-disciplinary learning and society collaboration, a mobile app design project was embedded into an experiential learning course in 2015. This course has been set up for students coming from different schools. They learn how to design a mobile App and server system of Articulation Screening and Training Tool for hearing impaired children. The students worked in sub team in different areas like mobile app design, data server construction and UI design. They will also need to organize service learning activities in collecting speech samples.

The course is collaborated with Non-Governmental Organization (The Hong Kong Society for the Deaf) in applying academic research into mobile App. The training tool can provide a simple platform for hearing impaired children to learn the phoneme in a fun way. The course offers interactive modules and unlike conventional lecture-based engineering courses.

Another course is the Underwater Robot Community Engagement Project. In March 2015, HKUST invited students from Primary Four to Form Three, with special education needs (SEN) and from ethnic minorities, to take part in a social inclusion project. Underwater Robot technology has been adapted for use in this social inclusion project. The HKUST Center for Global & Community Engagement (GCE), which organized the event, also recruited UG students who took the course to lead a two-day workshop for 18 teams in robot-making skills. Then, UG students became the mentors of contestants in participating in an Underwater Robot Competition. The competition was held in HKUST indoor swimming pool, with support from The Institution of Engineering and Technology Hong Kong, and was sponsored by Louie Industrial Company Limited.

The objectives of the workshop and the competition were to provide students with opportunities to learn and experience in the Inclusion, Science, Technology, Engineering, Art, and Mathematics (iSTEAM), and to nurture social inclusion and develop understanding of the values and needs of students with different abilities and backgrounds. The contestants needed to design and assemble their robots, including both electronic and mechanical components while their teachers could not interfere. The contests' aim was to spark junior students' interest in science and mathematics and it has also given the university's students a chance to serve the community. Undergraduate students have provided valuable lessons about teamwork to the contestants. It was really pleasing to use engineering knowledge to serve the society.

The reflective reports of UG students in these two courses indicated that they have great experience in the teamwork in a multidisciplinary group.

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