香港科技大學
THE HONG KONG UNIVERSITY OF SCIENCE AND TECHNOLOGY

Underwater Robot Community Engagement Project

ENGG 2900D/ SCIE 1090D/ SBMT 2100H (co-listed)

School of Engineering	**ENGG2900D Community Services Project**
School of Science	**SCIE 1090D Service Learning Program**
School of Business and Management	**SBMT2100H Social Responsibilities Project**

Course Title: Underwater Robot Community Engagement Project

Duration: Spring Semester, 2015-16

Course Syllabus

(I) Instructor

SENG: Prof. Tim Woo, Director of Center for Global & Community Engagement, School of Engineering & Prof. Carrie Ling, Lecturer, School of Engineering

SSCI: Prof. Pak Wo Leung, Associate Dean & Director of Office of Academic Advising & Support, School of Science

SBM: Prof. Emily Nason, Associate Dean & Director of UG Programs, HKUST Business School

Project Supervisors:
Prof. Tim Woo

Project Coordinator:
SENG: Ms Winnie Yuen
SSCI: Ms Miranda Fung
SBM: Ms Sophia Wan and Ozzy Tsui

(II) Project Introduction and Guideline

This Project course (ENGG2900D/SCIE1090D/SBMT2100H) gives HKUST undergraduate students the opportunity to work in teams from different schools (i.e. SENG/SSCI/SBM), to serve identified community group (i.e. primary and secondary school students/South Asian youths etc.), to understand limitations on the served groups and to learn how to apply theoretical knowledge on the building of underwater robots. Throughout the project, HKUST undergraduate students will act as teachers by transferring their skills of underwater robot building to primary and secondary school students and/or South Asian youths. HKUST undergraduate students will also learn the skills of event management throughout the project.

(III) Learning Objectives

Below are the learning goals and objectives for HKUST undergraduate students enrolled in this project:

- To learn the skills of building underwater robot and to transfer this skill to selected group of secondary school students/South Asian youths
- To understand the limitations of the served group (i.e. primary and secondary school students/South Asian youths) especially for hearing-impaired group
- To learn event management skills and to execute a two-day event during the project period
- To serve as teachers in teaching the served community group on how to build underwater robot

- To organize a competition for the served community group on underwater robot building
- To participate interactively in team discussions and decision-making
- To present your work in both written and oral form at the end of the project

(IV) Benefits of the Project

The Project is a tripartite partnership among the School of Engineering, School of Business and Management, and School of Science. From the receivers' perspective, the project provides the chance of transferal of the skills of underwater robots building at no cost. For HKUST, it also trains students' intellectual thinking outside their respective discipline.

(V) Role and Responsibilities of the Receiver (Primary Schools, Secondary Schools and/or South Asian Youths)

- To provide the number of primary and secondary school students joining the project and to ensure their attendance during the program
- Some additional information of served group
    - Primary and secondary school students
    - 5 students in a group
    - Education background: Primary 4 to Secondary 3
    - All the material will be provided by the organizers
    - Students will learn basic Science, Technology, Engineering and Mathematic (STEM) knowledge in the project.
    - Experience in the robot design is NOT required.

(VI) Role and Responsibilities of HKUST Students

- To complete the deliverables as stated in the syllabus (see below)
- To prepare reports and conduct presentations as required
- To keep close contact with the Project Supervisor and School's Project Coordinator
- To keep track on the project progress and ensure the deliverables to be ready on time
- To keep all data, information, analyses and recommendations confidential if requested by HKUST
- To represent themselves and the HKUST in a professional manner
- To ensure all students contribute equally to the project
- To prepare a self-reflective paper describing his/her learning experience at the conclusion of the project
- To strictly follow the university regulations on academic integrity and honesty, to use footnoting and citations in any of the reports where appropriate in order to avoid plagiarism

(VII) Course Requirements

- ***Each student*** is required to submit the followings to the HKUST Project Supervisors.
    - ***Deliverables as stated on the Course syllabus***
        - ✓ Self-reflective Paper, together with a minimum of six digital photos taken during the course of the project
        - ✓ Two Email Reports on progress update
        - ✓ Program and Peer Evaluation Forms

- At conclusion of the project, each group will need to conduct a final presentation to provide a detailed oral report on the entire project and post-event recommendations.
- All students **must attend all sessions** on the listed working schedule in Part (X) below (except the optional one on Apr 16-17, 2016)
- All team members should commit to the agreed due dates and respect the time devotion of the business partner for all interaction – punctuality and good preparation is expected

(VIII) Grading Scheme

This is a two-credit course, graded Pass or Fail. To achieve the Pass grade, each student must complete all tasks on time and meet the course requirements stated in (VII) above. Also, the required tasks must be satisfied by both the HKUST Project Supervisor(s) and School's Project Coordinator for students from respective Schools.

(IX) Class Size: 20 to 30 students (maximum = 30) – 10 students from each School

(X) Working Schedule

The working schedule stated below is subject to changes. HKUST reserves the right to make changes in the schedule as deemed appropriate. Any changes will be communicated to all parties concerned.

Week	Date/Time/Venue	Task
	January 25, 2016 (Mon) **Time: TBC** **Venue: HKUST (TBC)**	**Project Briefing** • gives brief introduction of the project and expresses expectations to students • inform students on the preliminary information of the type of served groups (e.g. primary and secondary school students/South Asian Youth) • inform students of the event executive arrangement on event days and what are expected from the HKUST students
	January 25, 2016 (Mon)	Course Registration • Students to enroll in the course by sending Expression of Interest via email to the Project Coordinator of the respective Schools on or before **Jan 28, 2016 at 12:00noon**
	February 1, 2016 (Mon)	Course enrollment announcement • SBM/SENG/SSCI office will shortlist successful students who can be enrolled in this course and notify them by email on or before February 1, 2016

Week	Date/Time/Venue	Task
1	**February 3, 2016 (Wed)** **Time: 6pm -8pm** **Venue: Room 4219, HKUST**	**Course Meeting – Kick-off Meeting** • Schools to provide details of the project scope • Recap key points of the whole project • Identify key roles and respective detailed responsibilities of all the students • Inform students of the served group arrangement • Inform students of the Event executive arrangement on the event days and what the students are expected to do • Ice-breaking Games • Introduce ways of doing a proper reflection • Group formation Reflection: • Pre-test Quantitative Survey
2		Chinese New Year Holiday: February 8 to 10, 2016
3	**February 17, 2016 (Wed)** **Time: 6pm -8pm** **Venue: Room 4219, HKUST**	**Course Meeting – Building Robots** • Teams to learn building robots
4	**February 24, 2016 (Wed)** **Time: 6pm -8pm** **Venue: Room 4219, HKUST**	**Course Meeting – Tips on Preparing Teaching Materials** • Teams to learn from Project Supervisor on how to write teaching materials • Teams to learn on how to present their teaching material
5	**March 2, 2016 (Wed)** **Time: 6pm -8pm** **Venue: Room 4219, HKUST**	**Course Meeting – Understand Different Groups** • Social Workers / professionals to give talks on topics related to: - South Asian Community - Visual Impaired Children - Hearing impaired Children
6	**March 9, 2016 (Wed)** **Time: 6pm -8pm** **Venue: Room 4219, HKUST**	**Course Meeting – Teaching Materials Presentation** • Teams to present and demonstrate their teaching materials prepared • Teams to prepare robot materials
7	**March 19, 2016 (Sat)** **Time: 9am to 5pm** **Venue: LT & Concourse, HKUST (TBC)**	**Competition – Briefing to Participating Teams & Water Testing for HKUST Students** • (9am to 1pm) Orientation with the participating children; HKUST students to serve as teacher to teach the served groups on skills needed for robot building

Week	Date/Time/Venue	Task
		• (2pm to 5pm) Water testing by HKUST students Reflection: • Short Reflection Task
8		Mid-Term Break
9	**April 6, 2016 (Wed)** **Time: 6pm -8pm** **Venue: Room 4219, HKUST**	**<u>Course Meeting – Preparation Meeting</u>** • Prepare the other competition work before event days
	April 9, 2016 (Sat) **Time: 10am to 5pm** **Venue: Hall 7 & Pool, HKUST**	**<u>Competition – Day 1</u>** • HKUST students to be the mentors of the served groups with modifying the robot design for mission tasks and conduct the trial run of the robot • HKUST Students to host a competition for building under-water robot in which the served community groups will be the participants.
	April 10, 2016 (Sun) **Time: 9am to 5pm** **Venue: Hall 7 & Pool, HKUST**	**<u>Competition – Day 2</u>** • HKUST Students to host a competition for building under-water robot in which the served community groups will be the participants. Reflection: • Post-test Quantitative Survey
10	**Apr 16-17, 2016**	(Optional) 5 winning teams will be recommended to join the Regional Competition, which is organized by IET-HK. You are welcome to assist these 5 winning teams in this competition.
11	**Week 11:** **April 20, 2016 (Wed)** **Time: 6pm -8pm** **Venue: Room 4219, HKUST**	**<u>Course Meeting – Final Presentation</u>** • Students will be invited to have 15-min presentation on their reports and experiences of working with each other. • School Project coordinator and project supervisors will be assessing the presentation
13	**Week 13:** **May 4, 2016 (Wed)**	Each student to submit the self-reflective paper, program evaluation form and peer evaluation form via email to their School's Project Coordinator at **<u>on or before May 4, 2016</u>** at 23:59