

ENGG 4930G Design for Global Health

(3 Credits) 2023-2024 Spring

Course Details

SIGHT Teaching Team

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Course description

This course is offered from Student Innovation for Global Health Technology (SIGHT) at HKUST, which aims to inspire and empower undergraduate students to brainstorm and create health technology innovation for sustainable implementation in developing regions around the world. The course therefore provides a general overview of the health problems in a global context, and provokes students' critical thinking and creativity to offer potential solutions to problem encountered in different cultural/urban settings. The setting provides motivation for students to develop appreciation of impact of science and engineering, while understanding the limitation of technology imposed by social, economic and cultural constraints.

Course ILOs

- Spark passion for learning, broaden horizons and liberate the mind
- Learn professional and technical knowledge in Global Health.
- Foster appreciation of arts and culture, social issues, and scientific and technological precision
- Work and communicate effectively in a cross-disciplinary team while solving Global Health issues
- Cultivate responsible, ethical and compassionate citizenship



Class time: 3 hours per week, based on the team's availability.

Projects

- Waste Management project in Kandy, Sri Lanka: Develop a 3T Processor to turn plastic into fuel and collaborate with local university students for on-ground implementation.
- Upcycling in Sri Lanka: Assist a local social enterprise in creating a sustainable business model to tackle waste management.
- Establishing healthy behavior for low-income workers in Pai, Thailand
- Establishing healthy behavior for low-income Ethnic Minority communities based in Hong Kong

Course Outline

- The schedule may be subject to minor changes depending on the circumstances.
- The arrangements for different teams may vary slightly based on project nature.

Week 1	<ul style="list-style-type: none">• Kickstart Meeting/Introduction to SIGHT ENGG 4930G project course – “Design for Global Health”• Confirm team time• Skills assessment for the team• Finalize Project Objectives during the 1st Team Meeting
Week 2	<ul style="list-style-type: none">• Design Thinking Workshop• Prepare for Literature Review
Week 3	<ul style="list-style-type: none">• Extensive Literature Review on existing solutions/technologies & global market:<ul style="list-style-type: none">◦ Each Team has to present for 1 hour plus 15 minutes of Q&A during their Team Meeting• Communicate with partners and finalize project objectives
Week 4	<ul style="list-style-type: none">• Team Work

Week 5	<ul style="list-style-type: none"> • 1st Internal Check for chosen teams
Week 6	<ul style="list-style-type: none"> • 1st Internal Check for chosen teams • Communicate with partners and update the results/feedback of the 1st Internal Check
Week 7	<ul style="list-style-type: none"> • Submission of Advisor Meeting Report
Week 8	<ul style="list-style-type: none"> • 2nd Internal check for chosen teams
Week 9	<ul style="list-style-type: none"> • 2nd Internal check for chosen teams • Communicate with partners and update the results/feedback of the 2nd Internal Check
Week 10	<ul style="list-style-type: none"> • Team Time
Week 11	<ul style="list-style-type: none"> • Prepare for Roadshow • Submission of Roadshow posters
Week 12	<ul style="list-style-type: none"> • Roadshow
Week 13	<ul style="list-style-type: none"> • Submission of Final Documentation • Course debrief • Peer Evaluation

Assessment scheme

Assessment components	Percentage
Literature Review: Presentation on existing solutions & global market	15%
Internal Check ×2	20%
Final Roadshow	25%
Final Documentation, Advisor Feedback Report & Personal Reflection	15%
Communication with partner	10%
Peer Evaluation (2x)	15%



Literature Review: Presentation on existing solutions & global market

Each team will have a 60-minute presentation plus 15-minute Q&A. The content and presentation skills, such as coherence and use of visual aids, will be evaluated.

Information should be gathered from literature and other resources. An in-depth understanding and analysis of the potential users and existing solutions/products are expected. Students should be familiar with the situation and dynamics of the population and areas to be served. The review should also provide/identify:

- A solid background on the project problem
- Similar technologies/solutions currently used in other communities
- Strengths and weaknesses of existing solutions
- Any gaps in existing solutions, and
- Hence the opportunities to make your proposed solution distinctive to these existing solutions

Internal Check x2

The prototypes will be tested on campus, in a setting simulating the real situation. The performance of prototype and the proficiency in collecting information from such testing will be evaluated.

Teaching team will design goals/milestones for each Internal Check, based on the initial objectives set by the team. Students are expected to obtain as much information as possible from the test, and incorporate the findings into the next round of iteration.

Final Roadshow

The Final Roadshow to showcase your project to the UST community. The Roadshow should include the background and scope of the project, rationale and evolution of the design, demonstration of the prototype and introduction of the implementation plan. Guests with relevant expertise and experience would be invited, such as SIGHT advisors, consultants, representatives from NGOs and social enterprises. The presentation is also open to UST community. For evaluation, each team will have 15 minutes for demonstration and 15 minutes for Q&A.

Final Documentation

This report will likely be the key (or even only) document where students can pick up where you have left off. So you need to pass over all related files to us to be uploaded to [SIGHT's GitHub](#), such as detailed description of your prototype, software codes with comments (if



coding was involved), design files (pictures and figures to illustrate your prototypes, 3D modelling files), user manuals, results of user tests, feedback from partners, etc.