ENGG 1300 – Design Thinking for Health Innovation (3 credits)

Tu 01:30 - 04:20 PM

Fall 2025/26

Course Description:

A project-based, experiential course that exposes students to the Design Thinking process for health innovation to address real-world unmet needs in society. The goal of this course is to develop students' communication, interpersonal, teamwork, analytical, design, and project management skills through a multi-disciplinary, team-based design experience. The Design Thinking process modules: empathise, define, ideate, prototype and test, will be introduced and the students will learn experientially by applying these process modules to solve the unmet health needs they observe in real life. The students are required to report their progress throughout the semester. Throughout the course, they will showcase their prototype in the project pitch and submit their project report. It is a common core course for students from different schools who have no background in Design Thinking or are looking for practical experience in Design Thinking.

This year the course will focus on "How to tackle stress and innovate interventions to design HKUST Life".

Learning Outcomes: At the end of the course, students will be able to:

- State and explain the process modules of Design Thinking
- Apply Design Thinking to solving real-world health issues in the society
- Work and communicate effectively in a multi-disciplinary team
- Generate innovative ideas, assess and perform iterative prototyping cycles to decide the best solution and implement ideas into innovations.
- Learn professional and technical knowledge on the design and innovation processes.

Course Plan: The course plan is designed to reflect the course goal and facilitate the learning outcomes. Workshops, sharing sessions and evaluations are planned for this course. The schedule may be subject to minor changes depending on the circumstances. The course details are as follows:

Week	Date	Remarks
1	Sep 02	Introduction and team building activities. - Ice-breaking - Introduction to course and Problem Statement. - Team building activities
2	Sep 09	Understand user needs - Understand the user needs and problem space - Observe existing technologies and practices - User research & brainstorm new ideas - Team formation for 1st round.
3	Sep 16	Ideation - Identify user needs - Brainstorm ideas - Develop initial prototypes - Introduction to personal Miro-board
4	Sep 23	Presentation: User Research & Initial Ideas (1st Presentation) - Team presentation on user/market research & initial ideas: Identified Problem Statement, existing technologies, findings from observations, proposed ideas - Feedback from peers and teaching team.
5	Sep 30	Introduction to Design Thinking: Workshop - Introduction to Design Thinking - Activities to practice Design Thinking concepts - Team time: Ideation for Problem Statement
6	Oct 07	Public Holiday
7	Oct 14	Prototyping Workshop I - Basic prototyping methods using cardboard, foam and other readily available materials. - Teams will conduct initial prototyping for their filtered ideas.

8	Oct 21	Team presentation: 1st Prototype (2nd Presentation) - 1st Prototype presentation: Teams will present their ideas and prototypes to the whole class. - 2nd Round team formation - (Re)-defining the problem space
9	Oct 28	Prototyping Workshop II & Team Time -Teams will present their new Problem Statement and ideas. - Workshop to introduce 3D printing, 3D modelling, laser cutting, app prototyping, simple handtools - Team time to develop prototypes
10	Nov 04	Prototyping Workshop II & Team Time -Teams will present their new Problem Statement and ideas to the class in the form of conversational prototypes and gather feedback. - Workshop to introduce 3D printing, 3D modelling, laser cutting, app prototyping, simple handtools - Team time to develop prototypes
11	Nov 11	Team time & Final testing - Final testing on prototypes before presenting at the Final Project Pitch - Student feedback for session for project ideas
12	Nov 18	Final Project Pitch Preparation and Feedback Session - Team will work on their prototypes and teaching team will provide feedback for each team, provide suggestions for further improvements.
13	Nov 25	Final Project Pitch: 2nd Prototype (3rd Presentation) - The pitch should include background and scope of the project, rationale and evolution of the design, demonstration(s) of prototype(s), and introduction of implementation plan. Course de-briefing - De-briefing session on the activities of the semester, lessons learned, what can be improved and possibilities to further develop ideas. - Teams will submit the group design video.

Assessment: The assessment outline is as follows

Assessment procedure	Percentage
1st Presentation: User/Market Research & Initial Ideas	15%
2nd presentation: 1st Prototype	15 %
3rd presentation: 2nd Prototype	20%
Project Report: Group Design Video	15%
Personal Reflection/ Miro-board	15%
Peer Evaluation (2x)	20%