NOTE: This syllabus is from the past offering of the course. Grey texts are subject to change in 2019/20.

Designing for People
CPSC 554K - Topics in Human-Computer Interaction

Course staff   Dongwook Yoon and Paul Bucci

Term   January 2020 - April 2020

Time/place   Wednesday 10 AM - 12 PM in FSC 2300

Course Overview   People are increasingly surrounded by interactive computational technology systems that are integral to their everyday life. However, poorly designed systems are common, and they can lead to negative outcomes such as frustration, lost time, and errors. The role of design is more crucial than ever before for crafting appropriate systems that truly meet people's needs, abilities, and expectations.

The Designing for People (DFP) "Topics" Project course enables students to gain hands-on collaborative experience solving real-world design challenges, by integrating end users into the design process and synthesizing appropriate techniques within the context of reflective practice and design thinking. Working with an instructor team comprised of DFP faculty and project sponsors, students will learn to understand and frame a design situation, to develop a design concept through successive levels of prototyping, to evaluate their design, and to communicate it to others for feedback and decision-making support.

Interdisciplinary student teams collaborate closely with project sponsors drawn from, e.g., industry, health organizations, and nonprofits such as schools, museums and neighbourhood collectives. Project sponsors will provide problem/opportunity areas at the beginning of the course and ideas for projects in that space. Student teams will be formed based on individual interest, and will be diverse across the UBC faculties represented by the students. The teams will spend the first week of the course defining the project they will work on for the rest of the course. Project sponsors will work with students to refine the design opportunity and create a viable solution including appropriate technological elements.

Project Selection   Before the start of the course, students will be presented with a set of problem areas by external sponsors (e.g., industry or community). A ranking process will allow students to provide the instructors with guidance on their project preferences. Instructors will determine the leading projects, and will create tentative teams guided by student rankings and other factors. During a preliminary "mini-retreat", sponsor liaisons will meet with all students, and students will confer to form final teams.

Course Timeline   Following our design-thinking process, there are 6 project milestones, approximately every two weeks, including a final Design Showcase event. Each team will need to be prepared to present their work in the form of a "design review", for which they will be marked and receive constructive feedback. An outline of what might be required for each of the milestones is given below.

1. Empathize: Teams will employ different data collection techniques (e.g., Interview, observation, and questionnaire) to gather data around their chosen topic and will present the ethnographic data and preliminary findings to the class to receive feedback.

2. Define: In this stage, teams will craft a meaningful and actionable problem statement or design focus through analysis of the information gathered about user needs and context.

3. Ideate: Teams will develop a conceptual design of their potential interactive computational system, considering their participant group requirements. This stage provides source material for building conceptual prototypes and innovative solutions to address the problem.

4. Prototype: Prototype creation requires an iterative process and can be implemented for the early exploration phase (low-fidelity artefact) or the final phase (high-fidelity artefact). At this stage, teams need to create a working prototype (first iteration) of a computational technology according to their leading concept. The prototype needs to detail how the concept will be experienced and used.

5. Test: In this phase, teams will develop testing protocols and then test their prototype with their target user group of people. Based on feedback to their presentation of test findings, teams will improve and further refine the prototype for the final design showcase. The prototype should ideally be tested within the real context of the target users' life to achieve higher-quality experimental results.

6. Design Showcase: Teams will present their final refined prototype and the findings from their experiments. This assignment should be finish quality (i.e., well crafted and refined execution) to communicate the products' concepts to peers, instructors and, above all, their sponsors.

Audience	CPSC 554K is the second core course of the Designing for People (DFP) program, and is also open to non-DFP graduate students who are curious how to design effective interactive systems.
Prerequisites	Completion of CPSC 544 (graduate-level introductory human computer interaction course) or equivalent, approved by the instructor.
Format	Once every two weeks starting in Week-1: a 2-hour "Design Review" session, featuring each team's presentation/critique session (teams+instructors). For example, in Week-3, the team presentations on the "Empathize" results will be conducted. Each presentation will be 10 minutes, with 20 minutes of Q&A. Any remaining time can be used for ad hoc working meetings.

Once every two weeks, starting in Week-2: a working meeting, with 30 minutes for each team to meet with all 3 instructors (teams will lead these meetings, coming prepared with updates and questions). When not meeting with instructors, the teams should spend the time working on their projects. DFP mentor/team meetings will be scheduled every 2-4 weeks, depending on need and mentor availability, and will be conducted in these working-meeting weeks. |
Communication	All communication will go through Slack (channel: dfp-project, matters that are of a personal sensitive nature should go through UBC email to the instructors.)
Links	Assignment submission and discussion - Canvas (Link) Communication - Slack (Link) Frontpage - UBC Blog (TBD)
Office hours	Mike Van der Loos (Engineering Design Centre rm 231): by appointment. vdl@mech.ubc.ca Dongwook Yoon (ICCS x663): by appointment (check his free/busy calendar before scheduling) Sabrina Hauser (ICCS x669): by appointment. shauser@cs.ubc.ca
Deliverables	1. Project portfolio (report) to capture and document the design process and stages in team. 2. Prototype deliverables of an interactive computational technology. Examples of potential technologies are interactive 2D interfaces, interactive 3D devices, wearables, robots, and so on. 3. Critiques and design review presentation for each design stage (Empathize, Problem Definition, Ideation, Prototyping, Testing). >>> At each presentation, have teams provide a PDF of their presentations to the teaching team.
Learning Goals	Upon successful completion of the course, the student will have demonstrated the ability to:

- Collect and analyze information about a specific group of people to appropriately define their activities, experiences, and needs.
- Collaborate effectively within multidisciplinary teams and with industry partners, mentors, and instructors during the entire course of the project.
- Apply knowledge and skills gained in the CPSC 544 prerequisite course (or equivalent) to solve real-world design challenges in a longer project.
- Gain experience with tools and methods for prototyping, and construct design solutions for real-world design challenges.
- Effectively identify, apply, and propose appropriate design methods and data collection/analysis techniques when investigating a research problem.

Roles of People involved	**Course Instructors** The instructors pace the student teams through the curriculum through weekly meetings (scheduled class time) and keep track of student's progress and ultimately grade students' performance in this project class. **Industry Partners** The industry partners will provide the project topic and problem/ opportunity for the student team. There should be a designated liaison from the industry partners. The idea is that sponsors will give their designated student team access to information for the design project, this may include access to data, personal, staff, technology frameworks (software or hardware) for prototyping purposes. Student teams meet with their industry partners approximately every 2-4 weeks to discuss their progress. **Domain Expert Mentors** The expert mentors are UBC faculty that offer domain-specific expertise and resources. There will be one faculty mentor for each project team. Teams should meet with their mentor for an hour once every 2-4 weeks to discuss the state of the project especially focusing on problems and opportunities the team is encountering. Project mentors are invited to attend Design Reviews, which will run every 2-3 weeks during class time on Wednesdays 10AM-noon (optional, or attend by videoconference). Project mentors should attend the final Design Showcase in May.
Grading Scheme	Your course mark will be based nominally on the following breakdown. The instructor reserves the right to revisit this weighting upon discussion with the team members.

Design review presentations (critiques)	30%
Final project portfolio/report	30%
Quality of all prototypes	30%
Professionalism, Teamwork and Collaboration	10%

Required Texts/Materials	There is no required textbook. The materials and references from CPSC 544 will be highly useful to students in CPSC 554K.

Schedule

Wednesday, Jan. 2	Opening Lecture, intro to the course, working meetings
Wednesday, Jan. 9	Working meetings
Wednesday, Jan. 16	**Empathize Design Review**
Wednesday, Jan. 23	Working meetings
Wednesday, Jan. 30	**Define Design Review**
Wednesday, Feb. 6	Working meetings
Wednesday, Feb. 13	**Ideate Design Review**
Wednesday, Feb. 20	Break week
Wednesday, Feb. 27	Working meetings
Wednesday, Mar. 6	**Prototype Design Review**
Wednesday, Mar. 13	Working meetings

Wednesday, Mar. 20	Working meetings (VdL out of town)
Wednesday, Mar. 27	**Test Design Review**
Wednesday, Apr. 3	Working meetings
TBD	**Design Showcase**
Wednesday, May 8	**Final reports to be submitted**