Instructor: WonJoon Chung  
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Office Hours: During studio/lecture hours or by appointment.

Time and Location: Please refer to Carleton Central under Student Services – Registration – Search Schedule: https://admissions.carleton.ca/faqs/where-can-i-find-the-class-schedule/

Course Description:
Application of design principles in a comprehensive design project. Problem area chosen should be product oriented and of sufficient complexity. Normally undertaken in consultation with off-campus organizations and industry; supervised by faculty members. Includes: Experiential Learning Activity. Precludes additional credit for IDES 4300 (no longer offered). Prerequisite(s): IDES 3302 or permission of the School of Industrial Design. Studio and lectures six hours a week in Fall and twelve hours a week in Winter.
Learning Outcomes:

By the end of this course, students will be able to:

1. Apply research methods to define a unique design problem.
2. Bridge their research to the development of an appropriate design proposal.
3. Evaluate their proposed design solution with relevant stakeholders reflective of practitioner behaviour.
4. Demonstrate a basic understanding and need for ethics to develop and evaluate appropriate designs.
5. Develop methods and materials to develop and assess design solutions.
6. Produce a range of appropriate professional deliverables at each phase as reflected in the fields of design.
7. Establish a good working relationship with external partners, which includes receiving and incorporating feedback from partner groups.

Required Materials:

Materials required for the course are listed below. You may be asked by your instructor to refer to cuLearn and ARES for a more comprehensive list of required materials.

Type here for materials not covered on cuLearn.

Computer Requirements:

Please refer to the computer requirements on the School of Industrial Design Website:

http://www.id.carleton.ca/undergraduate/about-the-bid-program/computer-requirements

Type here for any additional computer requirements that may not be covered on the website link above.

Course Deliverables:

These are the deliverables for this course. Please see Appendix A Course Schedule for more detailed information.
Fall 2019 (Quantity > Quality)

Presentation 1: Background Research & Early Ideation due by Oct. 3rd. (10%)
Present the early design ideas, particularly, functional aspects and possible technology / mechanism.

- Deliverable: 1. Slides for oral presentation to explain the current user situation, needs & problems, and a preliminary written design concept. 2. A LOT OF idea sketches to explore your ideas and early prototypes to test some aspects of your design ideas.

Further requirements for deliverables will be presented to students during scheduled studio. The deliverables must be submitted to WonJoon or TA by the 3rd of October at 4:30 pm.

Presentation 2: Preliminary Design due by Nov. 7th. (10%)
Present the revision of the design ideas presented in the 1st presentation. In this time, your focus goes more on the significant issues, notions and concerns about user context that is identified from you research.

- Deliverables: 1. Revised Written Design Brief (11 x 8.5). 2. A LOT OF idea sketches with (functional aspects + Usability aspects in given user contexts). 3. Prototypes (Low-Fi) to test your design ideas.

Printed design brief and presentations materials must be presented and submitted by the 31st of October at 4:30 in 4th year studio. Further requirements for deliverables will be presented to students during scheduled studio.

Presentation 3: Pecha Kucha Presentation - Due by Dec. 5th (20%)
Present a promising design idea as well as critical questions and challenges required tests through prototypes. The proposed design concept will be reviewed and evaluated accompanied by recommended revisions. The deliverables below must be submitted by 9:30 am on the 5th of December.

- Deliverables: Final Research Document, Oral Presentation & Prototype for testing
  1. Final Research document: This document is about the research completed in the fall semester. The research does not end at this point, but further investigation will take place throughout the project.

  2. Oral presentation: This will be a group presentation where each team member will conduct an oral presentation to present his or her design concept and ideas developed during this semester that will logically conclude with a specific project proposal. This presentation may employ a variety of media but must clearly illustrate all critical aspects of the proposed design.

  3. Prototypes and notational sketches: The number of prototypes that have been used to test ideas and assumptions must be presented. Future plan to test such as usability testing or user experience evaluation for the next term must be presented as well.

Printed report and presentations materials and prototypes must be presented and submitted by the 5th of December at 4:30 in 4th year studio. Further requirements for deliverables will be presented to students during scheduled studio.

Winter Semester 2020 (Quality > Quantity)

The winter semester consists of three presentations as well; Presentation 4: Design Specification, Presentation 5: Detail Design, and Presentation 6: Final Design. These presentations will be a specification
of your design developed in the fall semester. The process conducted in this semester will be relevant to the range of projects being done by each student; the activities presented will be required to be completed by all students. It is essential that the students document all the work completed during this semester, as this information will be included in the final presentation and documentation, as well as it will be vital in the development of your portfolio.

Presentation 4: Design Specification • Walk-around Review commences at 9:30 am, Feb 7th (15%)

The design specification would be an area to specify main features of your design concepts from all the issues addressed at the conclusion of the fall semester. The design concept that was approved from the presentation 3 will be developed further by employing a range of supporting visual material and test models that capture the overall design concerns and questions.

- Deliverables: Students will present specific design solution through multiple media (e.g. Drawings, Prototypes and CAD) and show evidence its feasibility, usability, reliability and other methods of evaluation to the public. Presentation material that clearly illustrates design intent will be strongly required to get valuable feedbacks and comments from the audience.

- The Walk-Around Review will start on the 7th of February, 9:30 am until 5 pm. All presentation materials and models must be set up the day prior to the Walk-Around Review, if a student is not setup by 9:30am they will not be allowed to present. Further requirements for deliverables will be presented to students during scheduled studio.

Presentation 5: Detail Design • Due by 4:30 pm Mar. 4th • Presentation 9:30 am Mar. 5th (15%)

This is a place where final revisions must be made, and all detail design solution to problems and objectives must be proposed. The proposed design through all required and relevant visuals, models and digital representations will be presented to validate the final design outcomes. The final design will illustrate precisely how the test methods used, and the analysis of the findings justified any changes in the chosen design direction. Also, students should be aware that this is the time to avoid any distraction that may undermine your progress with surprising information or developments.

- Deliverables: Technical drawings, physical scale models and detail illustrations that capture the final design intent. Story board with preliminary digital media and initial draft of final report. Further requirements for deliverables will be presented to students during scheduled studio.

Presentation 6: Final Design • (TBD) (30%)

Students will conduct a formal presentation of their work to the instructors and the industry partners before the Grad Show. The final review will be the final presentation board with a distinct culmination of work completed for all the phases of the project and the final design outcomes as well as the final model. A signed contact (or checklist) will be made between the instructor and the student at the rehearsal of the grad show to identify the specific deliverables agreed upon for completion. Failure to meet to the contract will constitute grounds for failure of the course.
- Deliverables: Product design specification and a general assembly with supportive technical drawings, high fidelity appearance models either in 1:1 or with one detail component in 1:1, design process document, Final grad show poster, finished digital media. Further requirements for deliverables will be presented to students during scheduled studio.

Course Completion Requirements
Students need to achieve an overall passing grade of C-, in order to pass the course. In addition, each student needs to complete and achieve at least a D in every phase of the course in order to meet the criteria for a passing grade. Students who receive a grade below C- in any phase must consult with the instructor before continuing on to the next phase.

- Grade scheme

  Fall Term 2019
  Presentation 1: Background Research & Early Ideation 10%
  Presentation 2: Preliminary Design 10%
  Presentation 3: Pecha Kucha Presentation 20%

  Fall Total 40%

  Winter Term 2020
  Presentation 4: Design Specification 15%
  Presentation 5: Detail Design 15%
  Presentation 6: Final Design Review 30%

  Winter Total 60%

  Total 100%

Individual/Group Work
Courses may include individual and group work. It is important in collaborative work that students clearly demonstrate their individual contribution.

Studio Review Attendance
Attendance at scheduled SID Reviews is mandatory. These are equivalent to exams when indicated in the course outline. Failure to attend the Review without reasonable cause, will result in a grade of F. Students arriving late for the Review or not remaining for the complete session
without approval from the instructor, will be addressed on a case-by-case basis at the discretion of the instructor.

If you are not able to attend a Review, foresee arriving late or need to leave before it is complete, please email your instructor in advance explaining the reason for the situation. It is important that you provide a reasonable rationale for your absence, late arrival or early departure. In the event of an illness or death in the family, you will be required to sign a form verifying your claim and this form is available through the SID administration office.

Late Submission of Lecture & Studio Deliverables
Students who do not hand in deliverables on time will have their earned grade reduced by 10% per day up to a maximum of 3 days.

Participation and Professionalism
Active participation and professional conduct (e.g. class discussion, consultations with instructors, work ethic, etc.) are important in lecture and studio courses and may be formally evaluated by a grade.

Student Access to Quiz, Test and Exam Papers
Choose an item

Requests for Academic Accommodation
You may require special arrangements to meet your academic obligations during the term. For an accommodation request for any of the following topics below, refer to the link provided for more information: https://students.carleton.ca/course-outline/

- Parental Leave
- Religious/Spiritual Obligation
- Academic Accommodations for Students with Disabilities
- Survivors of Sexual Violence
• Accommodations for Student Activities

Academic Integrity

Carleton’s Policy on Academic Integrity is available at: https://carleton.ca/registrar/academic-integrity/ and covers the following topics:

Plagiarism (e.g. submitting work in whole or in part by someone else, failing to acknowledge sources through the use of proper citations when using another’s work).

Test and Exam Rules (e.g. attempting to read another student’s exam paper, speaking to another student even if the subject matter is irrelevant to the text, using material not authorized by the examiner).

Other Violations (e.g. improper access to confidential information, disruption in classroom activities, misrepresentation of facts for any academic purpose).

The policy governs the academic behavior of students. In industrial design, ideas and concepts come from a multitude of sources and may be modified and utilized in the design and development process. The student should reference such sources appropriately and it is strongly advised that you read Carleton’s Policy on Academic Integrity prior to conducting any work at the University.

Student Responsibility

The student is responsible for knowing the content of this course outline; the schedule of classes, assignments, and/or Reviews; and the material that was covered when absent. The studio is a professional environment and students should be working during the scheduled hours.

Unless otherwise arranged, the class will meet during scheduled class hours. Please note that attendance is important since issues and questions may be raised in class, and announcements made, along with information disseminated through cuLearn. As external professionals are often involved in our work, scheduling changes for guest lectures, presentations, and Reviews may occur at short notice, requiring students to stay informed.

Changes to the Course Outline

The course outline may be subject to change in the event of extenuating circumstances.
### Appendix A – Course Schedule

#### Appendix A – Course Schedule IDES 4310· Major Project · FALL 2019

<table>
<thead>
<tr>
<th>Phase</th>
<th>Dates</th>
<th>Topics</th>
<th>Activity to do</th>
<th>Assignments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction</td>
<td>wk1 (9/5)</td>
<td>Course schedule, approach, deliverables, expectation. Design Process for innovation.</td>
<td>Review the projects, Make a list of question to ask. Reasoning process</td>
<td>Collect existing designs, Prepare questions for next week.</td>
</tr>
<tr>
<td>Understand (what is?)</td>
<td>wk2 (9/12)</td>
<td><strong>Presentation by industry partners along with Q&amp;A session</strong></td>
<td><strong>Choose your project.</strong> Look for major concern, issues, problems, challenges in a chosen project.</td>
<td>Categorize current situation (e.g. users, market, technology and other concerns)</td>
</tr>
<tr>
<td>Early Ideation (What if?)</td>
<td>wk3 (9/19)</td>
<td>Lateral thinking and bisociation</td>
<td>Forced association through idea sketches</td>
<td>Scenario building &amp; idea sketches (functional aspect)</td>
</tr>
<tr>
<td>Secondary Research (What is?)</td>
<td>wk4 (9/26)</td>
<td>Early prototype to test your early curiosity and assumption</td>
<td>Keep generating ideas through sketches and test initial ideas through low-fi prototypes</td>
<td>Idea exploration by using prototypes and idea sketches</td>
</tr>
<tr>
<td>Presentation 1 (How about?)</td>
<td>wk5 (10/3)</td>
<td><strong>Presentation 1 Design Brief draft</strong></td>
<td>Present your initial design to class and note feedback and comments.</td>
<td>Summarize the feedback and make a plan to next step.</td>
</tr>
<tr>
<td>User research (What is?)</td>
<td>wk6 (10/10)</td>
<td>Understand target users, Observation &amp; Interview Ethics proposals</td>
<td>Conduct user research methods (e.g. interview, observation, survey)</td>
<td>Collect user data (e.g. demographics, desires, issues, problems etc.)</td>
</tr>
<tr>
<td>Ideation (What if?)</td>
<td>wk7 (10/17)</td>
<td>Individual consultation</td>
<td>Idea sketching and prototyping</td>
<td>Prepare materials for the 2&lt;sup&gt;nd&lt;/sup&gt; presentation</td>
</tr>
<tr>
<td>Fall Break</td>
<td>(10/24)</td>
<td>Fall Break</td>
<td>Fall Break</td>
<td>Fall Break</td>
</tr>
<tr>
<td>Eureka! (What wow?)</td>
<td>Wk8 (10/31)</td>
<td>Develop innovative ideas through iteration</td>
<td>Present your design to class and note feedback and comments.</td>
<td>Summarize the feedback and plan to next step.</td>
</tr>
<tr>
<td>Presentation 2 (How about?)</td>
<td>Wk9 (11/7)</td>
<td><strong>Presentation 2 Discuss missing information</strong></td>
<td>Gather missing data (e.g. materials, manufacture, sustainability, etc.)</td>
<td>Idea sketches</td>
</tr>
<tr>
<td>Further research (What is?)</td>
<td>Wk10 (11/14)</td>
<td>Test functional aspects of your design through working prototypes</td>
<td>Sketches and prototyping with consultation</td>
<td>Explanatory sketches and proof of concept prototype</td>
</tr>
<tr>
<td>Ideation (What if?)</td>
<td>wk11 (11/21)</td>
<td>Additional ideation</td>
<td>Test your ideas</td>
<td>Prepare presentation materials for the final.</td>
</tr>
<tr>
<td>Details &amp; Revision (What works?)</td>
<td>wk12 (11/28)</td>
<td>How to give an effective presentation?</td>
<td>Work on the presentation</td>
<td>Presentation materials</td>
</tr>
<tr>
<td>Presentation 3</td>
<td>wk13 (12/05)</td>
<td><strong>Pecha Kucha Presentation (presentation 3) to public</strong></td>
<td>Note the feedback and comments</td>
<td></td>
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</tbody>
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