INSTRUCTOR: Miles Hammond
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Room 446 Azrieli Pavilion.
Tel. 613 • 560 • 2600, ext. 5672

TEACHING ASSISTANT: Alanaa Bamber
alanaabamber@cmail.carleton.ca
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.

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

Course Deliverables:

These are the deliverables for this course. Please see Appendix A Course Schedule for more detailed information.

FALL SEMESTER 2019
#1 - Initial Design Ideas and Direction due on Sep. 26th (Our Group Only) 15% of grade

Students will make a short presentation (5 minutes each) in small groups of their project theme and direction. This is your final project selection.

**Deliverable #1: Slides for oral presentation.** Slides must include:

- Problem and needs identification – why are you designing it, what will be the benefit to the user, issues that need solving
- User/Group Identification – who will this be designed for and why.
- Sketches – Lots, showing a wide variety of concepts and idea directions, functional aspects and possible technology/mechanisms that will be explored
- Brief exploration of potential materials and manufacturing options

*All required deliverables need to be submitted to Miles Hammond or TA before 9:30 am on Sep. 26th.*

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#2 – Research / Design Brief Finalization due on Oct. 17th (All Groups in 4th Year) 15% of grade

Round table assessment of revised design direction that was presented in #1 deliverables. Focus will be on detailed results from background research.

**Deliverable #2: Written Design Brief/Materials**

- Sketches – Updated sketches showing functional and usability aspects.
- Prototypes – Showing testing of the design ideas and problem solving
- Design Brief – 8.5X11 document discussing the significant issues, notions and concerns of the users based on your research.

*All required deliverables need to be submitted to Miles Hammond or TA before 9:30 am on Oct. 17th.*
#3 – Design Concept Development Presentations – Pecha Kucha Presentation due Dec. 5th
20% of grade

Each student will have 3 minutes to present their project to the class. They will present their most promising design idea as well as explain the critical challenges and questions they have faced.

**Deliverable #3:**

- Research Report – background and focused investigations up to this point. (8.5”X11”)
- Oral Presentation (3 minutes) to the entire class,
- 3 presentation slides showing your selected design/ Users and problems you are solving (elevator pitch deck)
- Prototypes that have been used so far, assumptions, and ideas.
- Sketches showing many alternative design directions and exploration based on user feedback and testing.

*All required deliverables need to be submitted to Miles Hammond or TA before 9:30 am on Dec 5th.*

**WINTER SEMESTER 2020**

#4 Preliminary Design – Walk-around review due Feb. 6th (our group only) 15% of grade

Students must present a creative and compelling design solution based on all the issues and problems identified and addressed in the conclusion of the fall semester.

**Deliverable #4:**

- Test models that capture the overall design (concerns and questions)
- Presentation poster showing how all the design issues are addressed, and show results of usability testing.
- All models and visual material need to be set up before 9:30 am on Feb. 6th.
All required deliverables need to be submitted to Miles Hammond or TA before 9:30 am on Feb. 6th.

#5 Definitive Design - Round table review due Mar. 5th (our group only) 15% of grade

Students must demonstrate how their design addresses all the problems and objectives. This is final revision to the design. The design solution needs to be presented and validated through relevant visual models and digital representations.

Deliverable #5:

- 3D CAD model and rendering
- Technical drawings of design
- Physical scale model (as agreed upon)
- Initial rough draft of final report (more details on requirement for final report will be handed out in class)

All required deliverables need to be submitted to Miles Hammond or TA before 9:30 am on Mar. 5th

#6 Final Review – due Apr. 2nd. 20% of grade

Students will conduct a formal presentation of their final project to the industry partners.

Deliverable #6:

- Presentation board – product design specification, general assembly, technical drawings,
- high fidelity (perfect) appearance model.
- Final Report Due

All required deliverables need to be submitted to Miles Hammond or TA before 9:30 am on Apr. 2nd.

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**

Examinations will be returned to students with comments and explanations.

**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/](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**

<table>
<thead>
<tr>
<th>Date</th>
<th>Deliverable</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sep 5</td>
<td>Sorting Hat into Groups</td>
<td>Review of each students thesis direction</td>
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<tr>
<td>Sep 12</td>
<td>Presentation by Glen Duff</td>
<td>(stakeholder) - SKETCHING</td>
</tr>
<tr>
<td>Sep 19</td>
<td>Meeting by Group</td>
<td>- Set expectation for Phase 1 Deliverable</td>
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<tr>
<td>Sep 26</td>
<td>Deliverable #1</td>
<td>My Group only Review of Deliverables - 15 Students - Project Selection</td>
</tr>
<tr>
<td>Oct 3</td>
<td>Individual Review of projects</td>
<td>- SKETCHING - Early Prototypes - User Understanding</td>
</tr>
<tr>
<td>Oct 10</td>
<td>Meeting by Group</td>
<td>- Set expectation for Phase 2 Deliverable - Design iteration</td>
</tr>
<tr>
<td>Oct 17</td>
<td>Deliverable #2</td>
<td>Research - Review concept Development</td>
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<td>Fall Break</td>
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<tr>
<td>Oct 31</td>
<td>Review of Deliverable # 2</td>
<td>- Set out Testing / Ethics - Plan next 4 weeks</td>
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<tr>
<td>Nov 7</td>
<td>Touch base with Industry</td>
<td>Experts - Model testing plan</td>
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<tr>
<td>Nov 14</td>
<td>Meeting by Group</td>
<td>- Research focus and exploration</td>
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<tr>
<td>Nov 21</td>
<td>Individual Review of Projects</td>
<td>- Prototype / Research exploration Report</td>
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<tr>
<td>Nov 28</td>
<td>Meeting by Group</td>
<td>- Set expectation for Phase 3 Deliverable</td>
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<tr>
<td>Date</td>
<td>Event</td>
<td>Description</td>
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<tr>
<td>Dec 5</td>
<td>Deliverable #3</td>
<td>Pecha Kucha - All Studio Review 5 min each</td>
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<td>Dec 25</td>
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<td>Christmas!</td>
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<tr>
<td>Jan 9</td>
<td></td>
<td>Review of Deliverable #3 - Set out Testing / Ethics - Plan next 3 weeks</td>
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<td>Jan 16</td>
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<td>Touch base with Industry Experts - Model testing plan</td>
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<tr>
<td>Jan 23</td>
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<td>Individual Review of Projects - Prototype /</td>
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<tr>
<td>Jan 30</td>
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<td>Meeting by Group - Set expectation for Phase 4 Deliverable</td>
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<tr>
<td>Feb 6</td>
<td>Deliverable #4</td>
<td>Preliminary Design</td>
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<td>Feb 13</td>
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<td>Meeting By Group - User Testing of Prototypes / Design Definition/ Problem Solving</td>
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<td>Feb 20</td>
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<td>Winter Break</td>
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<tr>
<td>Feb 27</td>
<td></td>
<td>Meeting by Group - Set expectation for Phase 5 Deliverable</td>
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<tr>
<td>Mar 5</td>
<td>Deliverable #5</td>
<td>Definitive Design</td>
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<tr>
<td>Mar 12</td>
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<td>Individual Review of Projects with focus on Model Building/Definitive Design</td>
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<tr>
<td>Mar 19</td>
<td></td>
<td>Individual Review of Projects with focus on Model Building/Definitive Design/Report</td>
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<tr>
<td>Mar 26</td>
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<td>Prelim Review and rehearsal of their completed work</td>
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<tr>
<td>Apr 2</td>
<td>Deliverable #6</td>
<td>Final Review - Presentation of Definitive Design and Model</td>
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<tr>
<td>Apr TBD</td>
<td>Grad Show</td>
<td>Display of final projects</td>
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– Course Schedule IDES 4310 • Fourth Year Major • FALL 2019.