

COURSE OUTLINE IDES 4310B • CAPSTONE PROJECT • Fall-Winter (2022)

Instructor: Tim Haats

tim.haats@carleton.ca

Location: **2498 Mackenzie**

Office Hours: by appointment

Teaching Assistant: Ben Koskowich

benkoskowich@cmail.carleton.ca

Office Hours: by appointment

Course Time and Location: Please refer to Carleton Central under Student Services – Registration or Search Schedule: https://central.carleton.ca/prod/bwysched.p_select_term?wsea_code=EXT

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. Use appropriate 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.

Course Deliverables

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

Fall Term – 35% of Final Grade

Phase 1: Discovery & Definition	15%
TCPS 2: CORE-2022 Certificate	
User Research Plan	
Design Brief v.1.0	
Preliminary Project Report	
Review Presentation	

Phase 2: Concept Design	20%
Design Brief v.2.0	
Interim Project Report	
Review Presentation	

Winter Term – 65% of Final Grade

Please 3: Preliminary Design	20%
Test Plan	
Design Brief v.3.0	
Review Presentation	

Phase 4: Definitive Design	15%
Design Brief v.4.0	
Review Presentation	
Phase 5: Final Design & Documentation	25%
Design Poster	
Design Model	
Design Video	
Technical Package	
Final Project Report	
Participation & Professionalism	5%

Student Access to Quiz, Test and Exam Papers

Examinations are for evaluation purposes only and will not be returned to the student.

Required Materials

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

Books:

The following books are not required, but will be useful references to support your work throughout the academic year (some are available online through Ares library reserves, accessible from Brightspace):

Hallgrimsson, B. (2019). *Prototyping and modelmaking for product design* (Second edition). Laurence King Publishing.

Martin, B., & Hanington, B. (2019). *Universal methods of design (expanded and revised): 125 ways to research complex problems, develop innovative ideas, and design effective solutions*. Rockport Publishers.

Milton, A., & Rodgers, P. (2013). *Research methods for product design*. Laurence King Publishing.

Sharp, H., Rogers, Y., & Preece, J. (2019). *Interaction design: beyond human-computer interaction* (Fifth edition). Wiley.

Tilley, A. (2002). *The measure of man and woman: human factors in design* (Revised edition). Wiley.

Weinschenk, S. (2020). *100 Things Every Designer Needs to Know About People* (Second edition). New Riders.

Project Specific Materials:

Other specific materials will be dependent upon each individual project. You must be prepared to acquire or purchase the appropriate materials necessary for you to complete your own unique research and design development activities throughout the fall and winter terms.

Computer Requirements

Please refer to the computer requirements on the School of Industrial Design Website. You may be asked by your instructor to refer to Brightspace for other information or requirements related to computer work.

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

Individual/Group Work

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

Review/Presentation Attendance

Attendance at scheduled SID Reviews/Presentations is mandatory. These are equivalent to exams when indicated in the course outline. Failure to attend the Review/Presentation without reasonable cause, will result in a grade of F. Students arriving late for the Review/Presentation 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/Presentation, 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.

Professionalism also includes Carleton's Policy on Academic Integrity described in more detail below with links to content which you are required to review.

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).

This 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.

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/>

- **Pregnancy obligation:** Please contact your instructor with any requests for academic accommodation during the first two weeks of class, or as soon as possible after the need for accommodation is known to exist. For more details, please review the [Student Guide to Academic Accommodation \(PDF, 2.1 MB\)](#). For accommodation regarding a formally-scheduled final exam, you must complete the Pregnancy Accommodation Form ([click here](#)).
- **Religious/Spiritual Obligation:** Please contact your instructor with any requests for academic accommodation during the first two weeks of class, or as soon as possible after the need for accommodation is known to exist. For more details, please review the [Student Guide to Academic Accommodation \(PDF, 2.1 MB\)](#).
- **Academic Accommodations for Students with Disabilities:** The Paul Menton Centre for Students with Disabilities (PMC) provides services to students with Learning Disabilities (LD), psychiatric/mental health disabilities, Attention Deficit Hyperactivity Disorder (ADHD), Autism Spectrum Disorders (ASD), chronic medical conditions, and impairments in mobility, hearing, and vision. If you have a documented disability requiring academic accommodations in this course, please contact the Paul Menton Centre for Students with Disabilities (PMC) at 613-520-6608 or pmc@carleton.ca for a formal evaluation or contact your PMC coordinator to send your instructor your Letter of Accommodation at the beginning of the term. You must also contact the PMC no later than two weeks before the first in-class scheduled test or exam requiring accommodation (if applicable). After requesting accommodation from PMC, meet with your instructor as soon as possible to ensure accommodation arrangements are made. For more details, visit the [Paul Menton Centre website](#).
- **Survivors of Sexual Violence:** As a community, Carleton University is committed to maintaining a positive learning, working and living environment where sexual violence will not be tolerated, and where survivors are supported through academic accommodations as per Carleton's Sexual Violence Policy. For more information about the services available at the university and to obtain information about sexual violence and/or support, visit the [Equity and Inclusive Communities website](#).
- **Accommodations for Student Activities:** Carleton University recognizes the substantial benefits, both to the individual student and for the university, that result from a student participating in activities beyond the classroom experience. Reasonable accommodation must be provided to students who compete or perform at the national or international level. Please contact your instructor with any requests for academic accommodation during the first two weeks of class, or as soon as possible after the need for accommodation is known to exist. For more details, see the [Senate Policy on Accommodation for Student Activities \(PDF, 25KB\)](#).
- **The Use of Self-Declaration Forms:** In place of a doctor's note or medical certificate, students may complete the [self-declaration form](#) available on the Registrar's Office website to request academic accommodation for missed course work including tests and assignments. Students are also encouraged to connect directly with their instructors to discuss required accommodations arising from the COVID-19 situation.

Statement on Student Mental Health

As a university student, you may experience a range of mental health challenges that significantly impact your academic success and overall well-being. If you need help, please speak to someone. There are numerous resources available both on- and off-campus to support you. Here is a list that may be helpful:

Emergency Resources (on and off campus): <https://carleton.ca/health/emergencies-and-crisis/emergency-numbers/>

Carleton Resources:

- Mental Health and well-being: <https://carleton.ca/wellness/>
- Health & Counselling Services: <https://carleton.ca/health/>
- Paul Menton Centre: <https://carleton.ca/pmc/>
- Academic Advising Centre (AAC): <https://carleton.ca/academicadvising/>
- Centre for Student Academic Support (CSAS): <https://carleton.ca/csas/>
- Equity & Inclusivity Communities: <https://carleton.ca/equity/>

Off-Campus Resources:

- Distress Centre of Ottawa and Region: (613) 238-3311 or TEXT: 343-306-5550, <https://www.dcottawa.on.ca/>
- Mental Health Crisis Service: (613) 722-6914, 1-866-996-0991, <http://www.crisisline.ca/>
- Empower Me: 1-844-741-6389, <https://students.carleton.ca/services/empower-me-counselling-services/>
- Good2Talk: 1-866-925-5454, <https://good2talk.ca/>
- The Walk-In Counselling Clinic: <https://walkincounselling.com>

Statement on Pandemic Measures

It is important to remember that COVID is still present in Ottawa. The situation can change at any time and the risks of new variants and outbreaks are very real. There are [several actions you can take](#) to lower your risk and the risk you pose to those around you including being vaccinated, wearing a mask, staying home when you're sick, washing your hands and maintaining proper respiratory and cough etiquette.

Feeling sick? Remaining vigilant and not attending work or school when sick or with symptoms is critically important. If you feel ill or exhibit COVID-19 symptoms do not come to class or campus. If you feel ill or exhibit symptoms while on campus or in class, please leave campus immediately. In all situations, you should follow Carleton's [symptom-reporting protocols](#).

Masks: Masks are no longer mandatory in university buildings and facilities. However, we continue to recommend masking when indoors, particularly if physical distancing cannot be maintained. We are aware that personal preferences regarding optional mask use will vary greatly, and we ask that we all show consideration and care for each other during this transition.

Vaccines: While proof of vaccination is no longer required to access campus or participate in in-person Carleton activities, it may become necessary for the University to bring back proof of vaccination requirements on short notice if the situation and public health advice changes. Students are strongly encouraged to get a full course of vaccination, including booster doses as soon as they are eligible and submit their booster dose information in [cuScreen](#) as soon as possible. Please note that Carleton cannot guarantee that it will be able to offer virtual or hybrid learning options for those who are unable to attend the campus.

All members of the Carleton community are required to follow requirements and guidelines regarding health and safety which may change from time to time. For the most recent information about Carleton's COVID-19 response and health and safety requirements please see the [University's COVID-19 website](#) and review the [Frequently Asked Questions \(FAQs\)](#). Should you have additional questions after reviewing, please contact covidinfo@carleton.ca.

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 Brightspace. 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

Please refer to IDES 4310B Capstone Project F22-W23 Appendix A – Course Schedule.

IDES4310B COURSE SCHEDULE

2022-2023

Revision 03

Complex and comprehensive design projects are highly process-oriented, often developed through a series of phases culminating in a set of deliverables. During the fall semester, students will conduct exploratory research to build an understanding of people and context, and to identify problems and opportunities for new design solutions. Concepts will be explored and developed through an iterative process in consultation with the instructor and industry partners and experts. In the winter semester, students will refine their concepts by testing and evaluating their ideas. A final design solution will be developed, and a compelling communication package will be created to share the final results with an external audience.

Below is a basic schedule to help guide the projects through these phases. It is important to note that design never really follows a straight path and it is often difficult to constrain the process to a strict set of activities and timeline; but it is also important to have structure, and this schedule along with the identified deliverables provide the necessary support to complete the projects successfully.

Note: this course schedule is subject to change based on various factors including project needs, availability of project stakeholders, etc.

Discovery & Definition

Week 1: Introductions & Project Kick-Offs - September 8

- Course overview
- Discovery & definition overview
- Team organization
- Project scoping
- Background research
- Research ethics

Week 2: Exploratory Research & Planning - September 15

- User research overview
- Industry partner meetings
- Project scoping
- Background research
- User research planning

Week 3: Problem Finding - September 22

Deliverables: TCPS-2 CORE-2022 certificate & User Research Plan

- Progress meetings
- Background research
- User research

Week 4: Problem Finding - September 29

- Design analysis & synthesis overview
- Progress meetings
- User research

Week 5: Problem Finding - October 6

- Design briefs overview
- Progress meetings
- User research
- Design analysis

Week 6: Problem Framing - October 13

- Progress meetings
- User research
- Design synthesis
- Preparation of deliverables

Week 7: Phase 1 Review - October 20

Deliverables: Design Brief v.1.0, Preliminary Project Report & Review Presentation

- Discovery & definition presentations
- Feedback & discussions
- Reflection & incubation

Fall Break - October 24-28

Concept Design

Week 8: Problem Solving - November 3

- Concept design overview
- Industry partner meetings
- Collaborative brainstorming & ideation

Week 9: Problem Solving - November 10

- Progress meetings
- Diverging concept exploration

Week 10: Problem Solving - November 17

- Progress meetings
- Converging concept exploration

Week 11: Problem Solving - November 24

- Concept communication overview
- Progress meetings
- Concept development

Week 12: Problem Solving - December 1

- Progress meetings
- Concept development
- Preparation of deliverables

Week 13: Phase 2 Review - December 8

Deliverables: Design Brief v.2.0, Interim Project Report & Review Presentation

- Concept design presentations
- Feedback & discussions
- Reflection & incubation

Exams & Holiday Break

Preliminary Design

Week 14: Prototype & Test Planning - January 12/13

- Preliminary design overview
- Industry partner meetings
- Prototype & test planning

Week 15: Prototyping & Testing - January 19/20

Deliverable: Test Plan

- Progress meetings
- Prototype development
- Testing & evaluation

Week 16: Prototyping & Testing - January 26/27

- Progress meetings
- Prototype development
- Testing & evaluation

Week 17: Prototyping & Testing - February 2/3

- Progress meetings
- Prototype development
- Testing & evaluation

Week 18: Design Proposal - February 9/10

- Progress meetings
- Design analysis & synthesis

Week 19a: Review Preparation - February 16

- Preparation of deliverables

Week 19b: Phase 3 Review - February 17

Deliverables: Design Brief v.3.0 & Review Presentation

- Preliminary design presentations
- Feedback & discussions
- Reflection & incubation

Winter Break - February 20-24

Definitive Design

Week 20: Design Refinement - March 2/3

- Definitive design overview
- Industry partner meetings
- Detailed design development

Week 21: Design Refinement - March 9/10

- Progress meetings
- Detailed design development

Week 22a: Review Preparation - March 16

- Preparation of deliverables

Week 22b: Phase 4 Review - March 17

Deliverables: Design Brief v.4.0 & Review Presentation

- Definitive design presentations
- Feedback & discussions
- Reflection & implementation

Final Design & Documentation

Week 23: Design Finalization - March 23/24

- Final design & documentation overview
- Industry partner meetings
- Detailed design development
- Preparation of deliverables

Week 24: Design Communication - March 30/31

- Progress meetings
- Preparation of deliverables

Week 25: Design Communication - April 6

- Progress meetings
- Preparation of deliverables

Week 26: Design Communication - April 12

Deliverables: DRAFT Final Deliverables

- Progress meetings
- Preparation of deliverables

Week 27: Phase 5 Review - April 21

Deliverables: Design Poster, Design Model, Design Video, Technical Package & Final Project Report

- Final design presentations
- Feedback & discussions
- Celebrate!

45th Annual Industrial Design Graduation Exhibition - April 21-23