

COURSE OUTLINE IDES 4310A • CAPSTONE PROJECT • FALL/WINTER(2021/2022)

Instructor: Tim Haats

tim.haats@carleton.ca

Location: 2498 Mackenzie / remote

Office Hours: by appointment

Teaching Assistant: Katherine Barrett

katherinebarrett@cmail.carleton.ca

Office Hours: 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.

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%
<i>TCPS 2: CORE Certificate</i>	
<i>Design Brief v.0.0</i>	
<i>User Research Plan</i>	
<i>Design Brief v.1.0</i>	
<i>Project Report v.1.0</i>	
<i>Review Presentation</i>	

Phase 2: Concept Design	20%
<i>Design Brief v.2.0</i>	
<i>Project Report v.2.0</i>	
<i>Review Presentation</i>	

Winter Term – 65% of Final Grade

Phase 3: Preliminary Design	15%
<i>Design Brief v.3.0</i>	
<i>User Test Plan</i>	
<i>Review Presentation</i>	

Phase 4: Definitive Design	15%
<i>Design Brief v.4.0</i>	
<i>Product Design Specification (PDS)</i>	
<i>Review Presentation</i>	
Phase 5: Final Design	30%
<i>Review Presentation</i>	
<i>Final Project Report</i>	
<i>Portfolio Piece</i>	
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. (2012). *Prototyping and modelmaking for product design*. Laurence King Publishing.

Martin, B., & Hanington, B. (2012). *Universal methods of design: 100 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.

Pheasant, S., & Haslegrave, C. (2006). *Bodyspace: anthropometry, ergonomics, and the design of work (Third edition.)*. Taylor & Francis Group.

Preece, J., Rogers, Y., & Sharp, H. (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. (2015). *100 MORE Things Every Designer Needs to Know About People (1st ed.)*. 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/>

- *Parental Leave*

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

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 4310A Capstone Project F21-W22 Appendix A – Course Schedule.

IDES4310A COURSE SCHEDULE

2021-2022

Revision 02

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. Final design solutions will be developed, and a compelling communication package will be created to share the final results with the rest of the world.

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.

Discovery & Definition

Week 1: Introductions & Project Kick-Offs - September 9

- Course overview
- Research ethics
- Team organization
- Background research

Week 2: Exploratory Research & Planning - September 16

Deliverable: TCPS-2 CORE certificate

- Design research overview
- Industry partner meetings
- Background research
- User research planning

Week 3: Exploratory Research & Planning - September 23

- Design briefs overview
- Team progress meetings
- Background research
- User research planning

Week 4: Problem Finding - September 30

Deliverables: Design Brief v.0.0 & User Research Plan

- Team progress meetings
- User research

Week 5: Problem Finding - October 7

- Design analysis & synthesis overview
- Team progress meetings
- User research
- Design analysis

Week 6: Problem Framing - October 14

- Team progress meetings
- User research
- Design synthesis
- Preparation of deliverables

Week 7: Phase 1 Review - October 21

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

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

Fall Break - October 25-29

Week 8: Problem Solving - November 4

- Problem solving overview
- Team progress meetings
- Team brainstorming

Week 9: Concept Exploration - November 11

- Team progress meetings
- Diverging concept ideation

Week 10: Concept Direction - November 18

- Team progress meetings
- Converging concept ideation

Week 11: Concept Development - November 25

- Team progress meetings
- Concept development

Week 12: Concept Development - December 2

- Concept communication overview
- Team progress meetings
- Concept development
- Preparation of deliverables

Week 13: Phase 2 Review - December 9

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

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

Exams & Holiday Break

Week 14: Concept Selection & Refinement - January 13/14

- Concept refinement overview
- Progress meetings
- Concept refinement

Week 15: Concept Refinement & Planning - January 20/21

- Prototyping & testing overview
- Progress meetings
- Concept refinement
- Prototype & user test planning

Week 16: Prototyping - January 27/28

Deliverable: User Test Plan Draft

- Progress meetings
- Prototype planning & development

Week 17a: Review Preparation - February 3

- Progress meetings
- Prototype development
- Preparation of deliverables

Week 17b: Phase 3 Review - February 4

Deliverables: Design Brief v.3.0, User Test Plan & Review Presentation

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

Week 18: Prototyping & User Testing - February 10/11

- Progress meetings
- Prototype development
- User testing & evaluation

Week 19: Prototyping & User Testing - February 17/18

- Progress meetings
- User testing & evaluation
- Design analysis

Winter Break - February 21-25

Week 20: Design Proposal - March 3/4

- Product Design Specifications (PDS) overview
- Progress meetings
- Design analysis & synthesis

Week 21a: Review Preparation - March 10

- Progress meetings
- Design synthesis
- Preparation of deliverables

Week 21b: Phase 4 Review - March 11

Deliverables: Design Brief v.4.0, Product Design Specification (PDS) & Review Presentation

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

Week 22: Design Development - March 17/18

- Progress meetings
- Detailed design development & prototyping

Week 23: Design Development - March 24/25

- Progress meetings
- Detailed design development & prototyping

Week 24: Design Communications - March 31/April 1

Deliverables: Review Presentation Draft

- Progress meetings
- Detailed design development & prototyping
- Design communications
- Preparation of deliverables

Week 25a: Design Development - April 7

- Progress meetings
- Design communications
- Preparation of deliverables

Week 25b: Phase 5 Review - April 8

Deliverables: Review Presentation

- Final design presentations
- Feedback & discussions
- Finalize project report

Final Project Report Submission - April 12

Deliverables: Final Project Report

Portfolio Piece Submission - April 28

Deliverables: Portfolio Piece

44th Annual Industrial Design Graduation Exhibition - TBD

Deliverables (ungraded): Exhibition Displays & Materials

Concept Design

Preliminary Design

Definitive Design

Final Design