CARLETON UNIVERSITY
SCHOOL OF INDUSTRIAL DESIGN

COURSE OUTLINE IDES 4310A • CAPSTONE PROJECT • Fall-Winter (2023)

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Office Hours: by appointment

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Course Time and Location:

Course locations are no longer displayed on the public class schedule and are subject to change. For the latest information please refer to Carleton Central under Student Services – Registration – Student Timetable.

Course Description

Application of design principles in a comprehensive design project. Problem area should be product-oriented and of sufficient complexity. Normally undertaken in consultation with off-campus organizations and/or industry. Supervised by faculty and/or sessional 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 – 40% of Final Grade

Phase 1: Discovery & Ideation	10%
TCPS 2: CORE-2022 Certificate	
User Research Plan	
Design Brief v.1.0	
Review Presentation	
Phase 2: Concept Design	15%
Design Brief v.2.0	
Review Presentation	
Phase 3: Preliminary Design	15%
Design Brief v.3.0	
Review Presentation	
Test Plan	
Process Book (Draft)	

Winter Term – 60% of Final Grade

Please 4: Definitive Design	15%
Review Presentation	
Phase 5: Final Design	15%
Review Presentation	
Technical Package (Draft)	
Phase 6: Final Documentation	25%
Design Poster	
Design Model	
Design Video	
Technical Package	
Process Book	
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.

Rogers, Y., Sharp, H. & Preece, J. (2023). *Interaction design: beyond human-computer interaction* (Sixth 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 purchase or acquire 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 that 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.

Use of Artificial Intelligence (AI) Technologies

To effectively address the incorporation of AI technologies, specifically generative AI tools, into courses, we have instituted the following guidelines.

1. Academic Integrity Standards: In the absence of explicit permission from the instructor within a given course, the use of generative AI tools to create content, (e.g., text, code, images, summaries, videos, etc.), is deemed a breach of academic integrity standards.

2. Instructor's Discretion: Instructors have the authority to grant permission for the use of generative AI tools, (e.g., ChatGPT and similar tools), based on alignment with the course's educational objectives and learning outcomes. Assignment and examination guidelines will be written to explicitly reflect this granted permission.

3. Clear Instructions: Should instructors choose to permit the use of generative AI tools, an assessment guideline will provide students with clear and detailed direction, including;

    i. Identification of specific generative AI tools that are acceptable for use.
    ii. Clarity on the approved applications of these tools.

These measures aim to create a balanced and transparent educational environment, ensuring both academic integrity and the responsible integration of AI technologies into the learning experience.

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 below topics, refer to this link - https://students.carleton.ca/course-outline/ and open the needed section.

Topics:

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

- *Academic Considerations for Medical and Other Extenuating Circumstances*
- *Scheduling and Examination Support*

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, refer to this link - https://wellness.carleton.ca/ and open the needed section.

Topics:

- *Counselling*
- *Resource Guide*
    - *Thriving on Campus*
    - *Everyday Stress*
    - *Mild Mental Health Concerns*
    - *Moderate Mental Health Concerns*
    - *Complex Mental Health Concerns*
- *Umbrella Project*

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 F23-W24 - Tim Haats - Appendix A Course Schedule

IDES4310A COURSE SCHEDULE
2023-2024

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 a design proposal will be developed through an iterative process in consultation with the instructor, industry partners, and experts. In the winter semester, students will test and evaluate their proposed design solutions. Final refinement and detailing will be executed, 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.

Phase 1: Discovery & Ideation

Week 1: Introductions & Project Kick-Offs - September 7

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

Week 2: Problem Finding - September 14

- User & product research overview
- Progress meetings
- Background research
- User research planning

Week 3: Problem Finding - September 21

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

- Design briefs overview
- Progress meetings
- Background research
- User research & idea-generation

Week 4: Problem Framing - September 28

- Design analysis & synthesis overview
- Progress meetings
- User research & idea-generation
- Preparation of deliverables

Phase 2: Concept Design

Week 5: Phase 1 Review - October 5

Deliverables: Design Brief v.1.0 & Review Presentation

- Discovery & ideation presentations
- Feedback & discussions
- User research & concept development

Week 6: Problem Solving - October 12

- Concept design overview
- Progress meetings
- User research & concept development

Week 7: Problem Solving - October 19

- Progress meetings
- User research & concept development

Fall Break - October 23-27

Week 8: Problem Solving - November 2

- Progress meetings
- Concept development
- Preparation of deliverables

Phase 3: Preliminary Design

Week 9: Phase 2 Review - November 9

Deliverables: Design Brief v.2.0 & Review Presentation

- Concept design presentations
- Feedback & discussions
- Concept refinement

Week 10: Prototyping - November 16

- Preliminary design overview
- Progress meetings
- Concept refinement & prototype development

Week 11: Prototyping - November 23

- Progress meetings
- Concept refinement & prototype development
- Test planning
- Preparation of deliverables

Week 12: Phase 3 Review- November 30

Deliverables: Design Brief v.3.0 & Review Presentation

- Preliminary design presentations
- Feedback & discussions
- Concept refinement & prototype development
- Preparation of deliverables

Week 13: Documentation & Test Prep - December 7

Deliverables: Test Plan & Process Book (draft)

- Progress meetings
- Preparation of deliverables
- Preparation for prototype testing & evaluation

Exams & Holiday Break

Phase 4: Definitive Design

Week 14: Testing - January 11/12

- Definitive design overview
- Progress meetings
- Prototype testing & evaluation

Week 15: Testing - January 18/19

- Progress meetings
- Prototype testing & evaluation

Week 16: Testing - January 25/26

- Progress meetings
- Prototype testing & evaluation
- Design revisions

Week 17: Design Refinement - February 1/2

- Progress meetings
- Design revisions

Week 18a: Phase 4 Review (Walk-Around) - February 8

Deliverables: Review Presentation

- Definitive design presentations (exhibition style)
- Feedback & discussions

Week 18b: Design Refinement - February 9

- Design revisions

Phase 5: Final Design

Week 19: Detailed Design - February 15/16

- Final design overview
- Progress meetings
- Detailed design development

Winter Break - February 19-23

Week 20: Detailed Design - February 29/March 1

- Progress meetings
- Detailed design development

Week 21: Detailed Design - March 7/8

- Progress meetings
- Detailed design development

Week 22a: Review Preparation - March 14

- Preparation of deliverables

Week 22b: Phase 5 Review - March 15

Deliverables: Review Presentation & Technical Package (draft)

- Final design presentations
- Feedback & discussions
- Final detailing & planning

Phase 6: Final Documentation

Week 23: Design Communication - March 21/22

- Final documentation overview
- Progress meetings
- Preparation of deliverables

Week 24: Design Communication - March 28

Deliverables: Design Poster (draft)

- Progress meetings
- Preparation of deliverables

Week 25: Design Communication - April 4/5

- Progress meetings
- Preparation of deliverables

Week 26: Phase 6 Review - April 10

Deliverables: Design Poster, Design Model, Design Video, Technical Package & Process Book

- Final documentation presentations
- Feedback & discussions
- Preparation for grad show

46th Annual Industrial Design Graduation Exhibition - April 19-21