CARLETON UNIVERSITY
SCHOOL OF INDUSTRIAL DESIGN

COURSE OUTLINE IDES 4310A • CAPSTONE PROJECT • Fall-Winter (2024)

Instructor: **Rob Watters**

RobertWatters@cunet.carleton.ca
Location: **3481 ME**
Office Hours: During studio or by appointment.

Teaching Assistant: Erika MacGregor

erikamacgregor@cmail.carleton.ca

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.

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 (Comprehensive) 10%

- TCPS 2: CORE-2022 Certificate
- User Research Plan
- Review Presentation

Phase 2: Concept Design (Comprehensive) 15%

- Design Brief v.1.0
- Review Presentation

Phase 3: Preliminary Design (Comprehensive) 15%

- Test Plan
- Design Brief v.2.0
- Review Presentation

Process Book (Draft)

Winter Term – 60% of Final Grade

Please 4: Definitive Design (Comprehensive)	15%
Review Presentation	
Phase 5: Final Design (Comprehensive)	15%
Review Presentation Technical Package (Draft)	
Phase 6: Final Documentation	25%
Design Poster or TBD Year End Show format Design Model Design Video Technical Package Process Book	
Participation & Professionalism (covers both terms)	5%

Student Access to Quiz, Test, and Exam Papers

There are no quizzes, tests or exams in this course.

Required Materials

All materials required for the course and their costs are listed below. Please note that some material costs depend on the project and the materials chosen, so a range listing minimum and maximum values will be given.

Standard design development materials to support a full range of desktop design processes will be required. These are items you are already familiar with from previous studio design work and will be required on an ongoing basis throughout the SID program.

There will be project-specific materials directly relevant to your Capstone topic for the research, development and actualization of your comprehensive design. This may include competitive or comparable products for reference and items for testing and evaluating your design iterations. Materials

for making your mockups, prototypes and final model should also be anticipated as well as the printed material for presentation and a process book. **An estimate of these expenses is $250–$750**, but every project differs and each student can make decisions that affect their project's cost. Some funding may be applied for through FED at the beginning of each term.

For those traveling to Tanzania, formal documents for international travel and travel insurance will be required. The cost will depend on individual circumstances with many students already having these covered.

Students must arrange a medical travel clinic visit and act on the clinic's recommendations for their situation. The cost will vary depending on each individual's medical history.

A travel visa for Tanzania is required, **costing $50 USD** in 2023/2024.

Actual travel costs, including flights, accommodations, and provided food while in Tanzania, are anticipated to be covered by your participation and successful efforts in fundraising activities coordinated with Sprott BUSI 4117 students to raise the required amount of approximately $2,900 per student. Note that this is an amount in addition to the provided stipend in the Fall term.

Suggested Reading (not required): Kumar, V. (2012). *101 design methods*. John Wiley & Sons.

Technology Requirements

Please refer to the technology 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 coursework.

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 contributions.

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 instructor's discretion.

If you are unable 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.

Late Submission of Assignments

Students who do not hand in assignments on time will have their earned grade reduced by 10% per day up to a maximum of 3 days after which the grade is 0, at the instructor's discretion. If you foresee not meeting the submission due date and are requesting an extension, please provide your instructor with a minimum of 24 hours' notice.

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.

Health and Safety

Students must participate in training to access all the SID Labs and Maker Space. Apart from this training, students are required to follow the health and safety standards of the School of Industrial Design as well as Carleton's health and safety standards. All materials related to SID health and safety are available

here Health and Safety and it is expected that students review and understand these materials and apply these standards throughout their studies**.**

Use of Studio Spaces

Access to studio space to attend courses and complete assignments is an important part of student success. To support access, specific studios have been designated to certain years and/or sections.

- 1st Year Studio Section A – AP448-A
- 1st Year Studio Section B – AP448-B
- 2nd Year Studio Section A – AP448-A
- 2nd Year Studio Section B – AP448-B
- 3rd Year Studio Section A & B – AP430
- 4th Year Studio All Sections (Capstone and Minor) – AP432
- MDes Studio – ME3490

Students are welcome and encouraged to use their designated spaces to work during non-studio hours. Out of respect for your colleagues, instructors, and Carleton cleaning staff, ensure you leave the space in good condition. This includes cleaning your area and storing your items in your designated storage space. The School will not be responsible for items that are not stored properly.

Academic Integrity

Carleton's Policy on Academic Integrity is available at: https://carleton.ca/registrar/academic-integrity/ and covers the following violations, but is not limited to:

- *Plagiarism*
    - *Submitting work written 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*
    - *Attempting to read another student's exam paper*
    - *Speaking to another student (even if the subject matter is irrelevant to text)*
    - *Using material not authorized by the examiner*
- *Other Violations*
    - *Improper access to confidential information such as exams or test questions*
    - *Disruption of classroom activities or periods of instruction*

- *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 before 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. Further information can be found here - https://carleton.ca/tls/teachingresources/generative-artificial-intelligence/recommendations-and-guidelines/. Another useful resource is the Library's guide on AI tools - https://library.carleton.ca/guides/subject/artificial-intelligence-ai-tools.

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, or valuable information may be shared, all of which can greatly benefit the student's learning experience. As external professionals may be 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

Note: This schedule timing could change for many reasons. Deliverables could be adjusted. Adjustments would be discussed and their adjustment conveyed by the professor in advance.

Date	Focus of in -class activities	Deliverables / Presentations
PHASE1: Discovery + Ideation		
Week 1 Sept. 05	**Introductions & Project Kick -Offs** • Course overview • Discovery & ideation overview • Team organization • Project scoping • Background research • Research ethics	
Week 2 Sept. 12	**Problem Finding** • User & product research overview • Progress meetings • Background research • User research planning	

Week 3 Sept. 19	**Problem Finding** • Design briefs overview • Progress meetings • Background research • User research & idea -generation	**DUE: TCPS-2 CORE-2022 certificate** **DUE: Research + Project Plan**
Week 4 Sept. 26	**Problem Framing** • Design analysis & synthesis overview • Progress meetings • User research & idea -generation • Preparation of deliverables	
Week 5 Oct. 03	**Phase 1 Review** • Discovery & ideation presentations • Feedback & discussions • User research & concept development	**DUE: Presentation: Research + Problem / Opportunity Framing.**
PHASE 2: Concept Design		
Week 6 Oct. 10	**Problem Solving** • Concept design overview • Progress meetings • User research & concept development	
Week 7 Oct. 17	**Problem Solving** • Progress meetings • User research & concept development	
Break 21-25th	**Fall Break**	
Week 8 Oct. 31	**Phase 2 Open AP Review** • Concept design presentations • Progress meetings • Preparation of deliverables	**DUE: Presentation: Concept Design + Research Update** **DUE: Design Brief v.1.0**
PHASE 3: Preliminary Design		
Week 9 Nov. 07	**Development** • Preliminary design overview • Feedback & discussions • Design and prototype development	

Week 10 Nov. 14	**Development + Prototyping** • Preliminary development • Progress meetings • Refinement & prototype development • Test planning	
Week 11 Nov. 21	**Prototyping** • Progress meetings • Initial Testing • Preparation of deliverables	
Week 12 Nov. 28	**Phase 3 Review** • Preliminary design presentations	**DUE: Presentation: Preliminary + Prototypes + Testing.** **DUE: Design Brief v.2.0,** **DUE: Process Book (draft)**
Week 13 Dec. 05	**Integrate Feedback and Clarify Goals** • Feedback & discussions • Reflection & incubation	**DUE: inclass exercise. Update your main design Plan** (research, testing, stages, users, etc)
Break	**Exams & Year End Break**	
PHASE 4: Definitive Design		
Week 14 Jan. 09/10	**Design Development and Testing** • Progress meetings within Impact Team • Definitive design overview • Prototype testing & evaluation	
Week 15 Jan. 16/17	**Design Development and Testing** • Progress meetings within Impact Team • Prototype testing & evaluation	
Week 16 Jan. 23/ 24	**Review Preparation** • Progress meetings • Preparation of deliverables • Prototype testing & evaluation • Design revisions	
Week 17 Jan. 30/ 31	**Phase 4 Pin Up style Review** • Setup • (tbd) THURS 11AM START • Take notes of discussions.	**DUE: Pin Up style Presentation.** **Work Pin up: Definitive Design + Supporting Materials**

PHASE 5: Final Design		
Week 18 Feb. 06/07	**Detailed Design Development** • Detailed design development • Prototype testing & evaluation	
	Detailed Design Development • Feedback & discussions • Detailed design development • Prototype testing & evaluation	
Week 19 Feb. 13/14	**Detailed Design Development** • Final design overview informal • Progress meetings • Detailed design development • Prototype testing & evaluation	**Rob and Tanzania group are away**
Break 17 -21st	**Winter Break**	**Rob and Tanzania group are away**
Week 20 Feb 27/28	**Review Preparation** • Progress meetings • Preparation of deliverables	
Week 21 Mar. 06/07	**Phase 5 Review** • Final design presentations	**DUE: Presentation: Final Design, Prototypes** **DUE: Draft Technical Package**
PHASE6: Final Documentation/Communication		
Week 22a Mar. 13/ 14	**Review Preparation** • Final documentation overview • Detailed design documentation development	
	Phase 5 Review • Feedback & discussions • Final detailing & planning	
Week 23 Mar. 20/ 21	**Design Communication** • Final poster/ or self-driven display (TBD) in-progress working session • Preparation of deliverables	**DUE - Draft of Poster (tiled prints), or Custom Display Layout, and content (Format TBD)**

Week 24 Mar. 27/28	**Review Preparation** • Progress meetings • Preparation of deliverables	
Week 25 Apr. 3/4	**Phase 6 Review** • Final documentation presentations • Feedback & discussions	**DUE - Review Mini Presentation of Complete Project. Design Poster, Final Design Model. (TBD tuning of deliverables could change)**
Apr.23 2025	**'Take home exam' deliverable due**	**Video (consider unique aspect for some), Process Book, Technical Package. (TBD tuning of deliverables could change)**
Apr.26 2025	**46th Annual Industrial Design Graduation Exhibition**	**Prepared and ready space with materials displayed.**

[end]