1. GENERAL COURSE INFORMATION AND SCHEDULING

**Instructors**

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**Teaching Assistants**

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**Time Table**

**Fall:** Section A & B Lecture & Studio
Thursday 9:35-12:25/1:35 - 4:25, Room AP432

**Winter:** Section A & B Lecture & Studio
Thursdays 9:35 -12:25/1:35 - 4:25, Room AP432
Fridays 9:35 - 12:25/1:35 - 4:25, Room AP432

2. GENERAL COURSE CONTENT

**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 and supervised by faculty and sessional members.

Prerequisite: IDES 3302 or permission of the School.

**Course Objectives:** By the end of this course students will be able to:
1. Follow a phased approach to a comprehensive industrial design project of major scope.
2. Define a clear design problem/opportunity through research, analysis and synthesis.
3. Identify, develop, and apply appropriate design research methods.
4. Visually document research and ongoing design thinking (sketch reporting).
5. Develop a product specific test plan that incorporates protocols.
6. Iteratively refine a design solution based on information learned through evaluation by refining technical descriptive specifications, developing low-fidelity to high-fidelity physical, interactive and/or virtual models (for example: explorative models, usability test prototypes, appearance models, working prototypes, or interface simulations).
7. Formally present design activities using audio-visual methods current to the industrial design profession.
8. Provide thorough and organized documentation throughout the development of the design solution, using a range of media and formats, as appropriate for each phase of the project (for example: iterative design briefs, research reports, progress posters, video scenarios, personas, slide presentations, blogs, wikis, final report).
9. Keep instructor and partners well informed about project progress, including ongoing and final project documentation as agreed upon.
10. Adopt professional/responsible behavior.
11. Demonstrate the ability to receive and incorporate feedback from instructor through consultation

Course Overview
The Major Project course is the final “capstone” studio and serves to demonstrate professional readiness. The major project expands upon previous years of study within the School of Industrial design program. Course instructors act as facilitators with external organizations, as class mentors, and as evaluators of the students’ professional competences. Students may also interact with people from external organizations with an interest in their work who will offer their expertise and assistance in terms of identifying real-world problems, providing direction, valuable information, and insight.

3. COURSE INFORMATION AND SCHEDULING

A Milestone Approach
Comprehensive and complex projects are highly process-oriented and are normally developed through a series of steps, with each step culminating in a deliverable. During the fall semester, students focus on preliminary research to define design problems, as well as developing design concepts in consultation with the instructor and outside stakeholders. In the winter semester, students further their investigation by testing and/or evaluating ideas and deepening their development process in order to create viable product solutions.

Fall:
Milestone 1: Project Selection
Milestone 2: Background Research
Milestone 3: Design Concept Development & Feasibility

Winter:
Milestone 4: Preliminary Design
Milestone 5: Definitive Design
Milestone 6: Final Design

Fall Semester
The fall semester consists of three milestones; Project Selection, Background Research, and Design Concept Development & Feasibility. Each will be evaluated conjunctually during the fall semester and as a whole at the end of the semester.
Milestone 1: **Project Selection** • Due by Sept. 13th
- Among the proposed themes, each student will select one to proceed for his or her 4th year capstone project.
- **Deliverable:** Preliminary Design Brief with rationales and research focus must be handed in by 4:30 pm on the 13th of September. Further requirements for deliverables will be presented to students during scheduled studio.

Milestone 2: **Background Research** • Due by Oct. 17th • Presentation Oct.18th 9:30 am
- Students will conduct background research on the chosen design project and investigate the project context and the significant issues to establish a concrete knowledge of the project study. Preliminary design concepts will be explored through visualization methods.
- **Deliverables:** Revised Design Brief, Group Oral Presentation and a Preliminary Research Report. This preliminary report (mocked-up, not finalized) will be evaluated and returned with feedbacks and recommendation. Printed report and presentations materials must be presented and submitted by the 17th of October at 4:30 in 4th year studio. Further requirements for deliverables will be presented to students during scheduled studio.

Milestone 3: **Design Concept development and Feasibility** • Due by Dec. 5th • Presentation Dec. 6th
- Students will explore as many alternative design ideas as possible to narrow down to a clear and feasible design concept. Through multiple iterations, students will develop a promising design idea as well as critical questions and challenges required tests through prototypes. The proposed design concept will be reviewed and evaluated accompanied by recommended revisions. The deliverables below must be submitted by 9:30 am on the 6th of December. Additional research may occur during this milestone as students discover new information that helps them strategize their test plan.
- **Deliverables:** Final Research Document, Oral Presentation & Completed Ethics Application
  1. Final Research document: This document is about the research completed in the fall semester. The research does not end at this point, but further investigation will take place throughout the project. However, this document will be a synthesis of the information gathered in the Preliminary Research Report in the milestone 2 and a proposal of a clear design direction with graphic illustrations.
  2. Oral presentation: This will be a group presentation where each team member will conduct an oral presentation to present his or her design concept and ideas developed during this semester that will logically conclude with a specific project proposal. This presentation may employ a variety of media but must clearly illustrate all critical aspects of the proposed design.
  3. Ethics Application: A complete ethic application for usability testing and user experience evaluation for the next term must be submitted.
- Printed report and presentations materials and ethics document must be presented and submitted by the 17th of October at 4:30 in 4th year studio. Further requirements for deliverables will be presented to students during scheduled studio.

**Winter Semester 2019**
The winter semester consists of three milestones; Preliminary Design, Definitive Design, and Final Review. These milestones will be an extension of the research and conceptual design development completed in the fall semester. The process conducted in this semester will be relevant to the range of projects being done by each student; the activities presented will be required to be completed by all students. It is essential that the
students document all the work completed during this semester, as this information will be included in the final presentation and documentation, as will as it will be vital in the development of your portfolio.

Milestone 4: Preliminary Design • Walk-around Review commences at 9:30 am, Feb 1st
- The preliminary design would be a creative and compelling design solution based on all the issues addressed at the conclusion of the fall semester. The design concept that was approved from Milestone 3 will be developed further by employing a range of supporting visual material and test models that capture the overall design concerns and questions.
- **Deliverables**: a Walk-Around Review in this review, students will present how they addressed all the design issues and show evidence from usability testing and other methods of evaluation to the public. Presentation material that clearly illustrates design intent will be strongly required to get valuable feedbacks and comments from the audience.
- The Walk-Around Review will start on the 1st of February, 9:30 am until 5 pm. All presentation materials and models must be set up the day prior to the Walk-Around Review, if a student is not setup by 9:30am they will not be allowed to present. Further requirements for deliverables will be presented to students during scheduled studio.

Milestone 5: Definitive Design • Due by 4:30 pm Mar. 7th • Presentation 9:30 am Mar. 8th
- This is a place where final revisions must be made, and all design solution to problems and objectives must be proposed. The proposed solutions through all required and relevant visuals, models and digital representations will be presented to validate the final design outcomes. The final design will illustrate precisely how the test methods used, and the analysis of the findings justified any changes in the chosen design direction. Also, students should be aware that this is the time to avoid any distraction that may undermine your progress with surprising information or developments.
- **Deliverables**: Technical drawings, physical scale models and detail illustrations that capture the final design intent. Story board with preliminary digital media and initial draft of final report. Further requirements for deliverables will be presented to students during scheduled studio.

Milestone 6: Final Review • Due by April 11th & 12th
- Students will conduct a formal presentation of their work to the instructors and the industry partners at the Grad show kiosk a day before the Grad Show. The final review will be the final presentation board with a distinct culmination of work completed for all the phases of the project and the final design outcomes as well as the final model. A signed contact (or checklist) will be made between the instructor and the student at the rehearsal on March 28th & 29th to identify the specific deliverables agreed upon for completion. Failure to meet to the contract will constitute grounds for failure of the course.
- **Deliverables**: Product design specification and a general assembly with supportive technical drawings, high fidelity appearance models either in 1:1 or with one detail component in 1:1, design process document, Final grad show poster, finished digital media. Further requirements for deliverables will be presented to students during scheduled studio. Further requirements for deliverables will be presented to students during scheduled studio.
SHEDULING:

The course will be following a milestone approach. Depending on the project theme and research area, certain design methods will be applied to the appropriate projects. Mentors and instructors will assist in the students' direction. Lectures and presentation will be conducted throughout the course to supply vital information and assist students in the development of their project. It is imperative that students remain to the schedule and by all means students must meet the identified milestones.

**FOURTH YEAR MAJOR PROJECTS**

**PROJECT DEVELOPMENT TIME LINE 2018-19**

* Larger Schedule in Appendix A

4. COURSE COMPLETION AND EVALUATION INFORMATION

Course Completion Requirements
Students need to achieve an overall passing grade of C-, in order to pass the course. In addition, each student needs to complete and achieve at least a D in every phase of the course in order to meet the criteria for a passing grade. Students who receive a grade below C- in any phase must consult with the instructor before continuing on to the next phase.

**Fall Term 2018**

Milestone 1: **Project selection**
Final selection of project theme and research focus. 2.5%

Milestone 2: **Background Research**
Establishing a concrete background in the project study through literature review, expert interview, emphatic testing etc. and conceptual work 12.5%

Milestone 3: **Design Concept Development & Feasibility**
Oral presentation, graphic illustration that explore and identify the project design concept and feasibility. 25%

**Fall Total** 40%
Winter Term 2019

Milestone 4: Preliminary design
Idea testing, present potential design solution 15%

Milestone 5: Definitive Design
Present final design intent in every detail 15%

Milestone 6: Final Design Review
Produce a document that objectively presents all the design activities that resulted in a final solution. 30%

Winter Total 60%

• Professionalism and Process in Evaluation
All milestones include a professionalism grade embedded in each deliverable for active participation and professional conduct. Students should be able to demonstrate work that is of high quality and in a manner expected in professional work environments. Students must attend studio sessions and reviews on time, as well as, students must arrive to studio each week prepared to discuss and interactively contribute to the overall class knowledge around the weekly requirements.

It is imperative that students document all aspects of their projects formally throughout the term as a record of process and also to communicate their development with industry partners and mentors. In this course, it is not only about what the students end up designing, as it is about how they can demonstrate the process that they undertook, the insights and the learning gained through the milestones. The instructor will act as the head of consultancy perhaps having to refocus the students who may be ignoring critical steps in the process.

• Individual/Group Work
Courses may include various combinations of individual and group work. Students must demonstrate individual aptitude. It is important where collaborative work is undertaken that students be able to clearly demonstrate that individual contribution has been made. Where the evaluation for individual work is below a passing grade, that grade will be awarded for the course.

• Review Attendance
Attendance at scheduled SID reviews is mandatory. These are equivalent to exams in IDES courses when indicated in the course outline. Failure to attend will result in a grade of F. If you are not able to attend a review, you are required to call the General Office (613-520-5672) and/or send an email to id@carleton.ca to leave a message in advance. A comprehensive medical certificate or other documentation to substantiate the absence must be submitted as soon as possible after the review. The documentation must state the date of illness onset, the expected date of recovery, and the extent to which the student is incapacitated. The student is also required to set up a meeting with the instructor as soon as he or she is well enough to discuss and schedule an alternative date.

Any student in the review should submit materials for presentation and present as scheduled. In addition, a student who does not remain for the complete review session, who does not present as scheduled, or who arrives late for the review, without approval from the instructor, will receive a 10% grade reduction for that review.

• Late Submission of Deliverables
All deliverables submitted late will accrue a 10% per day deduction from the determined grade, to a maximum of 3 days, from the original deadline time and date. Failure to submit within 3 days, without approval from the instructor, will result in a grade of F.

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• **Participation and Professionalism**
  Active participation and professional conduct are particularly important in studio courses and will be evaluated. At the same time, when the student’s work is reviewed at the end of the course, an evaluation will be made based on one or more of the following: in class discussion; consultations with instructors; and work ethic. However, none of these evaluations will be used to raise an overall failing grade, to a passing one, based on the quality of the work.

5. **STUDENT CONSIDERATIONS AND RESPONSIBILITIES**

**Requests for Academic Accommodation**
You may need special arrangements to meet your academic obligations during the term. For an accommodation request, the processes are as follows:

**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, visit the Equity Services website: [carleton.ca/equity/wp-content/uploads/Student-Guide-to-Academic-Accommodation.pdf](carleton.ca/equity/wp-content/uploads/Student-Guide-to-Academic-Accommodation.pdf)

**Religious 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, visit the Equity Services website: [carleton.ca/equity/wp-content/uploads/Student-Guide-to-Academic-Accommodation.pdf](carleton.ca/equity/wp-content/uploads/Student-Guide-to-Academic-Accommodation.pdf)

**Academic Accommodations for Students with Disabilities**
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. [carleton.ca/pmc](carleton.ca/pmc)

**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 is 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: [carleton.ca/sexual-violence-support](carleton.ca/sexual-violence-support)

**Accommodation 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. [https://carleton.ca/senate/wp-content/uploads/Accommodation-for-Student-Activities-1.pdf](https://carleton.ca/senate/wp-content/uploads/Accommodation-for-Student-Activities-1.pdf)
In industrial design, ideas and concepts come from a multitude of sources to be modified and utilized in the design and development process. The student should reference sources appropriately.

- **Student Responsibility**
  The student is responsible for knowing the content of this course outline, the schedule of classes, assignments, and reviews; and material covered during any absence from scheduled classes.

  Unless otherwise arranged, the class will meet during regularly scheduled studio hours. These meetings are mandatory; important issues and questions will be raised, and announcements might be made. Everyone is expected to be based in studio and to work during scheduled hours. The studio should be considered a professional design studio environment. Because of the special involvement of external professionals, scheduling changes for guest lectures, presentations, and reviews may occur at short notice; students should stay informed regularly.

- **Changes to the Course Outline**
  The course outline may be subject to change in the event of extenuating circumstances.
TH YEAR MAJOR PROJECTS

PROJECT DEVELOPMENT TIME LINE 2018-19

Week 1
Fall Term Begins
Sect 5th

Week 2
Fall Break
Oct 22 - 26

Week 3
Fall Term Ends
Dec 7

Week 4
Winter Term Begins
January 7

Week 5
Winter Break
Feb 18-22

Week 6
Winter Term Ends
April 9

Grad Show
April 12

- Project Selection
  - Preliminary Design
    - Brief Hand-in
      - Sept 13th 4:30
      - Final selection of project theme and research focus.
  - Research
    - Group Review
      - Oct 18th 9:30 start
      - Establishing a concrete background in the project study.
      - Group oral presentation and research report.

- Concept & Research
  - Group & Individual Review
    - Final research Document
    - Ethics Submission
    - Dec 6th 9:30 Start
    - Oral presentation, graphics illustration that explore and identify the projects design feasibility.
    - Design report submitted

- Preliminary Design
  - Walk-around Review
    - Feb. 1st 9:30 start
    - Students demonstrate that they have tested their ideas, then through synthesis and analysis present possible design solutions.

- Definitive Design
  - Formal Class Review
    - March 8th 9:30 start
    - Students present their final design intent in every detail.

- Sign-off
  - March 28th & 29th
  - Students will conduct a final rehearsal of their completed work to the instructors.

- Final Review
  - April 11th & 12th
  - Student presentation of work completed, demonstrating all the phases of the project.
  - Students will use the Grad show kiosk to display and present all required work. Grad show will commence the next day.