Instructor: Chiara Del Gaudio

chiaradelgaudio@cunet.carleton.ca
Room 2496 Mackenzie (ME).
Tel. 613 • 520 • 2600, ext. 5671
Office Hours: During studio/lecture hours.

Teaching Assistant: Eric Wolfe

ericwolfe@cmail.carleton.ca
During studio/lecture hours of 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

Introduction to the principles of innovation as found in industrial design. Invention, innovation, entrepreneurship, basic mechanisms. The design project(s) explore some or all of the design principles covered in the lectures. Includes: Experiential Learning Activity. Precludes additional credit for IDES 3301 (no longer offered). Prerequisite(s): IDES 3300 or IDES 3310 or permission of the School of Industrial Design. Studio and lectures six hours a week.

Learning Outcomes

By the end of this course, students will be able to:
1. Generate a creative and compelling design solutions through meeting to the deliverables presented in a design brief.

2. Develop a final design solution which integrates a test protocol for quality assurance of a specific product requirement and a detailed assembly drawing with Bill of Materials.

3. Demonstrate an ability to develop prototypes to explore, prove and understand ergonomics, materials, and structures as a collective requirement.

4. Design and test a mechanism incorporating movement through sliding, hinging or other relevant principle of movement.

5. Recognize the relationships among aesthetic, ergonomic, and usability to develop an industrial design solution.

6. Employ research synthesis tools used in IDES 3601, to Identify latent user needs and contextual concerns.

7. Apply the given business and/or technological requirements presented by a third party to develop a product opportunity.

8. Demonstrate professional behavior.

Course Deliverables

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

1st Project (7 weeks)

In this project students, starting from an assigned open question, will engage with environmental design. Through design research activities, ideation, synthesis, concept development and realization, students, in teams, will design and prototype a design system for a given environment. Furthermore, through further exploration of structural principles and mechanisms, and an iterative modelling approach, students will design and develop in detail one element of the defined system, individually. Focus will be given on students’ collaborative work, critical design process, and overall quality and refinement of the final design solution in terms of experience, form, proportion, technical requirements.
A detailed project description, including background, objectives, process and evaluation criteria, will be detailed in Appendix B which will be provided by the instructor in the first week of the term.

2nd Project (2 weeks)
In this project students will engage with the technical requirements of a given final design, specifically technical drawings, manufacturing choices and design report. A detailed project description, including background, objectives, process and evaluation criteria, will be detailed in Appendix C which will be provided by the instructor during the term and previous to the design process.

3rd Project (3 weeks)
In this project students will participate in a design competition, which will be suggested by the instructor. The focus here is on radical innovation, design synthesis, and idea visualization. A detailed project description, including background, objectives, process and evaluation criteria, will be detailed in Appendix D which will be provided by the instructor during the term and previous to the design process.

Evaluation information
Evaluation will be based on the quality of the design outcomes and on the demonstration of the required design skills. The evaluation is distributed as following:

- 1st Project  50%
- 2nd Project  20%
- 3rd Project  30%

Project 1 and 3 will be evaluated for:
- Research and ideation  30%
- Concept design and development  20%
- Concept specification and refinement  30%
- Final presentation and documentation  20%

Project 2 will be evaluated for:
- Technical drawings  55%
• Manufacturing specification 20%
• Final presentation and documentation 25%

Student Access to Quiz, Test and Exam Papers
Examinations are for evaluation purposes only and will not be returned to the student.

Required Materials
Standard design studio tools to enable note taking, design research, concept generation, sketching, design mock-ups, cad design development and their presentation (slides/boards). You may be asked by your instructor or teaching assistant to refer to cuLearn for a more comprehensive list of required materials.

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 cuLearn 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 receive a 10% grade reduction for that review.

If you are not able to attend a Review/Presentation, foresee arriving late or need to leave before it is complete, please e-mail 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. Failure to submit within 3 days, without approval from the instructor, will result in a grade of F.

Deliverable should be hand in according to given instructions: failure to follow the instructions will result in a 10% grade reduction for that deliverable.

**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/](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 cuLearn. 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. Every effort will be made to inform students in as timely a manner as possible.

Appendix A - Course Schedule

<table>
<thead>
<tr>
<th>WEEK</th>
<th>Phase</th>
<th>Topic</th>
<th>Studio</th>
<th>Assignment</th>
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<table>
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<tr>
<th>W1</th>
<th>Jan 9</th>
<th>Introduction</th>
<th>Research</th>
<th>Introduction to the course, and to the 1st project. Design process planning and contextual research.</th>
<th>Mind mapping, brainstorming, brief definition, contextual research and field research design.</th>
<th>Interview questions, observation protocol, co-design research tools ideation. Systematization of collected and produced research data (diagrams).</th>
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<tbody>
<tr>
<td>W2</td>
<td>Jan 16</td>
<td>Research</td>
<td>Field research, BlueSky research and scenario building, counter brief. Data analysis.</td>
<td>Field research, BlueSky research, and data analysis.</td>
<td>Insights identification and organization; mind mapping, affinity diagram. Research synthesis: information visualization (diagrams), research report, and counter brief definition.</td>
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<tr>
<td>W3</td>
<td>Jan 23</td>
<td>Review: research report and counter brief. Idea generation, exploration and selection.</td>
<td>Scenario building and system concept definition.</td>
<td>Scenario building and vision definition; brainstorming for system ideas generation; sketches for system ideas exploration; system ideas selection and system concept definition.</td>
<td>Scenario and visions visualization. System concept explanatory sketches, and contextual research. System elements definition. (for CuLearn submission and review)</td>
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<tr>
<td>W6</td>
<td>Feb 13</td>
<td>Realization</td>
<td>Individual meeting</td>
<td>Individual review. Scale model, computer model, rendering and presentation boards.</td>
<td>Work on physical and digital models, rendering, and presentation boards. Work on production specifications (tests)</td>
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</tbody>
</table>

FEBRUARY 17-21 WINTER BREAK - NO CLASSES
<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Activity</th>
<th>Project 1: final presentation</th>
<th>Project 2: final presentation</th>
<th>Project 3: Final presentation</th>
</tr>
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<tbody>
<tr>
<td>W11</td>
<td>Mar 26</td>
<td>Design specification and communication</td>
<td>Concept refinement, and communication.</td>
<td>Individual group reviews. Work on concept details, and competition presentation boards.</td>
<td>Work on presentation boards,</td>
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<tr>
<td>W12</td>
<td>Apr 2</td>
<td>Presentation</td>
<td>Project 3: Final presentation</td>
<td>Project 3 Final presentation</td>
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