1.00 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.

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.

2.00 Learning Objectives

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.
3.00 Announcements
The below course schedule and procedure is subject to change in the event of extenuating circumstances.

4.00 Course Projects
The course will consist of 3 projects of varying duration and complexity.

4.01 Structures & Mechanisms Project – 7 weeks
Through research, ideation and synthesis, students will design and prototype a product design based on an assigned theme. Emphasis for assessment will be placed on a creative application of successful structural principles, mechanisms, iterative modelling, problem solving, considered design processes, and overall quality and refinement of the final design solution.

4.02 Product Vison & Semantics – 5 weeks
This project will involve iterative development of design solutions with an emphasis on product features, form, and qualities that explore sensory aspects in design. Following one of several themes, students will investigate and explore product ideas and attributes to develop detailed and comprehensive Industrial Design Product Definitions. This may include sketch modelling, semi-functional models, form models, operational features, interfaces, form and styling, colour, texture and graphics. Lifestyle references will be collected and used to guide development to direct detailing.

5.00 Course Evaluation Information

5.01 Project Weighting:
- Project 1.00 (7 weeks) 45%
- Project 2.00 (5 weeks) 45%
- Professionalism and Participation 10%

Total: 100%

5.02 Project Evaluation:
1. Strategic product thinking and concept ideas 15%
2. Concept Design & Sketching & Sketch Modelling 30%
3. Preliminary design explorations and product definition 30%
4. Final design detailing 25%

Total: 100%

6.00 Recommended references:
Universal Principles of Design: Lidwell, Holden, Butler

Universal Design Methods: Martin, Hanington
### 7.00 Proposed Schedule:

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<tr>
<th>Weeks</th>
<th>Morning</th>
<th>Afternoon</th>
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| wk1 (Jan.11) | Course Introduction  
**Project 1 Introduction & Discussion** | Studio Work & Discussion |
| wk2 (Jan.18) | Skills lecture & Studio Work | Studio Work & Discussion |
| wk3 (Jan.25) | Concept Reviews in small groups | Studio Work & Discussion |
| wk4 (Feb.01) | Skills lecture & Studio Work | Studio Work & Discussion |
| wk5 (Feb.08) | Concept Reviews in small groups | Studio Work & Discussion |
| Wk6 (Feb.15) | Studio Work & Discussion  
**Project 2 Introduction** | Studio Work & Discussion |
| Wk7 (Feb.22) | Reading Week | Reading Week |
| Wk8 (Mar.01) | Project 1 – Class review | Project 1 – Class review |
| wk9 (Mar.07) | **Project 2 Introduction & Discussion**  
Concept Reviews in small groups | Studio Work & Discussion |
| wk10 (Mar.15) | Studio Work (no advisor meetings) | Studio Work (no advisor meetings) |
| wk11 (Mar.22) | Skills lecture & Studio Work | Studio Work & Discussion |
| wk12 (Mar.29) | Studio Work & Discussion | Studio Work & Discussion |
| wk13 (Apr.05) | **Project 2 - Class Review** | **Project 2 - Class Review** |
8.00 Additional Course Information

Required materials
Standard design studio tools to enable note taking, sketching, concept generation, design research, design mockups, cad design development and their presentation (slides/boards).

Course completion requirements
To be eligible to pass the course, students must complete all assignments and attend all scheduled reviews and meeting.

Individual and 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
Course Deliverables for reviews and other due dates
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.

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

There is no exam paper in this course. Ongoing work and deliverables will be evaluated and final deliverables will be submitted for review. Collected materials may not be returned unless requested. Comments will be delivered electronically.

**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:
https://carleton.ca/equity/accommodation/

**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:
https://carleton.ca/equity/accommodation/

**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.
https://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:
https://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.
**Instructional Offenses / Plagiarism**
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 (Studio Courses)**
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.

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