CARLETON UNIVERSITY
SCHOOL OF INDUSTRIAL DESIGN

COURSE OUTLINE IDES 2302A • PROJECTS IIB • Winter (2025)

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Location: 3478 ME

Office Hours: **Available upon request**

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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

Introduction to the design principles associated with adapting products to an existing product semantic. Topics covered: principles of design, product semantics, design analysis, design synthesis, design evaluation, and modeling techniques. The design project(s) explore some or all of the design principles covered in the lectures.

Includes: Experiential Learning Activity.
Prerequisite(s): IDES 2300 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. Incorporate design analysis and synthesis as components within a design process.

2. Apply manufacturing theory utilizing wood and metal materials.

3. Integrate multi-sensory aspects of design.

4. Build on freehand orthographic and perspective sketching competency including construction, line-weight management, shading, and shadows to effectively demonstrate the idea generation process.

5. Analyze the visual language of a brand in terms of brand characteristics and design cues.

6. Incorporate design constraints in project standards.

7. Build on knowledge of technical drawings utilizing Computer Aided Design (CAD) software to produce General Arrangement drawings showing all parts and assembly including a Bill of Material.

8. Compile and present professional-looking presentation boards using analog and/or digital methods.

9. Work safely in labs and studios under supervision and develop physical prototyping and model-making knowledge and skills in medium to high fidelity materials using analog tools.

10. Demonstrate professional behaviour as an industrial designer.

Course Deliverables

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

Grading Document:

The final grade for the course will be based:

1.	Daily Sketching Practice (DSP)	10% (Total 100 pages)
2.	Project 1 (Wine rack)	30% (Due by Feb.07)
3.	Project 2 (Automata)	20% (Due by Mar. 07)
4.	Project 3 (Product Brand Extension)	30% (Due by Apr.04)
5.	Professionalism	10%
	Total	100%

These are the deliverables for this course:

1. Daily Sketching Practice (DSP) – 10%

You don't need hours of practice to improve your sketching skills. Spending just 30 minutes a day on focused and continuous practice can significantly enhance your technique and boost your confidence. This short daily practice helps maintain your skills even when you're busy. If you practice sketching one page a day, you will be able to complete 92 pages during this semester. The goal is to put in extra effort to complete 8 additional pages, bringing the total to 100 pages. The DSP score will be calculated as a percentage based on the total number of completed sketches. For instance, if you complete 92 sketches, your score will be 9.2.

2. Project 1 (Stand-alone wine rack design) – 30%

The first project is to design a stand-alone wine rack. The first objective of this project is to create a unique wine rack that is both aesthetically pleasing and structurally stable enough to support and store wine bottles. The second objective is to practice the process of sketching, prototyping, testing, critiquing, and refining, which involves developing the designer's initial idea into a final design. More detailed explanations and the weekly schedule will be provided when the project begins.

3. Project 2 (Automata Design) – 20%

Automata makers have been exploring ways to recreate the movements of living organisms using mechanical mechanisms. By understanding basic mechanical mechanisms such as cams, gears, levers, and linkages, students will test combinations of these mechanisms through prototypes made with paperboard and develop a final design made of laser cut board.

4. Project 3 (Product Brand Extension) – 30%

Students research and analyze the design philosophy and unique design language of a specific brand, applying its distinctive design language to helmet design or outdoor transportation designs. Additionally, students will practice team collaboration through cooperation with other sessions.

5. Professionalism – 10%

- Punctuality and Attendance: Being punctual for classes, meetings, and deadlines to respect for your instructors and peers.
- Respect and Courtesy: Maintaining a respectful and professional demeanor in all interactions.
- Responsibility and Accountability: Taking ownership of one's actions and their consequences, including academic honesty and integrity.
- Appearance and Presentation: Dressing appropriately for the academic or professional setting and presenting oneself in a clean and neat manner.
- Preparedness and Participation: Coming to class prepared with the assigned readings and materials.
- Ethical Behavior: Adhering to ethical guidelines and academic codes of conduct, including plagiarism rules and fair treatment of others.

- Time Management: Balancing academic commitments with extracurricular activities and personal life.
- Teamwork and Collaboration: Working effectively with others, valuing diverse perspectives, and contributing to group projects.

Student Access to Quiz, Test, and Exam Papers

Examinations are for evaluation purposes only and will not be returned to the student.

Required Materials

All Materials required for the course and their costs are listed below. Please note some materials costs are dependent on the project and the materials chosen so a range listing minimum and maximum values will be given. This list is intended to outline the required materials for reference purposes only. Students are not required to purchase new items if they already own suitable materials. The cost ranges provided are included to offer guidance in case purchasing is necessary.

Project 1. Wine Rack Design:
Materials such as cardboard or foamboard will be used to make works-like prototypes. For the final model, even though it will depend on your design, the materials would be primarily sheet wood or metal. Some plastic sheets, extruded elements, dowels, and hardware are additionally permitted. Overall product dimensions must be smaller than a 2 ft cube. If a product larger than this size is anticipated, it should be discussed with the professor.

Sheet Wood (Plywood):
• Common Sizes: 4 ft x 8 ft sheets.
• Thickness Options: 1/4 inch, 1/2 inch, 3/4 inch.
• Price Range: Approximately $30 to $80 per sheet, depending on thickness and grade.

Extruded Elements (e.g., Aluminum Extrusions):
• Common Sizes: Lengths of 8 ft or more; cross-sectional dimensions vary.
• Price Range: Approximately $20 to $50 per piece, depending on size and profile.

Dowels:
• Materials: Wood or metal.
• Common Sizes: Lengths of 36 inches; diameters vary.
• Price Range: Approximately $2 to $10 per dowel, depending on material and size.

Hardware (e.g., Screws, Nails, Hinges):
• Price Range: Approximately $5 to $20 per pack, depending on type and quantity.

Project 2. Automata

Chipboard sheets: (for prototype)
• Size: 12" x 12"
• Cost: $1.29 per sheet

Plywood (for final model)
• Size: Square foot (12" x 12"
• Cost: $2 per square foot.
• Laser cutting cost: $2 per minute (Bring the illustrator file on your own USB)

Project 3. Product brand extension
Product materials required for this deliverable are clay and clay tools for modelling; paper sheets for sketching and final drawings, such as kraft paper and bond, and other drawing materials, such as pens, pencils, coloured pencils, markers, crayons, etc., same as other projects.

Clay:
Students will have the option to purchase clay directly from the School, as in previous years. Additionally, a limited amount of used clay will be available for building up clay models, if needed.
• Clay Cost: $10.00 per billet

Clay Modelling tools:
New clay tool kits have been purchased for student use. Due to their high cost, a refundable deposit of $25.00 will be required for each kit. The deposit will be reimbursed upon the return of the kit, provided all tools are clean and accounted for. Students are encouraged to handle tools responsibly to ensure their availability for future use.
• Tool Kit Deposit: $25.00

These prices are approximate and can vary based on supplier, location, and market fluctuations. It's advisable to check with local suppliers in Ottawa or online retailers for the most current pricing. Additionally, consider the dimensions of your product when purchasing materials to minimize waste and cost. For more accurate budgeting, obtaining quotes from multiple suppliers is recommended.

Textbook:
Students are not required to purchase textbooks for this course.

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.

https://carleton.ca/id/student-info/computer-it-support/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 X% per day 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 – Studio A

1st Year Studio Section B – Studio B

2nd Year Studio Section A – Studio A

2nd Year Studio Section B – Studio B

3rd Year Studio Section A & B – Studio C

4th Year Studio All Sections (Capstone and Minor) – Studio D

MDes Studio – MDes Studio

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.

Course Schedule*

Date	Topic	Focus/Activities	Deliverables
Jan 10	Course Overview Reasoning process	Understand structural principles	Investigate and analyze the structural principles of other design currently available in the market.
Jan 17	1) Idea Exploration	Ideation: concept sketches & early prototype	Explorative sketches & the 1st works-like prototypes for testing
Jan 24	2) Idea refinement	Refinement: a single direction. make prototypes.	The revised works-like prototype
Jan 31	3) Demo in class	Final visualization	CAD rendering & Presentation boards
Feb 07	4) P1 presentation	Introduce P2	Explorative sketches & Early paper prototype
Feb 14	1) Idea Exploration	Ideation: concept sketches & early prototype	Works-like prototypes for testing
Feb 21		WINTER BREAK	
Feb 28	3) Demo in class	Develop the final design	Final boards and a model
Mar 07	4) P2 Presentation	Introducing P3 & Moodboard	Explorative sketches & Moodboard
Mar 14	1) Research on Brand identity & Idea Exploration	Ideation: concept sketches	Idea sketches
Mar 21	2) Detailed design	Clay model making	
Mar 28	3) Demo in class	Clay model making	Boards & the final clay model
Apr 04	4) Final presentation		

More detailed information will be outlined in the weekly class agenda and announced on Brightspace.