

COURSE OUTLINE IDES 2105A • COMPUTER APPLICATIONS B • Winter (2024)

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Location: **2498 ME**

Office Hours: by appointment

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Office Hours: by appointment

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

Provides industrial design students with working knowledge of design related three-dimensional (3D) computer applications, such as surface and solids modelling computer-aided-design (CAD) software. Labs and projects are oriented towards building a foundation in software and group work skills for studio courses.

Includes: Experiential Learning Activity
Prerequisite(s): IDES 1301.
Lecture and tutorials three hours a week.

Learning Outcomes

By the end of this course, students will be able to:

1. Identify the different digital three-dimensional (3D) file types and their optimal uses within industry-relevant software applications.
2. Apply the use of 3D Computer-Aided Design (CAD) software in the industrial design problem-solving process.
3. Develop parametric part and assembly models utilizing industry-standard 3D CAD software.
4. Execute detailed technical drawings for parts and assemblies including standard drawing views and annotations utilizing industry-standard 3D CAD software.
5. Illustrate a basic understanding of allowances and tolerances.
6. Produce product renderings utilizing industry-standard 3D rendering software.
7. Understand the basics of 3D scanning and how it can be used to develop 3D CAD geometry.
8. Identify other relevant 3D computer applications for design.
9. Create assignment/project submissions that meet professional and technical standards.
10. Effectively work within a design team environment while demonstrating professionalism as an industrial designer.

Course Deliverables

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

Weekly Lab Exercises	30%
CAD Project	50%
<i>Product Proposal</i>	<i>(10%)</i>
<i>Parts & Assemblies</i>	<i>(20%)</i>
<i>Technical Drawings</i>	<i>(10%)</i>
<i>Renderings</i>	<i>(10%)</i>
Take-home Exam	15%
Participation & Professionalism	5%

Student Access to Quiz, Test and Exam Papers

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

Required Materials

Materials required for the course are listed below. You may be asked by your instructor to refer to Brightspace for a more comprehensive list of required materials.

Computer Software:

The latest versions of the following software (provided by the School of Industrial Design) must be installed on your personal laptop computer before the first scheduled class:

- SolidWorks
- KeyShot
- Illustrator
- Photoshop

Computer Input Device:

- Basic computer mouse (left+right button with scroll wheel minimum)

Measuring Tools:

- Caliper
- Ruler
- Sewing/Tailor Tape Measure

Sketching Tools:

- Sketchbook and/or paper
- Pen(s), pencil(s), and/or marker(s)

Project Specific Materials:

Other specific materials will be dependent upon each student's project. You must be prepared to purchase or acquire the appropriate materials necessary for you to complete your own work throughout the term.

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 Brightspace 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 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 discretion of the instructor.

If you are not able 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. 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.

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.

Academic Integrity

Carleton's Policy on Academic Integrity is available at: <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.

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.

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, and announcements made, along with information disseminated through Brightspace. 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.

Appendix A - Course Schedule

Date	Topic	Lab Activity	Project Deliverables
Week 1 Jan 8	Course Overview & Introduction SolidWorks: Fundamentals	Lab 1: Initials	
Week 2 Jan 15	SolidWorks: Parts	Lab 2: LEGO Lab 3: Water Bottle	
Week 3 Jan 22	SolidWorks: Parts	Lab 4: iPod Classic	CAD Project: Product Proposal (due Monday, Jan 22 @ 2:35pm)
Week 4 Jan 29	SolidWorks: Parts	Lab 5: Earbuds	
Week 5 Feb 5	SolidWorks: Parts	Lab 6: iPod Classic Revisions & Case	
Week 6 Feb 12	SolidWorks: Assemblies	Lab 7: LEGO	
Feb 19	Winter Break		
Week 7 Feb 26	SolidWorks: Assemblies	CAD Project Working Period	CAD Project: Parts & Assemblies (Progress)
Week 8 Mar 4	SolidWorks: Drawings	Lab 8: LEGO	
Week 9 Mar 11	SolidWorks: Drawings	Lab 9: LEGO	CAD Project: Parts & Assemblies (due Monday, Mar 11 @ 2:35pm)
Week 10 Mar 18	Keyshot: Renderings	Lab 10: iPod Classic & Accessories	
Week 11 Mar 25	Keyshot: Renderings	CAD Project Working Period	CAD Project: Technical Drawings (due Monday, Mar 25 @ 11:59pm)
Week 12 Apr 1	3D Scanning	CAD Project Working Period	
Week 13 Apr 8	No Class		CAD Project: Renderings (due Monday, Apr 8 @ 11:59pm)
Apr 25	Take-Home Exam		

