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IDES 2105A • COMPUTER APPLICATIONS B

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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

Provides industrial design students with working knowledge of design related three-dimensional (3D) computer applications, such as solid and surface 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 2104.
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. For more detailed information, please see the Course Schedule, **IDES 2105A COMPUTER APPLICATIONS B W26 - Steven Pong - Course Schedule**, in Brightspace.

Weekly Lab Exercises: 30%

There will be 10 lab exercises to complete in class (3% each). These labs will focus on experiential learning and group work to develop skills creating parametric models, detailed technical drawings, and renderings.

CAD Project: 50%

This project runs throughout the entire semester and is broken down into four phases, all of which build upon the skills gained from previous courses and the weekly lab exercises in class. It is about developing 3D CAD software skills while practicing the use of computer applications as a tool within the overall design process.

Product Proposal	*(10%)*
Parts & Assemblies	*(20%)*
Technical Drawings	*(10%)*
Renderings	*(10%)*

Take-home Exam: 15%

This final exam will test your working knowledge of design-related 3D computer applications based on the content from this course and the learning outcomes. It is broken down into two parts: (1) a written quiz and (2) a small CAD assignment.

Participation & Professionalism: **5%**

A discretionary grade based on the student's observed performance and conduct in class. It is a reflection of the student's soft skills that may not be captured in deliverables, but rather through their actions and behaviors. Attendance, communication, and teamwork play a major role in this evaluation.

Student Access to Exam, Quizzes, and feedback on Academic Work

Carleton University is committed to providing students with appropriate and timely feedback on their work. Please see undergraduate regulations Article 5.3 and graduate regulations Article 23 for more information.
First assigned academic work will be evaluated and returned prior to the 25th teaching day of term.

Students have the right to have questions regarding their grades addressed and to view all material, including material that has not been returned such as final examinations. Please see undergraduate regulations Article 3.3.4 and graduate regulations Article 15 and Graduate Grade Appeal Process for more information.
Upon request, exams will be returned to the students with comments and explanations.

Cost of Educational 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.

Computer Software:

The latest versions of the following software (provided by the School of Industrial Design at no cost) 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 at minimum) (Cost: ~$30.00)

Measuring Tools:

- Caliper (Cost: ~$30.00)
- Ruler (Cost: ~$10.00)
- Sewing/Tailor Tape Measure (Cost: ~$5.00)

Sketching Tools:

- Sketchbook and/or paper (Cost: ~$10.00)
- Pen(s), pencil(s), and/or marker(s) (Cost: ~$3.00 to $50.00 (range))

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. This can range anywhere from $0.00 to $50.00.

Technology Requirements

Please refer to the technology requirements on the School of Industrial Design Website (https://carleton.ca/id/student-info/it-support/technology-requirements/). You may be asked by your instructor to refer to Brightspace for other information or requirements related to coursework.

Individual/Group Work

Courses may include individual and group work, and the majority of the grade must reflect individual work. This will support the assessment of individual performance, which may be difficult to determine in group projects. It is also 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 **10%** 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. Students are welcome and encouraged to use available studio 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 whenever you are leaving the 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

Students may use AI tools for basic word processing and formatting functions, including:
- Grammar and spell checking (e.g., Grammarly, Microsoft Word Editor).
- Basic formatting and design suggestions (e.g., Microsoft Word's formatting tools, PowerPoint Design editor).

Documenting AI use: It is not necessary to document the use of AI for the permitted purposes listed above. If you have questions about a specific use of AI that isn't listed above, please consult your instructor.

As our understanding of the uses of AI and its relationship to student work and academic integrity continue to evolve, students are required to discuss their use of AI in any circumstance not described here with the course instructor to ensure it supports the learning goals for the course. Students can access resources related to citing Generative AI on the MacOdrum Library website. Plus, additional AI resources are also available on Carleton's Artificial Intelligence Hub.

Requests for Academic Accommodation

Carleton is committed to providing academic accessibility for all individuals. You may require special arrangements to meet your academic obligations during the term. The accommodation request processes, including information about the *Academic Consideration Policy for Students in Medical and Other Extenuating Circumstances*, are outlined on the Academic Accommodations website (students.carleton.ca/course-outline). The website covers the below topics.

Topics:

- Pregnancy Obligations
- Religious/Spiritual Obligation
- Academic Accommodations for Students with Disabilities
- Survivors of Sexual Violence
- Accommodation 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.

Course Schedule

Please refer to Brightspace for a detailed Course Schedule: **IDES 2105A COMPUTER APPLICATIONS B W26 - Steven Pong - Course Schedule**.