ART-ENGR-3735-SEC0001
ME-3295-1248
SOLIDWORKS FOR INDUSTRIAL DESIGN

Syllabus - Fall 2024

Excluding materials for purchase, syllabus information may be subject to change. The most up-to-date syllabus is located within the course in Husky CT.

Course and Instructor Information

Course Title: SOLIDWORKS FOR INDUSTRIAL DESIGN
Room: ARTB202
Time and Day of meetings: Mondays/Wednesdays 2:30pm-3:45pm
Credits: 3
Format: In-Person (P)
Prerequisites: none
Professor/Instructor/Facilitator: Jorge Paricio Garcia, PhD, MID, MHR
Email: jparicio@uconn.edu
Pronouns: he/him/his

Office Hours/Availability: Tuesday mornings, from 9am, to 12noon, on WebEx, using this link: https://uconn-cmr.webex.com/meet/jparicio, by appointment done 3 days in advance via email, unless it is an emergency and the faculty finds an accommodating time slot for the student. All appointments will be conducted remotely.

Course Materials

Required course materials should be obtained before the first day of class. The professor communicates with students through Husky CT. Students are advised to check regularly for special announcements and changes to course materials.

Recommended Materials:

- Digital Caliper (link to Amazon).
- Cross-section graph paper, compass, triangle set, mechanical pencil and lead, ruler with metal edge (link to list here) .
- Other Requirements/Software: SolidWorks software- accessed via UConn's portal, with instructions listed under Course Orientation - Install SolidWorks. Please use this link.

Required Textbook:

- SolidWorks 2023 and Engineering Graphics. An Integrated Approach. It can also be purchased here, https://www.sdcpublications.com/Textbooks/SOLIDWORKS-2023-Engineering-Graphics/ISBN/978-1-63057-554-0/
- The 2024 edition is also available here in case you want to use it. We will cover the course with the 2023 edition, though. https://www.sdcpublications.com/Textbooks/SOLIDWORKS-2024-Engineering-Graphics/ISBN/978-1-63057-632-5/

Textbooks are available for purchase through the UConn Bookstore (or use the Purchase Textbooks tool in HuskyCT). Textbooks can be shipped (fees apply).
Required course materials should be obtained in the first week of class.

Other reference bibliography:

- Tran, P. (2024). *The Complete Guide to Mold Making with SOLIDWORKS 2024*. Mission, KS: SDC Publications. https://www.amazon.com/Complete-Guide-Mold-Making-SOLIDWORKS/dp/1630576468

The University has set minimum device requirements for all students.
Additional instructional materials and links to resources are available from within the Husky CT course.

Course Description

Basic computer-aided design (CAD) is introduced. Isometric, orthogonal views, sections and parametric modeling strategies, including advanced modeling techniques. First and third angle projections. Notions of measuring, tolerances and manufacturing techniques associated by hand and CAD modeling. General manufacturing processes and their relation to modeling individual parts and assemblies. CNC principles, GCODE.

Course Objectives

By the successful completion of this course, students will:

1. Draw basic isometric views of parts, by hand and using CAD 2.
2. Draw basic orthogonal views by hand and using CAD and orient them in the first and third angle projections.
3. Identify and compare fundamental manufacturing techniques.
4. Explain the meaning of geometric tolerances.
5. Build parts and part assemblies in CAD using a variety of modeling techniques.
6. Modify an existing part based on redefined design requirements or constraints.
7. Identify factors in a design that require the use of specific manufacturing techniques.

Abet 7 Learning outcomes (some of them might apply to this course). Click here for a full description of the outcomes.

1. An Ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.
2. An ability to apply engineering design to produce solutions that meet specific needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.
3. An ability to communicate effectively with a range of audiences.
4. An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgements, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.
5. An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.
6. An ability to develop and conduct appropriate experimentations, analyze and interpret data, and use engineering judgment to draw conclusions.
7. An ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

Course Outline (and Calendar if Applicable)

Module	Title of Module	Description	Objectives met	Abet 7 learning outcomes
Module 1. Week 1.	Introduction to SolidWorks.	Parametric modeling fundamentals. Creating a simple object with a cut through. Constructive solid geometry concepts. Perspective and isometric drawing.	1, 2, 5, 6	7
Module 2. Week 2 to 3.	Geometric Construction.	Driving and over-defining dimensions. Adding relations and equations. Working with the feature design tree. Orthographic projections and Multiview constructions. Drawing orthographic views.	1, 2	7

Module 3. Weeks 4 to 5.	Orthographic Projections.	Orthographic projections and Multiview constructions (continued) Dimensioning and notes.	2, 3, 4, 5, 7	7
Module 4. Weeks 6 to 7.	Tolerance and Fit.	Working with tolerance and fits. Section views and symmetrical features in designs.	1, 3, 4, 5	3, 5, 7
Module 5. Weeks 8 to 9.	Reference Geometry, Molds, and Assemblies.	Practicing with auxiliary views and reference geometry. Working with molds from parts in SolidWorks. Combining parts into assembly drawings. Updating revisions in SolidWorks.	1, 2, 3, 4, 5, 6, 7	7
Module 6. Weeks 10 to 12.	Threads and Fasteners. Bill of Materials.	Understanding threads and fasteners. Creating and editing a bill of materials. Creating machining simulations. Benefits of taking the CSWA exam preparation.	1, 3, 4, 5, 6, 7	7
Module 7. Weeks 13 to 16.	3D printing, Advanced Topology. Advanced Modeling Techniques.	3D printing parts to test viability. Exploring lattice topology in modeling. Exploring Engineering Analysis. Exploring modeling of advanced surfaces.	1, 3, 4, 5, 6, 7	6, 7

Course Requirements and Grading

Summary of Course Grading:

Deliverable or Activity	Points	Notes	Type
Discussion Boards	5%	Assigned journal entries and discussion points relevant to the weekly material.	Individual work
Quizzes	10%	Assessments related to the weekly material.	Individual work
SolidWorks assignments	40%	Creation of SolidWorks parts, drawings, assemblies, molds, or machining simulations.	Individual work
Drawing Assignments	15%	Creation of freehand drawings, related to the weekly material.	Individual work
Scavenging Hunt and Work-in-Class	20%	Quest for finding examples in our surroundings, practice of skills.	Individual work and Teamwork
Additional SolidWorks Assignments	10%	Creation of additional SolidWorks material, for additional points.	Individual work.

Total Points	**100%**		Individual work.

Final Grades:

Final grades will be determined according to the scale below. *Instructors reserve the right to adjust the scale based on the final distribution of grades in the class.

I make every effort to provide timely feedback and a timely posting of the grades. To keep track of your performance and changes in the course, refer to My Grades and Announcements in Husky CT.

A Excellent	>92	C Average	73-76
A- Excellent	90-92	C- Fair	70-72
B+ Very Good	87-89	D+ Poor	67-69
B Good	83-86	D Poor	63-66
B- Good	80-82	D- Merely Passing	60-62
C+ Good	77-79	F	<60

Information on grades and grading can be found on the Registrar's site and in the catalog:

- Registrar's Information on Grading Scales
- Undergraduate Catalog Grade Information

General explanation of the meaning of grades:

Grade A. Excellent. Student went above and beyond what was asked. Some examples include completing truly unique research, finding an unmatched niche market, or acquiring information from exceptionally qualified end users. The projects are exquisitely presented and are not missing any parts. Creativity and craftsmanship are outstanding.

Grade A-. Excellent. Student followed the directions on what was asked. Student worked with the appropriate techniques, materials or technology that were expected, and found a solid market opportunity and user needs. The projects are well presented and well put together without missing any parts. Creativity and craftsmanship are well considered and applied.

Grade B+. Very Good. Student followed the directions on what was asked, but there might be some minor elements missing. Student worked sufficiently well with the techniques, materials or technology that were expected. The projects are presented correctly and well put together, but there might be some minor inconsistencies. Creativity and craftsmanship are correctly considered but might be lacking depth.

Grade B. Good. Student followed the directions on what was asked, but there might be elements missing. Student made a sufficient attempt at working with the techniques, materials or technology that were expected. The projects are presented to the class, but might be missing major parts, or entire sections. Creativity and craftsmanship are considered but are lacking depth or consistency.

Grade B-. Good. Student loosely followed the directions on what was asked, and there are major elements missing. Student made a light attempt at working with the techniques, materials or technology that were expected. The projects are vaguely presented to the class, are missing major parts, or are missing entire sections. Creativity and craftsmanship are considered lightly but are lacking depth or consistency.

Grade C+. Average. Student failed to follow the directions with precision, and there are major gaps. Student made a vague attempt at working with the techniques, materials or technology that were expected. The projects are loosely presented to the class, are missing major parts, or are missing entire sections. Creativity and craftsmanship are not considered, or used sporadically

Grade C-. Fair. The student's work shows a lack of attention to detail, with several significant gaps in meeting the assignment's requirements. Instructions were not followed carefully, leading to noticeable errors or omissions. The student's attempt to use the required techniques, materials, or technology is inconsistent, with minimal effort to apply them effectively. The projects presented are incomplete, with essential elements missing, and the overall presentation lacks coherence. Creativity and craftsmanship are evident but are not applied thoughtfully or consistently.

Grade D+. Poor. The student's work falls well short of expectations, with numerous errors and missing components. The directions were disregarded, resulting in a poorly executed project. The student's use of techniques, materials, or technology is minimal and often incorrect. The projects are poorly presented, with major sections missing or inadequately developed. There is little evidence of creativity, and craftsmanship is sloppy or absent.

Grade D. Poor. The student's work demonstrates a significant failure to meet the assignment's requirements. Instructions were entirely ignored, leading to a disjointed and incomplete submission. The student's engagement with the required techniques, materials, or technology is minimal, showing a lack of understanding or effort. The projects are haphazardly presented, with major portions missing or undeveloped. Creativity is absent, and the work is carelessly crafted.

Grade D-. Merely Passing. The student's work just meets the minimum standards for passing. The directions were barely followed, resulting in a project significantly lacking in quality and completeness. The student's use of techniques, materials, or technology is superficial and often incorrect. The projects are presented with numerous missing elements, and the overall presentation is disorganized. There is little to no creativity or craftsmanship evident in the work.

Grade F. Failure. The student's work fails to meet the basic requirements of the assignment. Instructions were not followed, leading to a submission that is incomplete or irrelevant to the task. The student did not effectively use the required techniques, materials, or technology, and the project lacks coherence. The presentation is

either absent or entirely unsatisfactory, with essential components missing. There is no evidence of creativity or craftsmanship, and the work reflects a lack of effort.

Due Dates and Late Policy

All course due dates are listed in the syllabus, available on HuskyCT. Deadlines are based on Eastern Standard Time. The instructor reserves the right to change dates accordingly as the semester progresses. All changes will be communicated appropriately. If there are extenuating circumstances that will prevent you from completing your assignment on time, please discuss this issue with me in advance of the due date.

All the following material is due on the due dates:

- **Discussion Boards**
- **Quizzes**
- **SolidWorks Assignments**
- **Additional SolidWorks Assignments**
- **Drawing Assignments**
- **Scavenging Hunt Assignment and Work-In-Class assignments**

No work will be accepted past the due date. If you are having extenuating circumstances or need extensive accommodation, just ask ahead of time.

For online or distance learning versions of this course, student authentication and verification

Instructor will use HuskyCT as the primary repository and access point for course content, assessment, and activities, and students use their NetID and password process to securely access course content/assessments. Recorded exam or test submissions. DL: Instructor will use HuskyCT as the primary repository and access point for course content, assessment, and activities, and students use their NetID and password process to securely access course content/assessments, synchronous virtual class, small group meetings, and individual student meetings. Feedback and Grades

Weekly Time Commitment

You should expect to dedicate between 12 hours a week to this course. This expectation is based on the various course activities, assignments, and assessments and the University of Connecticut's policy regarding credit hours. More information related to hours per week per credit can be accessed at the Online Student website.

Copyright

My lectures, notes, handouts, and displays are protected by state common law and federal copyright law. They are my own original expressions and I've recorded them prior or during my lecture to ensure that I obtain copyright protection. Students are authorized to take notes in my class; however, this authorization extends only to making one set of notes for your own personal use and no other use. I will inform you as to whether you are authorized to record my lectures at the beginning of each semester. If you are authorized to record my lectures, you may not copy this recording or any other material, provide copies of either to anyone else, or make a commercial use of them without prior permission from me.

Academic Integrity

You are responsible for acting in accordance with the University of Connecticut's Student Code. Review and become familiar with the expectations. Make sure you have read the section that applies to you on Academic Integrity. Students in this course are expected to maintain the highest standards of intellectual honesty. If you have any questions about what constitutes academic dishonesty (cheating or plagiarism), you should review UConn's code of conduct at http://community.uconn.edu/the-student-code-appendix-a/ and consult with the instructor PRIOR to taking any questionable actions. Avoiding Plagiarism: As a student, it is your responsibility to avoid plagiarism and meet University expectations related to academic integrity. The University of Connecticut Library recommends the following resources for students to understand and avoid plagiarism: Understanding Plagiarism, a tutorial from UConn Library Citing Sources, a UConn guide to introduce citing MLA, APA styles and more Citation Machine, interactive citation tool for MLA and APA styles KnightCite, interactive citation tool for

MLA, APA, and Chicago styles Assignment Calculator, interactive tool that provides a timeline for writing Research QuickStart, guidance on common questions and needs in the research process Research Now, guides to help you develop your research skills Copyright: Copyrighted materials within the course are only for the use of students enrolled in the course for purposes associated with this course and may not be retained or further disseminated.

Resources for Students Experiencing Distress

The University of Connecticut is committed to supporting students in their mental health, their psychological and social well-being, and their connection to their academic experience and overall wellness. The university believes that academic, personal, and professional development can flourish only when each member of our community is assured equitable access to mental health services. The university aims to make access to mental health attainable while fostering a community reflecting equity and diversity and understands that good mental health may lead to personal and professional growth, greater self-awareness, increased social engagement, enhanced academic success, and campus and community involvement. Students who feel they may benefit from speaking with a mental health professional can find support and resources through the Student Health and Wellness-Mental Health (SHaW-MH) office. Through SHaW-MH, students can make an appointment with a mental health professional and engage in confidential conversations or seek recommendations or referrals for any mental health or psychological concern. Mental health services are included as part of the university's student health insurance plan and also partially funded through university fees. If you do not have UConn's student health insurance plan, most major insurance plans are also accepted. Students can visit the Student Health and Wellness-Mental Health located in Storrs on the main campus in 6 the Arjona Building, 4th Floor, or contact the office at (860) 486-4705, or https://studenthealth.uconn.edu/ for services or questions.

Accommodations for Illness or Extended Absences

If illness prevents you from participating in class, it is your responsibility to notify me as soon as possible. If life circumstances are affecting your ability to focus on courses and your UConn experience, students can email the Dean of Students at dos@uconn.edu to request support.

Students with Disabilities

Students with Disabilities The University of Connecticut is committed to protecting the rights of individuals with disabilities and assuring that the learning environment is accessible. If you anticipate or experience physical or academic barriers based on disability or pregnancy, please let me know immediately so that we can discuss options. Students who require accommodations should contact the Center for Students with Disabilities, Wilbur Cross Building Room 204, (860) 486 2020 or http://csd.uconn.edu/.

Policy against Discrimination, Harassment, and Inappropriate Romantic Relationships

The University is committed to maintaining an environment free of discrimination or discriminatory harassment directed toward any person or group within its community – students, employees, or visitors. Academic and professional excellence can flourish only when each member of our community is assured an atmosphere of mutual respect. All members of the University community are responsible for the maintenance of an academic and work environment in which people are free to learn and work without fear of discrimination or discriminatory harassment. To that end, and in accordance with federal and state law, the University prohibits discrimination and discriminatory harassment, as well as inappropriate Romantic relationships, and such behavior will be met with appropriate disciplinary action, up to and including dismissal from the University. Refer to the Policy against Discrimination, Harassment and Inappropriate Romantic Relationships for more information. To protect the campus community, all non-confidential University employees (including faculty) are required to report assaults they witness or are told about to the Office of Diversity & Equity under the Sexual Assault Response Policy. The University takes all reports with the utmost seriousness. Please be aware that while the information you provide will remain private, it will not be confidential and will be shared with University officials who can help. Refer to the Sexual Assault Reporting Policy for more information.

Software/Technical Requirements (with Accessibility and Privacy Information)

The University has set minimum device requirements for all students. **NOTE:** Chromebooks do not meet the minimum requirements.

The software/technical requirements for this course include:

- HuskyCT/Blackboard (HuskyCT/ Blackboard Accessibility Statement, HuskyCT/ Blackboard Privacy Policy)
- Adobe Acrobat Reader (Adobe Reader Accessibility Statement, Adobe Reader Privacy Policy)
- Google Apps (Google Apps Accessibility, Google for Education Privacy Policy)
- Microsoft Office (free to UConn students) (Microsoft Accessibility Statement, Microsoft Privacy Statement)
- Dedicated access to high-speed internet with a minimum speed of 1.5 Mbps (4 Mbps or higher is recommended).
- Webcam

For information on managing your privacy at the University of Connecticut, visit the University's Privacy page
NOTE: This course has NOT been designed for use with mobile devices.

Help

This course is facilitated online using the learning management platform, HuskyCT-Blackboard Ultra. The IT Knowledge Base provides students with support, troubleshooting, and how-to information about HuskyCT. The IT Knowledge Base includes a video tour of HuskyCT.

For technical help with HuskyCT, you have access to the in-person/live person support options available during regular business hours through the Technology Support Center. You also have 24x7 Course Support outside of business hours, including access to live chat, phone, and support documents.

Technical and Academic Help provides a guide to frequently asked questions for online students.

Study Groups

Are you interested in forming a study group with other students in the class? There is a study group application in Nexus that can help you get started. View this video for more information.

Minimum Technical Skills

To be successful in this course, you will need the following technical skills:

- Use electronic mail with attachments.
- Save files in commonly used word processing program formats.
- Copy and paste text, graphics or hyperlinks.
- Work within two or more browser windows simultaneously.
- Open and access PDF files.
- Install SolidWorks software and additional collateral software.
- Empty the Trash and other files that are not needed, to liberate memory.

Evaluation of the Course

Students will be provided an opportunity to evaluate instruction in this course using the University's Student Evaluation of Teaching (SET), which is administered by the Office of Budget, Planning and Institutional Research (BPIR).

Additional informal formative surveys may also be administered within the course as an optional evaluation tool.