Computer Aided Design
EML2023 (25676)
Class Periods: M, W, F, 10th period, 5:10 PM – 6:00 PM ***Location:*** MAEA-0303 (MAE-A)
Academic Term: Spring/2026

Instructor:
Larry Howard
Lhoward750@ufl.edu (use the Canvas Inbox after class starts) Phone #: cell (texts only please, include your name) (559) 905-4418 Office Hours/Location: Zoom, (text me for a time slot ahead of time)

Teaching Assistant/Peer Mentor/Supervised Teaching Student:
Please contact through their UF email address shown here:

- Last Names A-J: Maxwell Wegener; **maxwell.wegener@ufl.edu**
- Last Names K-Z: Rishi Patel: **patel.rishi@ufl.edu**

Course Description
Sketching, descriptive geometry, computer graphics, computer aided drafting and design projects. 3 credits.

Course Pre-Requisites / Co-Requisites
- A knowledge of windows, and the use of folders to store files. A working knowledge of the Canvas Learning Management System.
- A Windows based Laptop (see minimum specs below) with access to our class in Canvas in the classroom.

Course Objectives
1. Understand the conventions and notations used in an engineering drawing.
2. Recognize standard views including principal, isometric, auxiliary, detailed, partial, and sectional views.
3. Read an engineering drawing to visualize and understand the design documented in it.
4. Create Solid Model as a combination of standard features available in all Solid modeling software including Extrude, Revolve, Loft, Sweep, and Shell.
5. Create constrained 2D sketches for these features using dimensions and relations that will regenerate (or update) in the desired manner when a dimension is changed.
6. Use variables to define geometric parameters.
7. Modify solid models using standard modifying features such as Fillet (or Round), Chamfer, and Draft.
8. Use reference geometry such as planes, axes, and points to aid in the construction of solid models.
9. Analyze and fix errors or deficiencies in a solid model including simplifying feature tree.
10. Create assemblies and part models using model-based (parametric) definitions (i.e., updating one dimension leads to other features updating rather than breaking the assembly/model).
11. Create solid models and 3D assemblies with multiple configurations
12. Create 3D assemblies of parts using geometric constraints (or mate relations) between parts.
13. Create an engineering drawing using a solid or assembly model in CAD software.
14. Create drawings that contain orthographic projections, auxiliary projections, section views, detail views, and partial views of a part or assembly.
15. Create fully dimensioned part drawings suitable for manufacturing.
16. Understand, recognize, and apply welding callouts when creating a part/assembly drawing.
17. Apply and recognize traditional tolerancing as well as geometric dimensioning and tolerancing (G D & T).
18. Apply tolerances for a desired clearance or interference fits.
19. Understand thread notes, nomenclature, and selection process for threaded fasteners.
20. Understand the use of Coordinate Measurement Machine (CMM) to inspect a manufactured part to determine if a part meets the specified tolerances.
21. Prepare an STL file of a solid or assembly model for fabrication on a Rapid Prototyping machine.

22. Select the appropriate Rapid Prototyping technology for making a prototype of their design.

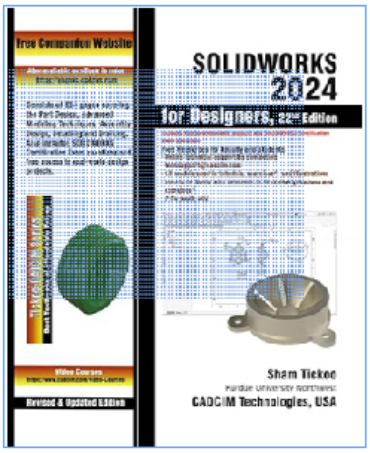
Materials and Supply Fees
$118.23

Relation to Program Outcomes (ABET):
The table below is an example. Please consult with your department's ABET coordinator when filling this out.

Outcome	Coverage*
1. An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics	Medium
2. An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors	High
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 judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts	Medium
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 experimentation, 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	Medium

*Coverage is given as high, medium, or low. An empty box indicates that this outcome is not covered or assessed in the course.

Recommended Textbook



Recommended Texts/Materials
SOLIDWORKS 2024 for Designers, 22nd Edition.
Although the lectures and supporting slides will provide all the knowledge you need for the class we do recommend this textbook as a good reference. Available on Amazon.
Earlier versions are acceptable as well as more affordable. For example, here is a link to a 2019 version for only $3.59:
Click for Link

Recommended Materials

- USB Drive for backup

Required Computer

UF student computing requirement: *https://news.it.ufl.edu/education/student-computing-requirements-for-uf/*
This class only supports the Windows PC. SolidWorks does not support running on Mac hardware, even on a Windows partition. Complete the SolidWorks installation before the second class.

Course Schedule

Class Dates: 01/1/2026 – 05/01/2026. Refer to the Course Calendar in Canvas for all assignments and their respective due dates.

Attendance Policy, Class Expectations, and Make-Up Policy

While role will not be taken in the class, attendance is assumed. Two types of quizzes: Regular Quizzes - To gain access to the regular quizzes, the student will require the codes that will be given out in class. Impromptu In-Class Quizzes - May only be taken during class in the classroom. Requirements for class attendance and make-up exams, assignments, and other work in this course are consistent with university policies. Click here to read the university attendance policies:
https://catalog.ufl.edu/UGRD/academic-regulations/attendance-policies/

Assignments

Students are expected to complete all assignments on time. Refer to the course calendar for assignment dates & deadlines as it will determine all due dates.

The lettered homework assignments (Unit A, Unit B, etc.):

All lettered assignments will be open and available to be worked at least a week ahead.
Each lettered assignment has a specific due date specified in the course calendar and within the assignment itself.
You are to submit each assignment meeting or exceeding the expectations as called for in that assignment's Grading Criteria (Rubric).
Late homework is a term used for homework that is submitted for the first time after the assignment due date.

Important note about Assignments being late:

Any assignment turned in on or before the due date will receive 100% credit based upon the assessment.
The late period for an assignment starts the day after the due date for 7 days. The assignment will be closed 7 days after the due date. Any assignment turned in after the due date, but within the 7-day late period will be graded, but will receive a 1 letter grade deduction from the final grade.
Assignments are not able to be submitted after the late period and will not be graded. The student will receive a 0 for that assignment.
Any request for an exception to either the late period or after the late period expires falls within the university attendance policy and must be documented, in advance, by way of a message to the instructor in Canvas.

Quizzes

Regular quizzes:

- They will in most modules and grading is done automatically by Canvas. You'll have at least a week to take these. You will know your score right after you submit the quiz. You will have 2 chances to take the quizzes. When you submit the quiz the first time you will see your grade and Canvas will tell you 2 things: 1) your answers and, for those questions you missed, 2) you will see the right answers. If you receive 100% don't take it the second time. If you missed any questions, you may take the quiz a second time knowing the correct answers. Canvas will average your 2 scores, and that will be your final grade. There will be a GDT quiz which will be graded separately. The same late assignment rules apply to all quizzes.

In-class impromptu quizzes:

- These quizzes will be brief quizzes administered during class, designed to be completed within 1 or 2 minutes. Students must be present to take the quiz! It's a violation of the honesty policy to aid any student not present to take these in-class quizzes.

CSWA Exam (if passed you receive a Certified SolidWorks Associate certificate)

The 3 hour CSWA Exam will be administered at a time and date TBD. It will be taken under the HonorLock proctoring software on a computer and location of your choice.

Class Norms

As with any 3 credit class, a student is expected to spend an average of 6 hours outside of class for this 3 credit-hour course

Homework will be completed on the student's local Windows PC in SolidWorks

For each assignment the student will submit the following as called for in the assignment instructions:

- a screen shot
- the SolidWorks file(s)

Quizzes are graded automatically.

No Midterm Exam or final exam

Evaluation of Grades

Assignment Category	Percentage of the grade
Lettered homework assignments (A through SP)	73%
Regular Quizzes	4%
GDT Quiz	5%
Unit SP (Special Project)	5%
CSWA Exam	10%
In-class impromptu quizzes	3%

Grading Policy

Percent	Grade	Grade Points
93.4 - 100	A	4.00
90.0 - 93.3	A-	3.67
86.7 - 89.9	B+	3.33
83.4 - 86.6	B	3.00
80.0 - 83.3	B-	2.67
76.7 - 79.9	C+	2.33
73.4 - 76.6	C	2.00
70.0 - 73.3	C-	1.67
66.7 - 69.9	D+	1.33
63.4 - 66.6	D	1.00
60.0 - 63.3	D-	0.67
0 - 59.9	E	0.00

More information on UF grading policy may be found at:
https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx

Students Requiring Accommodations
Students with disabilities who experience learning barriers and would like to request academic accommodations should connect with the disability Resource Center by visiting https://disability.ufl.edu/students/get-started/. It is important for students to share their accommodation letter with their instructor and discuss their access needs, as early as possible in the semester.

Course Evaluation
Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online. Students can complete evaluations in three ways:

1. The email they receive from GatorEvals,
2. Their Canvas course menu under GatorEvals, or
3. The central portal at https://my-ufl.bluera.com

Guidance on how to provide constructive feedback is available at https://gatorevals.aa.ufl.edu/students/. Students will be notified when the evaluation period opens. Summaries of course evaluation results are available to students at https://gatorevals.aa.ufl.edu/public-results/.

In-Class Recording
Students are allowed to record video or audio of class lectures. However, the purposes for which these recordings may be used are strictly controlled. The only allowable purposes are (1) for personal educational use, (2) in connection with a complaint to the university, or (3) as evidence in, or in preparation for, a criminal or civil proceeding. All other purposes are prohibited. Specifically, students may not publish recorded lectures without the written consent of the instructor.

A “class lecture” is an educational presentation intended to inform or teach enrolled students about a particular subject, including any instructor-led discussions that form part of the presentation, and delivered by any instructor hired or appointed by the University, or by a guest instructor, as part of a University of Florida course. A class lecture does not include lab sessions, student presentations, clinical presentations such as patient history, academic exercises involving solely student participation, assessments (quizzes, tests, exams), field trips, private conversations between students in the class or between a student and the faculty or lecturer during a class session.

Publication without permission of the instructor is prohibited. To “publish” means to share, transmit, circulate, distribute, or provide access to a recording, regardless of format or medium, to another person (or persons), including but not limited to another student within the same class section. Additionally, a recording, or transcript of a recording, is considered published if it is posted on or uploaded to, in whole or in part, any media platform, including but not limited to social media, book, magazine, newspaper, leaflet, or third party note/tutoring services. A student who publishes a recording without written consent may be subject to a civil cause of action instituted by a person injured by the publication and/or discipline under UF Regulation 4.040 Student Honor Code and Student Conduct Code.

University Honesty Policy
UF students are bound by The Honor Pledge which states, “We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code. On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: “On my honor, I have neither given nor received unauthorized aid in doing this assignment.” The Honor Code (https://sccr.dso.ufl.edu/process/student-conduct-code/) specifies a number of behaviors that are in violation of this code and the possible sanctions. Furthermore, you are obligated to report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult with the instructor or TAs in this class.

Commitment to a Safe and Inclusive Learning Environment
The Herbert Wertheim College of Engineering values varied perspectives and lived experiences within our community and is committed to supporting the University’s core values, including the elimination of discrimination. It is expected that every person in this class will treat one another with dignity and respect

regardless of race, creed, color, religion, age, disability, sex, sexual orientation, gender identity and expression, marital status, national origin, political opinions or affiliations, genetic information, and veteran status.

If you feel like your performance in class is being impacted by discrimination or harassment of any kind, please contact your instructor or any of the following:
• Your academic advisor or Undergraduate Coordinator
• HWCOE Human Resources, 352-392-0904, student-support-hr@eng.ufl.edu
• Pam Dickrell, Associate Dean of Student Affairs, 352-392-2177, pld@ufl.edu
• Toshikazu Nishida, Associate Dean of Academic Affairs, 352-392-0943, nishida@eng.ufl.edu

Software Use
All faculty, staff, and students of the University are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against University policies and rules, disciplinary action will be taken as appropriate. We, the members of the University of Florida community, pledge to uphold ourselves and our peers to the highest standards of honesty and integrity.

Student Privacy
There are federal laws protecting your privacy with regards to grades earned in courses and on individual assignments. For more information, please see: https://registrar.ufl.edu/ferpa.html

Campus Resources:

Health and Wellness

U Matter, We Care:
Your well-being is important to the University of Florida. The U Matter, We Care initiative is committed to creating a culture of care on our campus by encouraging members of our community to look out for one another and to reach out for help if a member of our community is in need. If you or a friend is in distress, please contact umatter@ufl.edu so that the U Matter, We Care Team can reach out to the student in distress. A nighttime and weekend crisis counselor is available by phone at 352-392-1575. The U Matter, We Care Team can help connect students to the many other helping resources available including, but not limited to, Victim Advocates, Housing staff, and the Counseling and Wellness Center. Please remember that asking for help is a sign of strength. In case of emergency, call 9-1-1.

Counseling and Wellness Center: https://counseling.ufl.edu, and 392-1575; and the University Police Department: 392-1111 or 9-1-1 for emergencies.

Sexual Discrimination, Harassment, Assault, or Violence
If you or a friend has been subjected to sexual discrimination, sexual harassment, sexual assault, or violence contact the **Office of Title IX Compliance**, located at Yon Hall Room 427, 1908 Stadium Road, (352) 273-1094, title-ix@ufl.edu

Sexual Assault Recovery Services (SARS)
Student Health Care Center, 392-1161.

University Police Department at 392-1111 (or 9-1-1 for emergencies), or http://www.police.ufl.edu/.

Academic Resources

E-learning technical suppor*t*, 352-392-4357 (select option 2) or e-mail to Learning-support@ufl.edu. https://elearning.ufl.edu/.

Career Connections Center, Reitz Union, 392-1601. Career assistance and counseling; https://career.ufl.edu.

Library Support, http://cms.uflib.ufl.edu/ask. Various ways to receive assistance with respect to using the libraries or finding resources.

Teaching Center, Broward Hall, 392-2010 or 392-6420. General study skills and tutoring. https://teachingcenter.ufl.edu/.

Writing Studio, 302 Tigert Hall, 846-1138. Help brainstorming, formatting, and writing papers. https://writing.ufl.edu/writing-studio/.

Student Complaints Campus: https://sccr.dso.ufl.edu/policies/student-honor-code-student-conduct-code/;https://care.dso.ufl.edu.

On-Line Students Complaints: https://distance.ufl.edu/getting-help/; *https://distance.ufl.edu/state-authorization-status/#student-complaint*.