

Computer Aided Graphics and Design

EML 2023 Class Numbers 13360, 13361

Class Periods: M,W,F, 6th (12:50-1:40) and 7th (1:55-2:45) periods

Location: Zoom Conference

Academic Term: Spring 2021

Instructor:

Carl D. Crane

ccrane@ufl.edu (all course correspondence will be via Canvas messaging)

352-219-6433

Office Hours: 9:30-10:30 on days when homework is due; Zoom conference

Teaching Assistants:

- Patrick Neal
- Chris Mauldin

Course Description

Credits: 3. Sketching, descriptive geometry, computer graphics, computer aided drafting and design projects.

Course Pre-Requisites / Co-Requisites

None.

Course Objectives

Educate students on the main concepts of computer aided design to include:

- solid modeling
- assembly design
- engineering drawing conventions
- Geometric Dimensioning and Tolerancing (GDT)
- basics of descriptive geometry
- processes of additive and subtractive rapid prototyping

Materials and Supply Fees

\$150.77

Professional Component (ABET):

The course provides experience to work professionally in mechanical systems areas including the design and realization of such systems through a final project. The course content can be characterized as: 10% mathematics and 90% engineering design.

Relation to Program Outcomes (ABET):

Outcome	Coverage*
a. Apply knowledge of mathematics, science, and engineering	Low
b. Design and conduct experiments, as well as analyze and interpret data	
c. Design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability	High
d. Function on multidisciplinary teams	High
e. Identify, formulate, and solve engineering problems	
f. Understand professional and ethical responsibilities	
g. Communicate effectively	High
h. Understand the impact of engineering solutions in a global, economic, environmental, and societal context	
i. Recognize the need for and be able to engage in lifelong learning	Medium
j. Understand contemporary issues	
k. Use the techniques, skills, and modern engineering tools necessary for engineering practice	High

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

Textbooks and Software

- Software (required)
 - SolidWorks Software 2020-2021
 - download and installation instructions provided in class

Course Outline

- Communication. Sketching.
- Modeling
 - Part modeling.
 - Generation of drawings.
 - Assembly modeling.
- Rapid Prototyping
- Threads and Fasteners
- Clearance Fits
- Design Process
- Geometric Dimensioning and Tolerancing
- Motion Analysis
- Stress Analysis

Course Schedule

- see http://www.ccrane3.com/eml2023/pages/schedule_spring2021.html

Course Format

- Students will be assigned videos to be watched before every class. A short online quiz will be held before class. A graded class activity, based on the assigned video topic, will be held during every class. It will be very difficult to complete (or even start) the class activity if the video has not been watched.

Attendance Policy, Class Expectations, and Make-Up Policy

- Attendance is expected. Graded class activities will be held every day. Students are responsible for knowledge of all scheduling and policy announcements made in class.
- Excused absences must be consistent with university policies in the undergraduate catalog (<https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>) and require appropriate documentation.
- All homework will be turned in electronically via the class Canvas web site. Assignments that are submitted after the due date and time, but before the assignment closure date and time (usually, but not always, 2 days after the due date) will be deducted 30%. Only the files that are uploaded will be graded. Check your files to make sure they are correct and not corrupted. All work submitted in this course must be your own and produced exclusively for this course.

Evaluation of Grades

Assignment	Percentage of Final Grade
Homework	55%
GDT Quiz	15%
SolidWorks Certification Exam	15%
Class Activities	15%
	100%

Grading Policy

Percent	Grade
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94– 100%	A
90 – <94%	A-
87 - <90%	B+
84 - <87%	B
80 - <84%	B-
77 - <80%	C+
74 - <77%	C
70 - <74%	C-
67 – <70%	D+
64 – <67%	D
60 – <64%	D-
0 – <60%	E

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 requesting accommodations should first register with the Disability Resource Center (352-392-8565, <https://www.dso.ufl.edu/drc>) by providing appropriate documentation. Once registered, students will receive an accommodation letter which must be presented to the instructor when requesting accommodation. Students with disabilities should follow this procedure as early as possible in the semester.

Course Evaluation

Students are expected to provide feedback on the quality of instruction in this course by completing online evaluations at <https://evaluations.ufl.edu/evals>. Evaluations are typically open during the last two or three weeks of the semester, but students will be given specific times when they are open. Summary results of these assessments are available to students at <https://evaluations.ufl.edu/results/>.

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://www.dso.ufl.edu/sccr/process/student-conduct-honor-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.
- All work is to be done individually, with the exception of in-class activities. Any copied assignments will result in a zero for that assignment and a letter grade reduction for the course. For example, if your final grade was to be a B+, it would be reduced to a C+.
- Class activities are password protected and must be accomplished during class. It will be considered an act of academic dishonesty (on both parties) if a student shares the password and solution with a student who did not exhibit an effort to complete the activity.

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/>.

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: <http://www.counseling.ufl.edu/cwc>, and 392-1575; and the University Police Department: 392-1111 or 9-1-1 for emergencies.

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://police.ufl.edu/>.

Academic Resources

E-learning technical support, 352-392-4357 (select option 2) or e-mail to Learning-support@ufl.edu.

<https://lss.at.ufl.edu/help.shtml>.

Career Resource Center, Reitz Union, 392-1601. Career assistance and counseling. <https://www.crc.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/>.