

## ME Design 1

EML3005

**Class Periods:** MWF 4<sup>th</sup> period: 10:40 AM – 11:30 PM

**Location:** WEIM 1094

**Academic Term:** Spring 2022

The course for Spring 2022 class periods MWF 4<sup>th</sup> period: 10:40 – 11:30 AM.

### **Instructor:**

W. Gregory Sawyer

[wgsawyer@ufl.edu](mailto:wgsawyer@ufl.edu)

352-392-84883

Office: MAEB-328

Office Hours: The instructor is available to meet with students MWF 2 period. Students should email instructor questions or to arrange Zoom meetings at other times.

### **Course Description**

Design process, kinematics, gear trains and standard mechanical components.

(3 Credit Hours)

### **Course Pre-Requisites / Co-Requisites**

*Pre-Req:* COP 2271, EML2322L and EGM 3520 with minimum grade of C.

### **Course Objectives**

At the end of the course, the student should

- Understand how to design using the “design process”
- Be able to determine stresses in mechanical elements
- Be able to design elements to avoid failure from static and dynamic loading within some factor of safety
- Be able to design or select standard mechanical elements
- Have familiarity with the synthesis and analysis in mechanical design.

**Materials and Supply Fees:** None

### **Professional Component (ABET):**

This course prepares graduates to learn how to design a mechanical component to meet certain requirements.

### **Relation to Program Outcomes (ABET):**

<b>Outcome</b>	<b>Coverage*</b>
a. Apply knowledge of mathematics, science, and engineering	high
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	medium
d. Function on multidisciplinary teams	
e. Identify, formulate, and solve engineering problems	medium
f. Understand professional and ethical responsibilities	
g. Communicate effectively	medium
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	

- 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.

**Required Textbooks and Software**

Book:

Title: SHIGLEY'S MECHANICAL ENGINEERING DESIGN

Software:

Title: Solidworks

Note: Student Access in this course is provided by department

**Course Schedule**

Feb. 4th	Exam 1
Feb. 18th	Individual Design Report Due
March 4th	Exam 2
April 1st	Exam 3
April 20th	Group Design Report Due
April 28th	Final Exam

**Online Course Recording**

Our class sessions may be audio visually recorded for students in the class to refer back and for enrolled students who are unable to attend live. Students who participate with their camera engaged or utilize a profile image are agreeing to have their video or image recorded. If you are unwilling to consent to have your profile or video image recorded, be sure to keep your camera off and do not use a profile image. Likewise, students who un-mute during class and participate orally are agreeing to have their voices recorded. If you are not willing to consent to have your voice recorded during class, you will need to keep your mute button activated and communicate exclusively using the "chat" feature, which allows students to type questions and comments live. The chat will not be recorded or shared. As in all courses, unauthorized recording and unauthorized sharing of recorded materials is prohibited.

**Attendance Policy, Class Expectations, and Make-Up Policy**

During this Asynchronous Remote semester, class attendance is and will be through zoom. Class participation in discussion is included in the grade evaluation (10%). Late homework is not accepted. Late project submission is not accepted. Makeup exams are only allowed for students with extreme, documented circumstances. Students must contact the instructor as soon as possible to provide documentation and request a make-up exam. Note: club sport activities are not excused absences, personal vacations are not excused absences, job interviews are not excused absences.

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.

**Evaluation of Grades**

Assignment	Percentage of Final Grade
Individual Design Report	12%
Class Participation	10%

Exam 1	14%
Exam 2	14%
Exam 3	14%
Exam 4	14%
Design Project	22%

**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 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.

A student who violates the honor code will receive an E for the course, if it's the student's first honor code violation. Any collaboration on a quiz or an exam is a violation. Collaboration outside of exams can be done on a conceptual basis in general terms. (What was your thought process? What steps did you take to do this problem?) Details such as answers should not be shared. Do & understand your own work. Start, maintain, and finish your own computer file, softcopy, or handwritten hardcopy. Copying someone else's work and submitting it as your own work will be reported as an honor code violation. Helping someone do the same is also an honor code violation. Some homework assignments might be individualized on a student-by-student basis. If two students submit the same individualized homework, this will be reported as an honor code violation. Helping someone do the same is also an honor code violation. Note that Solid Works files will also be cross-referenced, so do not share Solid Works files.

### ***Software Use and Copyrighted Material***

All faculty, staff, and students of the University are required and expected to obey the laws and legal agreements governing software use and the use of copyrighted material. 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: <http://registrar.ufl.edu/catalog0910/policies/regulationferpa.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](mailto: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://www.police.ufl.edu/>.

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*Academic Resources*

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**E-learning technical support**, 352-392-4357 (select option 2) or e-mail to [Learning-support@ufl.edu](mailto: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/>.

**Student Complaints Campus**: [https://www.dso.ufl.edu/documents/UF\\_Complaints\\_policy.pdf](https://www.dso.ufl.edu/documents/UF_Complaints_policy.pdf).

**On-Line Students Complaints**: <http://www.distance.ufl.edu/student-complaint-process>.