

EML3005: Mechanical Design 1

Section:

13408

13409

Class Period:MWF 3rd period (9:35a - 10:25a)MWF 4th period (10:40a - 11:30a)**Location:** Online**Academic Term:** Spring 2021

*It may become necessary to modify this syllabus during the semester.
In this event, students will be notified and the revised syllabus will be posted on the course web site.*

Instructor:

Mike Griffis

mwg@ufl.edu

352-392-9473 (o)

352-317-4045 (c)

Office: MAEC-132

Office Hours: Monday, Thursday: 6th period (12:50—1:40p)

Wednesday: 8th period (3:00—3:50p)

Zoom Link: <https://ufl.zoom.us/j/3857943045>**Teaching Assistants:** Please contact through the Canvas website.**Course Description:**

Design process, kinematics, gear trains and standard mechanical components. (3 Credit Hours)

Course Pre-Requisites / Co-Requisites:*Pre-Req:* COP2271, EML2322L and EGM3520 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.

Professional Component (ABET):

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

Relation to Program Outcomes (ABET):

Outcome	Coverage*
1) An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics	High
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	Low
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	Low
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	Medium
6) an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions	Medium
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 part of the course.

Required Textbooks and Software:

Book:

Title: SHIGLEY'S MECHANICAL ENGINEERING DESIGN
ISBN: 9780073398204
Author: BUDYNAS
Edition: 10th (or new 2020 11th edition is good too)
Copyright: 2015
Publisher: MCGRAW-HILL
Note: Avoid "International Edition" which only has SI units.

Software:

Title: Solidworks (2020 – 2021)
Note: Student Access in this course is provided by department

Required Computer:

This is discussed on both the department and college websites:

- <https://www.eng.ufl.edu/students/resources/computer-requirements/>
- <https://mae.ufl.edu/academics/prospective/undergraduate/computer-requirements/>

Bottomline: if you don't have a laptop, you need one. If you have one that works, feel free to discuss with the instructor whether it will suffice.

Course Schedule:

Feb 12: Exam 1 (8:20 pm - 10:10 pm)
Mar 19: Exam 2 (8:20 pm - 10:10 pm)
Apr 21: Project Due
Apr 26: 3rd Period Final Exam: (4/26/2021 @ 10:00 AM - 12:00 PM)
Apr 29: 4th Period Final Exam: (4/29/2021 @ 12:30 PM - 2:30 PM)

Attendance Policy, Class Expectations, and Make-Up Policy

For all intents and purposes, the course is online. There are a few live Zoom class meetings. (I will try to record these.) You are responsible for staying up-to-date on all announcements, Zoom lectures, video lectures, reading assignments, homework, and webgems. Course notes will not always be supplied on the Canvas webpage. Late homework is not accepted. Late webgems will not be 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. Final exam is required and there is no make-up final. 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.

Group participation is required for the project. Individual grades for project assignments are subject to change (+/-) based on peer evaluations.

Homework should be taken seriously, and best effort should be applied. Be sure to read the technical writing tips on the course website. Be sure to read our comments on your homework, so that you get better. It is anticipated that there will be 7 homework assignments. Each takes time. If you wait until the last day, you will not be successful.

Evaluation of Grades

Component	Percentage of Final Grade
Homework	15%
Webgems (in-class activities or out-of-class supplemental)	15%
Exams (Sep 30, Nov 02)	30%
Final Exam	20%
Project*	20%
	100%

Note: Some Webgems will be in-class activities while others will be outside of class.

*** Project Grade subject to adjustment (+/-) based on peer evaluations.**

Grading Policy

Percent	Grade	Grade Points
93 - 100	A	4.00
90 - 92.9	A-	3.67
87 - 89.9	B+	3.33
83 - 86.9	B	3.00
80 - 82.9	B-	2.67
77 - 79.9	C+	2.33
73 - 76.9	C	2.00
70 - 72.9	C-	1.67
67 - 69.9	D+	1.33
63 - 66.9	D	1.00
60 - 62.9	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.

Honorlock:

Per University of Florida policy, Honorlock will be used for the two mid-term exams and the final. Please see the following link: <https://dce.ufl.edu/services/online-proctoring/> for more information.

Course Evaluation:

Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Guidance on how to give feedback in a professional and respectful manner is available at <https://gatorevals.aa.ufl.edu/students/>. Students will be notified when the evaluation period opens, and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via <https://ufl.bluera.com/ufl/>. Summaries of course evaluation results are available to students at <https://gatorevals.aa.ufl.edu/public-results/>.

Honesty Policy:

In this class, use of unauthorized aid, copying of homework, sharing of files (Solidworks or reports), dishonest attendance logging (in-class Webgems) are considered honor code violations. (If you are leaving class early or leaving our Zoom meeting, fine. Do not log attendance. Logging and leaving is an honor code violation.)

Honor code violation can result in “E” for the course if it’s your first offense. 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 (e.g. the instructor). A violation of the honor code will result in academic sanctions (typically a failing grade “E” assigned for the course) and further disciplinary action. If you have any questions or concerns, please consult with the instructor in this class.

Commitment to a Safe and Inclusive Learning Environment:

The Herbert Wertheim College of Engineering values broad diversity within our community and is committed to individual and group empowerment, inclusion, and the elimination of discrimination. It is expected that every person in this class will treat one another with dignity and respect regardless of gender, sexuality, disability, age, socioeconomic status, ethnicity, race, and culture.

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 Graduate Program Coordinator
- Robin Bielling, Director of Human Resources, 352-392-0903, rbielling@eng.ufl.edu
- Curtis Taylor, Associate Dean of Student Affairs, 352-392-2177, taylor@eng.ufl.edu
- Toshikazu Nishida, Associate Dean of Academic Affairs, 352-392-0943, nishida@eng.ufl.edu

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, see: <http://registrar.ufl.edu/catalog0910/policies/regulationferpa.html>

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.

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://www.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/>.

Student Complaints Campus: https://www.dso.ufl.edu/documents/UF_Complaints_policy.pdf.

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