EGM2511- 26130, 26945
Engr Mech-Statics

EGM2511 Syllabus

Sections 1911 and 2591

Class Periods: Tuesday 3-4, Thursday 3; Tuesday 5-6, Thursday 6

Location: Weimer 1084; FLG 230

Academic Term: Spring 2023

Instructor:

Dr. David A. Jenkins, P.E.

Office hours: 3:00 to 4:00 pm Tuesday and Thursday

- Office location: NEB 134
- Phone: (352) 392 6105
- E-mail address: davej@ufl.edu
- Website: http://lss.at.ufl.edu (Canvas)

(Modifications to this syllabus may be required during the semester. Any changes to the syllabus will be posted on the course web site and announced in class.)

- **Catalog Description**: Reduction of force systems. Equilibrium of particles and rigid bodies. Vector methods. Application to structures and mechanisms. Credits: 3

- **Pre-requisites**: Pre-requisite: *PHY 2048* Co-requisite: *MAC 2313*

- **Course Objectives:** This is a core course in the engineering curriculum. It stresses fundamental engineering science and mathematical principles required for a proper understanding of mechanics. Students will learn to use vector methods and free body diagram development as tools to logically approach and solve engineering mechanics problems in both the SI and U.S. customary systems. In this course the student will develop engineering problem solving methods through fundamental introductory topics in mechanics including: particle and rigid body equilibrium in 2D and 3D force systems, appropriate support reactions, moments of forces, equivalent systems, distributed forces, center of gravity, composite body and integration

analysis methods, trusses, frames, machines, internal forces (including shear and bending moment diagrams), friction concepts, moment of inertia, parallel axis theorem, mass moment of inertia, and potential energy methods. Upon completion of this course students are expected to understand how to analyze practical engineering structures under force and moment systems and have a strong foundation of the engineering mechanics principles and methods needed for both use as qualified engineers and for secondary courses in mechanics.

- **Material and Supply Fees**: A distance learning fee pays for the cameras, operator, server space, and bandwidth required to provide on-demand access to the course lectures.
- **Contribution of course to meeting the professional component**: EGM 2511 ***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	Medium
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	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 covered or assessed in the course.

Textbook Required :

Title: **Vector Mechanics for Engineers**

Author: Beer, Johnston and Mazurek 12th edition

Publisher: McGraw-Hill 2021

ISBN: 978-1-259-97726-8 (hardbound rental) or other versions of the 12th edition

Note: Don't get the "international version" with SI units only - the homework problems do not match.

Calculator Policy

The only calculators permitted in Exams are the ones that are accepted by the National Council of Examiners for Engineering and Surveying (NCEES).

The list of calculators can be found at: http://ncees.org/exams/calculator-policy/ (Links to an external site.)

Un-approved calculator usage on exams will result in the loss of 20 points from the exam grade. This will be enforced strongly.

Course Schedule:

A **SCHEDULE** giving reading assignments and associated homework assignments for each lecture is available in FILES.

Assessment Methods and Grading:

Homework is assigned and *collected* on the course website. Expect at least one (at minimum) homework problem submission to be associated with each lecture period. The homework will be due on the date listed on Canvas.

There will be two in-term exams and one final exam during exam week. All exams will be cumulative up to that point in the semester but will emphasize the most recently covered material. Exam times and locations will be announced in class and posted on the course website. Announced quizzes will be given during the term.

The relative weighting of the Homework, Quizzes and Exams will be:

a) ***Homework - 16%***

b) ***Quizzes - 8%***

c) ***Exams - 76%***

Grading Scale:

A score of **92** will be sufficient for a grade of **A**

A score of **82** will be sufficient for a grade of **B**

A score of **72** will be sufficient for a grade of **C**

(other grades subdivisions (+/-) will be determined relative to overall class performance immediately prior to final grade submission)

READ AND UNDERSTAND:

HW Policies: For each lecture, there will be one graded HW problem which must be submitted online plus two textbook problems which must be completed but not submitted. One or more of these problems will be used as the basis for an exam or a quiz problem, so there is an obvious advantage in working these problems diligently. As the deadlines are clearly posted on the course website, late homework assignments will not be accepted. Because of the large volume of HW collected and graded, HW assignments re-grades cannot be considered. Students may make comments on their graded work, however, and the three lowest grades will be dropped.

Exam Policies: Makeup exams are not done for reasons other than UF-approved activities (sports, clubs, conferences, etc). If you need to miss an exam for a UF-sanctioned activity, please meet with your instructor during office hours. If errors are made in exam grading, students may staple a sheet on the front of the exam paper explaining their concerns and submit it to Dr. Jenkins for reconsideration within one week after receiving the graded exam.

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 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/.

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 Conduct 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. 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 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

• Jennifer Nappo, Director of Human Resources, 352-392-0904, jpennacc@ufl.edu

• Curtis Taylor, Associate Dean of Student Affairs, 352-392-2177, taylor@eng.ufl.edu

•Toshikazu Nishida, Assoc. 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://lss.at.ufl.edu/help.shtml.

Career Resource 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: http://www.distance.ufl.edu/student-complaint-process.