Engineering Mechanics: Statics

EGM 2511 Section 18131 (1780)
Class Periods: M,W,F, Period 7, 1:55 PM – 2:45 PM
Location: WEIM 1064
Academic Term: Spring 2026

Instructor:
Dr. Curtis Taylor, Ph.D.
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352-392-4440
Office Hours: M,W 4-5 p.m., WERT 481

Learning Assistant/Peer Mentor/Supervised Teaching Student:
Please contact through the Canvas website. Names, office hours, and locations will be posted on Canvas.

- Andrew McGuigan, andrew.mcguigan@ufl.edu
- Saketh Challagulla, schallagulla@ufl.edu
- Olivia Gordon, gordonolivia@ufl.edu

Course Description
Credits: 3; Reduction of force systems, equilibrium of particles and rigid bodies, vector methods and their application to structures and mechanisms.

Course Pre-Requisites / Co-Requisites
Pre-requisite: PHY 2048; Co-requisite: MAC 2313.

Course Objectives
The purpose of the course is to equip each student with fundamental knowledge to solve problems in engineering mechanics and structural design. Upon completion of this course each student should have:

1. Basic understanding of Newton's second law and its application to engineering mechanics.
2. Basic understanding of vector calculus and its application to engineering mechanics.
3. The ability to apply advanced science and engineering principles in the design and analysis of particles, rigid bodies, and structures to ensure static equilibrium.

Materials and Supply Fees
None

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	Low
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	Low

impact of engineering solutions in global, economic, environmental, and societal contexts	
5. An ability to function effectively on a team whose members together provide leadership, create a collaborative 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	

Required Textbooks and Software

- None

Recommended Materials

- Engineering Mechanics Statics, R. Hibbeler, 2021, 15th edition, ISBN number: 9780134814971
- Engineering Statics, DW Baker and W Haynes: online (free): https://engineeringstatics.org
- A calculator capable of trigonometry functions. Phones may not be used as calculators.

Required Computer

Recommended Computer Specifications: https://it.ufl.edu/get-help/student-computer-recommendations/
HWCOE Computer Requirements: https://www.eng.ufl.edu/students/advising/fall-semester-checklist/computer-requirements/

Course Schedule

Week 1: Chapter 1; 2.1, 2.4, 2.5-2.6 -- Introduction to Statics; General Principles
Week 2: Chapter 2.7-2.9 – Force Vectors; Position Vector, Dot Product
Week 3: Chapter 2.8-2.9; 3.1-3.3 – Equilibrium of a Particle
Week 4: Chapter 3.4; 4.1 – 3D Force Systems and Resultants
Week 5: **Exam 1**; 4.2-4.3
Week 6: Chapter 4.2-4.7 – Cross Product and Moments
Week 7: Chapter 4.6-4.7, 4.9, 5.1-5.2 – Distributed Loads, Equilibrium of a Rigid Body
Week 8: **Exam 2**; 5.3
Week 9: Chapter 5.3, 5.5 – Equilibrium in 3D
Week 10: Chapter 5.7 – Constraints and Statical Determinacy
Week 11: **Exam 3**; 6.1-6.2
Week 12: Chapter 6.2, 6.4 – Structural Analysis
Week 13: Chapter 6.6, 8.1-8.2 – Frames and Machines; Friction
Week 14: Final Week Review and **Final Exam**

Important Dates

Tentative during term exam dates are below. Exam dates will be announced at least one week in advance, and are subject to change at the instructor's discretion.

February 11, 2026 *Exam 1 (during class, WEIM 1064)*
March 4, 2026 *Exam 2 (during class, WEIM 1064)*
April 1, 2026 *Exam 3 (during class, WEIM 1064)*
April 25, 2026 *Final Exam (10 am – 12 p.m., WEIM 1064)*

Evaluation of Grades

Assignment	Percentage of Final Grade
Homework Sets (~10-15)	30%
Quizzes	10%
Exam 1	12%
Exam 2	12%
Exam 3	12%
Final Exam	24%
	100%

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

Academic Policies & Resources
To support consistent and accessible communication of university-wide student resources, instructors must include this link to academic policies and campus resources: https://go.ufl.edu/syllabuspolicies. Instructor-specific guidelines for courses must accommodate these policies.

Commitment to a Positive 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.

If you feel like your performance in class is being impacted, 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

Course Specific Policies
Attendance and Expectations: Even though attendance is not required, it is extremely important that students attend the class regularly. If you miss a lecture you are responsible for finding out from a classmate what we did in class. Irregular attendance always results in poor or mediocre performance. Pop quizzes will be given throughout the semester.

Re-grading Policy: Any re-grade requests must be submitted in writing within one week after return of the graded paper. The written request must explain in detail what you want the grader to do and where you believe they have

made a mistake in grading. The request must have a date on the top of the page, your name, your telephone number(s), and e-mail address.

Make-up Exam Policy: Unless there is a UF-approved excused absence, no credit will be given for a missed exam. It is the student's responsibility to make sure they are available to take the exam.

Your grade for this course will be determined based on your performance on homework, quizzes, and exams as follows:

Homework
No late homework accepted unless for a UF-approved excused absence (see UF's excused absence policy). Homework is collected on the assigned dates in the first 5 minutes of class. Working in groups is permitted. However, copying homework is NOT permitted. Written homework must adhere to the following format. It should be on engineering paper, with your assigned sorting number (to be given after 1st homework assignment) in the upper right corner, with a clear problem statement, appropriate free-body diagram, and the solution with appropriate significant digits inside a box. Use of solutions manuals to complete homework is considered cheating and a violation of the honor policy, and will be fully enforced.

Homework to be turned in during lecture will be graded 'lightly' -- each problem will be scanned for relevance and reasonableness and given a grade of 0, 1, or 2. Two problems per week will be graded in detail on a basis of 0 to 5. The learning assistants/peer mentors will grade your homework.

Homework in this class is VERY IMPORTANT. The homework is not considered as an aid to help you prepare for exams. The problem-solving skills you develop in doing the homework are skills that are difficult to test in an exam. They are much more like the skills you will need on a professional engineering job than those you develop in preparing to take an exam. Also, communication skills are important in the engineering profession, not just answers. Your graders have been instructed to look for explanations, not just answers.

It is almost impossible to earn an A or B in this course without doing regular homework.

Quizzes
No makeup quizzes allowed unless for a UF-approved excused absence (see UF's excused absence policy). Quizzes will be given in the first 15 minutes of class on assigned days.