
DIVISION OF ENGINEERING

COURSE SYLLABUS

COURSE TITLE: Engineering Mechanics -
Statics

TERM: Fall
YEAR: 2011

COURSE: ENGR 2214
SECTION NO.: 002

TIME: TR 6:00-7:15 pm
PLACE: M 137

INSTRUCTOR: Dr. M. A. Karim, P.E.

OFFICE LOCATION: M 162D

OFFICE HOURS: MW 12:00-03:00 pm
Other hours by appointment

OFFICE PHONE: (678) 915-3026
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NUMBER OF CREDIT HOURS: 3-0-3 (Lecture-Lab-Total)

PREREQUISITS: PHYS 2211K (or concurrent enrollment)

COURSE DESCRIPTION: Study of force vectors, equilibrium of particles, equilibrium of rigid bodies in two and three dimensions; trusses, friction, centroids, and moments of inertia.

REQUIRED or ELECTIVE: Required

REQUIRED TEXT: Engineering Mechanics: Statics by Russell C. Hibbeler, Prentice-Hall, 12th Edition, ISBN: 978-0-13-814929-1.

REFERENCES: Vector Mechanics for Engineers: Statics by F. Beer and E. Johnson, McGraw-Hill Book Company, Current Edition.

OTHER MATERIALS: Handouts may be provided as needed. It is recommended that students take notes in a three ring binder since they may be receiving handouts throughout the semester. SPSU email and GeorgiaVista systems will be used for message and content delivery, respectively. Students should access these sites regularly.

COURSE LEARNING OUTCOMES: Upon successful completion of this course, students shall be able to:

- demonstrate proficiency in Cartesian vector analysis of force systems in two-/three-dimensions;
- draw free body diagram of force systems on particles and rigid bodies;
- determine the moment about a point and an axis;
- reduce a system of forces to a force-couple system and to a single force;
- develop and apply the equations of equilibrium for solving equilibrium problems, such as beams, frames, and machines;
- analyze plane trusses using the method of joints and the method of sections;
- determine the internal forces of pin-connected structural members;
- apply Coulomb's theory of dry friction to solutions of equilibrium problems;
- determine the center of mass, and the centroids of plane areas and curves using calculus; and
- determine the moments of inertia of composite areas using the parallel-axis theorem.

COURSE REQUIREMENTS:

1. **Attendance:** Students are expected to attend class. Advance notice of an absence should be provided whenever possible. Makeup exams and acceptance of late assignments will be considered only for documented medical reasons, emergency circumstances, or other university sponsored activities.
2. **Homework:** All problem assignments must be submitted in the next class following the class in which the topic is discussed. Late homework WILL NOT be accepted. Exceptions may be considered in case of illness, serious emergencies, or other university sponsored activities. However, appropriate evidence must be presented in order to qualify for exceptions. All homework must be submitted on 8½"x11" white paper or on engineering design paper (preferable) with a cover page. Cover page should include student's name, course number and name, assignment number, assignment date, and due date. Show the detail works for full credit.
3. **Exams:** All exams are closed books and notes unless advised otherwise. NO make-up exams will be given. Exceptions may be considered in case of illness, serious emergencies, or other university sponsored activities. However, appropriate evidence must be presented in order to qualify for exceptions.
4. **Cheating:** Cheating on assignment and particularly on the examinations will not be tolerated. If you are caught cheating, you will get zero on the exam. You will be asked to move if you are caught looking at another student's work.
5. **Term Paper/Presentation:** No term paper/presentation for this course.
6. **ADA Provisions:** "Students with disabilities, as defined by the Americans with Disabilities Act (ADA) of 1990, should contact the instructor during the first week of the semester regarding the accommodations necessary to complete the requirements of this course. The instructor will make reasonable adjustments to take into consideration the specific handicap of each student covered under the ADA."

GRADING POLICY: All exams and assignments must be completed satisfactorily in order to pass the course. The evaluation process described below is subject to change by the instructor. Changes will be announced in the class.

<u>Class Work:</u>		<u>Total Grade:</u>			
1. Mid Term 1	- 15%	Scale, Letter Grade, and GPA			
2. Mid Term 2	- 20%	90% - 100%	A	4.0 (Excellent)	
3. Mid Term 3	- 20%	80% - 90%	B	3.0 (Good)	
4. Final Exam	- 30%	70% - 80%	C	2.0 (Satisfactory)	
5. Homework/Quiz	- 15%	60% - 70%	D	1.0 (Passing)	
		< 60%	F	0.0 (Failure)	
TOTAL	- 100%	--	WF	0.0 (Withdrawn after deadline)	

The following symbols are approved for use in the cases indicated, but will not be included in the determination of the grade point average.

"I" This symbol indicates that the student was doing satisfactory work but, for non-academic reasons beyond his control, was unable to meet the full requirements of the course. The requirements for removal of an "I" are left to the respective institutions; however, if an "I" is not satisfactorily removed after three quarters of residence, the symbol "I" will be changed to the grade "F" by the appropriate official. (See Southern Tech policy - Removal of an Incomplete "I", on page 2).

"W" This symbol indicates that a student was permitted to withdraw without penalty. Withdrawals without penalty will not be permitted after the mid-point of the total grading period (including final examinations) except in cases of hardship as determined by the appropriate official of the respective institution.

"V" This symbol indicates that a student was given permission to audit this course. Students may not transfer from audit to credit status or vice versa.

"K" This symbol indicates that a student was given credit for the course via a credit by examination program approved by the respective institution's faculty (CLEP, AP, Proficiency, etc.).

SCHEDULE: Two 75-minute classes or 3-50 minute classes or 1-150 minutes class per week.

TENTATIVE LECTURE TOPIC/OUTLINE: The following lecture topic/outline is subject to change by the instructor. Changes will be announced in the class.

Class/Week	Tentative Lecture Topic/Outline	Chapter
Week 1 -2	General principles and force vectors	Chapters 1&2
Week 3	Equilibrium of particles. <i>Review for Mid Term Exam 1.</i>	Chapter 3
Week 3	Mid Term Exam 1	---
Week 4 -5	Resultants of force systems.	Chapter 4
Week 5 - 6	Equilibrium of a rigid body. <i>Review for Mid Term Exam 2.</i>	Chapter 5

Class/Week	Tentative Lecture Topic/Outline	Chapter
Week 6	Mid Term Exam 2	---
Week 7 - 8	Structural Analysis.	Chapter 6
Week 9 - 10	Internal Forces.	Chapter 7
Week 10 - 11	Friction. <i>Review for Mid Term Exam 3.</i>	Chapter 8
Week 11	Mid Term Exam 3	---
Week 12 – 13	Center of gravity and centroid.	Chapter 9
Week 14 – 15	Moments of inertia. <i>Review for the Final Exam.</i>	Chapter 10
Week 16	Final Exam - Comprehensive	---

ABET CATEGORY: Engineering science: 100%