

Engineering Statics – EGR K211
Spring 2012 Syllabus
Room E214, Thursdays, 6:00 – 8:45 pm

Instructor: Prof. Wanda Short
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Office Hours: Wednesdays 11:00 am – Noon; Thursdays 1:00 – 3:00 pm; Other Dates/Times by Appointment

Course Description:

Students will be introduced to engineering mechanics via vector approach to static forces and their resolution. Topics include: properties of force systems, free-body analysis, first and second moments of areas and mass and static friction. Applications to trusses, frames, beams and cables are included.

Prerequisite/Co-requisite: MAT K254, Calculus I

Text Book:

Hibbeler, R.C., *Engineering Mechanics, Statics*, 12th Edition, Pearson/Prentice Hall, 2010, ISBN: 978-0-13-607790-9

Reference Books:

Any statics or structural mechanics text.

Course Topics:

- I. VECTORS
- II. EQUILIBRIUM
- III. RESTRAINTS
- IV. STRUCTURAL ANALYSIS
- V. INTERNAL FORCES
- VI. FRICTION
- VII. CENTROIDS

Course Objectives:

- Demonstrate the ability to solve problems related to Statics in an accurate, organized and neat manner,
- Demonstrate an understanding of the concept of a resultant force for systems of forces and proficiency in performing calculations,
- Demonstrate an understanding of the concept and calculations of the components of a force,
- Understand the principle of moments and solve for the moment caused by a force acting on a rigid body,
- Understand the principle of transmissibility and demonstrate the use of the principle of transmissibility to solve for reaction or for forces causing stress in members of a truss,
- Calculate the reaction forces at the supports of a rigid body at rest,
- Display competence in the determination of the force in members of a truss using the Method of Joints and the Method of Sections,
- Evidence of expertise in locating centroid and the center of gravity for rigid bodies at rest,
- Demonstrate proficiency in determination of moment of inertia or radius of gyration of a composite area and proficiency in their application in beam analysis.

Instructor Assistance:

Seeking help from the instructor outside of class is encouraged if you are having difficulty understanding course material. Feel free to Email/call for an appointment during office hours.

Academic Integrity:

Academic integrity is essential to a useful education. Failure to act with academic integrity severely limits a person's ability to succeed in the classroom and beyond. Furthermore, academic dishonesty erodes the legitimacy of every degree awarded by the College. In this class and in the course of your academic career, present only your own best work; clearly document the sources of the material you use from others; and act at all times with honor. A grade of "0" may be assigned upon infraction of this policy.

Attendance:

This course is designed in such a way that a student should get more from the in-class activities than from the textbook alone. Therefore, students are expected to attend class regularly. Though students will not be penalized for non-attendance, they will be responsible for material covered in their absence. It will be the student's responsibility to determine what assignments have been missed and to ensure that they are made up in a timely manner. Attendance will be noted for each class and may be used for extra-credit of 1 to 3 points in determining final grades.

Class Room Policies:

Cell phones brought to class shall be off and out of site (no texting). Language and behavior that is disrespectful, or disruptive, to others is unacceptable; Students should refer to their Student Handbook for examples of such behavior as well additional school policies.

Assignments:

Quizzes, homework or exams missed for any reason cannot be made up unless **prior** arrangements have been made with the instructor. Assignments not received on date due will result in alternate assignment with reduction of grade of 5% (100% total) per day late.

Grading Policy:

Homework, quizzes, a mid-term and a final exam will be given during the semester. Approximately 30-45 minutes of the class meeting will be devoted for each quiz. The entire class will be devoted to the mid-term and final exams.

➤	50%	Homework and Quizzes
➤	25%	Mid Term
➤	25%	Final Exam
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	100%	Total

Withdrawal:

A student who finds it necessary to discontinue a course must complete a "Withdrawal Request Form" available in the Registrar's office within the time limits of the semester calendar. Students who do not withdraw, but stop attending will be assigned an "F" signifying a failing grade.

Disabilities Statement:

If you are a student with a disability and believe you will need accommodations for this class, you must contact the Disabilities Counseling Services at (860) 823-2830. To avoid any delay in the receipt of accommodations, you should contact the counselor as soon as possible. The instructor cannot provide accommodations until an accommodation letter from the Disabilities Counselor is received.

Lecture Schedule – Spring 2012
Engineering Statics, EGR K211
Thursday, Room D128, 6:00 – 8:45 pm

Date	Class #	Event	Topic	Section Reading Prior to Class
Jan 19	1		General Principles Force Vectors	1.1 – 1.6 2.1 – 2.4
Jan 26	2	HW #1 due	Equilibrium of a Particle	3.1 – 3.3
Feb 2			Class <u>Not</u> in Session	
Feb 9	3	HW #2 due	Force System Resultants	4.1 – 4.4 4.6; 4.7
Feb 16	4	HW #3 due Quiz #1	Equilibrium of a Rigid Body	5.1 – 5.4; 5.7
Feb 23	5	HW #4 due	Trusses Method of Joints; Zero-Force Members	6.1 – 6.3
Mar 1	6	HW #5 due Quiz #2	Trusses Method of Sections	6.4
Mar 8	7	HW #6 due	Pulleys Frames and Machines	3.2 6.6
Mar 15	8	Mid-Term	Topics Covered in Classes # 1 - 6	
Mar 22			Class <u>Not</u> in Session – Spring Break	
Mar 29	9	HW #7 due	Reduction of a Simple Distributed Loading Internal Forces	4.9 7.1
Apr 5	10	HW #8 due	Shear and Moment Equations and Diagrams	7.2; 7.3
Apr 12	11	HW #9 due Quiz #3	Friction	8.1; 8.2
Apr 19	12	HW #10 due	Center of Gravity and Centroid	9.1; 9.2
Apr 26	13	HW #11 due Quiz #4	Moments of Inertia	10.1 – 10.4; 10.8
May 3	14	HW #12 due	Final Exam Review	
May 10	15	Final Exam	Topics Covered in Classes # 7; 9 – 14	

Quizzes & Exams:

- **Closed Book**
- **Only 1 Page (8.5x11) of Notes (double-sided) Permitted**