

ENGR-2050
Engineering Mechanics – Statics (3 cr.)
Course Syllabus
Fall 2016

Text: Bedford and Fowler, *Engineering Mechanics: Statics, 5th Edition*, Pearson
Prentice Hall, 2008. ISBN 13-9780136129158

Time: Tue 6-10 pm

Place: KC-Room 0074

Instr.: Professor Jody Robinson, KC-2180

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Description:

This is a basic course built around solutions and applications of Newton's laws of forces in equilibrium. Systems of particles and rigid bodies are studied using standard scalar and vector methods. (*Prerequisite: MATH 1910 or equivalent*)

Lecture: 4 hours

Evaluation:

2 Semester Exams	50% (25% each)
Comprehensive Final	40%
Quizzes	5%
Participation	5%

Participation includes homework, attendance, and class involvement.

Students should be prepared at the start of each class for a quiz covering basic topics reviewed in the previous class.

Homework:

Homework constitutes the majority of the participation grade. Homework problems will be assigned in each class. They should be solved using the format presented on the website and further explained thoroughly during the first few weeks of class. Homework is due at the start of class. That means you should enter the class room with your homework completed.

Topics:

- Week 01: REVIEW Basic Math and Units; HW Format, Movie, Calculus, Syllabus
- Week 02: 2D Force Resultants and Components, Vectors, Vector Addition, Unit Vectors, Equilibrium, Free Body Diagrams
- Week 03: 3D Force Resultants and Components, Direction Cosines, 3D Equilibrium
- Week 04: External/Internal Forces, Vector Products, Moments, Moment about an Axis, Couples
- Week 05: Equilibrium, 2D Reactions, Indeterminate Reactions, Two and Three Force Bodies, 3D Equilibrium and Reactions
- Week 06: **Exam 1, Chapters 2-4**
- Week 07: Center Of Gravity, First Moment of Area, Composite Areas, Centroids by Integration, Distributed Loads
- Week 08: Truss Structures, Method Of Joints
- Week 09: Method of Sections Analysis
- Week 10: Internal Forces, Beam Forces, Shear, Bending
- Week 11: Dry Friction, Angles of Friction, Wedges, Screws
- Week 12: **Exam 2, Chapters 5-7**
- Week 13: Second Moment of Area, Moment of Inertia by Integration, Parallel Axis Theorem, Composite Areas
- Week 14: Course Review/MakeUp day
- Week 15: Final Exam, Chapters 1-9