

Southern Polytechnic State University
ENGR 2214 - Statics
Course Syllabus – Fall 2010

Course Description

A study of force vectors, equilibrium of particles, equilibrium of rigid bodies in two and three dimensions; trusses, friction, centroids and moments of inertia

Instructor:

Wasim Barham, Ph.D.

Assistant Professor

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Office Hours: Monday 11am – 12:00pm

Tuesday: 10:00am – 12:00pm

Wednesday: 11:00am-12:00pm

Thursday: 3:00pm-4:00pm

Other times (By appointment – Walk in- Email me or Call me!!!)

Class Time and Location:

Lecture: Tuesday and Thursday: 1:30PM-2:45PM (Room: N 173)

Textbook (Required):

Engineering Mechanics - Statics, 11th Ed., R.C. Hibbeler, Prentice Hall

Prerequisite:

PHYS 2211K

Learning Outcomes:

The student, upon completion of this course, will be able to:

- Demonstrate proficiency in vector and scalar analyses of force systems.
- Draw free body diagrams and compute resultants of discrete and continuous force systems on particles and rigid bodies.
- Apply the basic equations of equilibrium in both coplanar and non-coplanar equilibrium analysis.
- Analyze frames & machines.
- Analyze plane trusses using the method of joints and method of sections.
- Calculate internal forces.
- Calculate the centroids of plane areas and curves using calculus.
- Calculate moments of inertia of regular cross-sections using calculus.
- Apply Coulomb's theory of dry friction to the solution of equilibrium problems.
- Analyze and set up solutions to engineering mechanics problems.
- Recognize that ethical considerations are a part of solutions to engineering problems.

Course Outcome Measures and Assessment:

Measures and assessment of the outcomes will be made by:

- 1- Periodic homework assignments and quizzes.
- 2- Three one hour exams during the semester.
- 3- One 2-hour final exam.
- 4- Course and instructor evaluation at the end of the semester to provide student feedback on the quality of the course and effectiveness of the instructor.

Grading:

1. First exam	(mid September)	15.0 %
2. Second exam	(mid October)	15.0 %
3. Third exam	(mid November)	15.0 %
4. Homework and quizzes		20.0 %
5. Attendance		5.0 %
6. Final exam	(during finals week)	30.0 %

The Grading Scale is as follows:

90-100% = A
80-89% = B
70-79% = C
60-69% = D
59% and below = F

- Late homework will NOT be accepted for credit. Work turned in late may be evaluated to provide you with feedback, but will not be graded / given credit except in cases of documented emergency.

Homework Preparation Guideline:

- Homework must be submitted on engineering calculation sheets and must be bounded or stapled

Class and lab Attendance Policy:

“ ... *The instructor may reduce the course grade of any student who fails to meet the attendance requirements as set forth in the instructor’s attendance policy. Students should understand they are responsible for all course material covered and that they are responsible for the academic consequences of their absences.*” (SPSU Student’s handbook)

Class attendance policy

# of Absence	0 - 3	More than 3
Point Deduction	0	1.5 points per absence

Disruptive Behavior and Academic Dishonesty

A faculty member reserves the right to remove any student from his or her course if the student’s behavior is of a disruptive nature or where there is evidence of academic dishonesty. In instances of disruptive behavior and/or academic dishonesty, the faculty member will discuss the circumstances with the student(s) before taking final action. In the event the student cannot be reached, he/she will be given the grade of "Incomplete" until such time as he/she can be reached. The student shall have the right of appeal of the faculty member’s decision first to the faculty member’s department head and then to the appropriate college or school dean and, if necessary, to the Vice President for Academic Affairs. Removal of a student from a course under this provision will result in the faculty member’s issuing a grade of "F". A grade of "F" issued under these circumstances shall not be superseded by a voluntary withdrawal and will be included in the student’s cumulative grade point average calculated for graduation purposes. (SPSU Student’s Handbook)

Lecture Topics:

1. Introduction to Engineering Mechanics - Statics
2. Force Vectors
3. Equilibrium of a Particle
4. Force System Resultants
5. Equilibrium of a Rigid Body
6. Structural Analysis
7. Internal Forces
8. Friction
9. Center of Gravity and Centroid
10. Moment of Inertia
11. Virtual Work