

Common Course Outline for: ENGR 2235 Statics

A. Course Description

1. Number of credits: 3
2. Lecture hours per week: 3
Lab hours per week: 3
3. Prerequisites: PHYS 1121 (C or higher), MATH 1520 (C or higher)
4. Co-requisites: None
5. MnTC goals: None

This course covers free-body diagrams and the principles of statics. Applications to simple trusses, frames, and machines are covered. Distributed loads and internal loads in beams are introduced. 3 credits, lecture 3 periods.

B. Date Last Revised: April 2017

C. Outline of major content areas:

1. Systems of units
2. Vectors
3. Forces in a plane
4. Forces in space
5. Vector and scalar products
6. Center of gravity for two and three dimensional bodies
7. Structures: Trusses and frames
8. Friction and moments of inertia

D. Learning Outcomes:

Upon successful completion of this course, students should be able to:

1. Construct free-body diagrams, and to calculate the reactions necessary to ensure static equilibrium.
2. Analyze distributed loads.
3. Analyze internal forces and moments in beams
4. Calculate centroids and moments of inertia.
5. Solve static equilibrium problems involving friction.

E. Methods for Assessing Student Learning:

Student evaluation may include exams, problem sets, and group projects.

F. Special Information:

Students must have a graphing calculator.

Relationship to ABET Accreditation Criteria: To assist our transfer partner engineering programs in their ABET accreditation evaluations, this course teaches skills that help students achieve the following ABET outcomes:

- (a) an ability to apply knowledge of mathematics, science, and engineering
- (e) an ability to identify, formulate, and solve engineering problems
- (k) an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.