

1. Department, number, and title of course

Department of Civil Engineering, CENG 2301, Statics

2. Required Course

3. Course (catalog) description

The description of forces, moments and couples acting of stationary engineering structures; equilibrium in two and three dimensions; free body diagrams; friction and centroids, centers of gravity and moments of inertia.

4. Prerequisite(s)

PHYS 2325, University Physics I
MATH 2414, Calculus II

5. Textbook(s) and/or other required material

Engineering Mechanics: Statics & Dynamics, Eleventh Edition by R.C. Hibbeler.
Published by Prentice Hall, Upper Saddle River, NJ, ISBN 0-13-221509-8, 2007.

6. Course Objectives

- a. Explain basic principles of engineering mechanics
- b. Apply engineering mechanics (statics) principles to solving problems
- c. Develop problem solving skills using free body diagrams
- d. Develop professional engineering communication skills and good work habits

7. Topics Covered

- General Principles
- Force Vectors
- Equilibrium of a Particle
- Force System Resultants
- Equilibrium of a Rigid Body
- Structural Analysis
- Internal Forces
- Friction
- Center of Gravity and Centroid
- Moments of Inertia
- Virtual Work

8. Class/laboratory schedule, i.e., number of sessions each week and duration of each session

LESSONS: 45 @ 50 min (3.0 Att/wk)

LABS: None

9. Contribution of course to meeting the requirements of Criterion 5

3.0 Credit Hours (ES=2.5, ED=0.5)

This is an engineering topics course focusing on the basic tools of engineering science and design. Its just statics, but the start of most analysis and design. No specific design component is incorporated in the course.

10. Relationship of course to program outcomes

The course director's assessment of how this course contributes to the civil engineering program outcomes is listed below. The following scale is used:

1=No Contribution; 2=Small Contribution; 3=Average Contribution; 4=Large Contribution; 5=Very Large Contribution

CIVIL ENGINEERING PROGRAM OUTCOMES	Course Director Assessment
Program Outcomes	
Students who qualify for graduation with an engineering major will demonstrate:	
Can apply knowledge of traditional mathematics to solve problems	5
Can apply knowledge of traditional science (calculus-based physics, Chemistry, additional science) to solve problems	4
Can apply knowledge of traditional engineering skills to solve problems	3
Can use modern engineering tools to solve problems	2
Can design and conduct experiments, as well as analyze and interpret data in more than one engineering discipline	1
Can design systems, components, and processes	4
Can recognize the strengths and areas for possible improvement of their creative designs	2
Can work independently as well as part of a multidisciplinary design team	1
Can identify, formulate, and solve engineering design problems using engineering models in the discipline of structural engineering	4
Can identify, formulate, and solve engineering design problems using engineering models in the discipline of transportation engineering	1
Can identify, formulate, and solve engineering design problems using engineering models in the discipline of construction management	1
Can identify, formulate, and solve engineering design problems using engineering models in the discipline of hydrology and hydraulic design	1
Can identify, formulate, and solve engineering design problems using engineering models in the discipline of environmental engineering	1
Can analyze a situation and make appropriate professional decisions	1
Can analyze a situation and make appropriate ethical decisions	1
Have effective oral, written, and graphical communication skills	2
Demonstrate a commitment to learning and continued professional development outside the classroom	1
Incorporate contemporary issues during problem solving	2
Determine the impact of engineering solutions in a global and societal context	1
Can explain professional practice issues	1
Can explain leadership principles and attitudes	1
Can explain management concepts and processes	1
Can explain concepts of business practices	1
Can explain public policy and public administration	1

11. Person(s) who prepared this description and date of preparation

Dr. J. Torey Nalbhone, CIH, Associate Professor, March 4, 2009