

METROPOLITAN STATE UNIVERSITY OF DENVER  
Office of Academic and Student Affairs

**REGULAR COURSE SYLLABUS**

School of: Professional Studies

Department: Engineering Technology

Prefix & Course Number: CET 2150

Crosslisted With\*: \_\_\_\_\_

Course Title: Mechanics I-Statics

Banner course title (30 characters):

Check All That Apply: Required for Major:  Required for Minor: \_\_\_\_\_ Specified Elective: \_\_\_\_\_

Required for Concentration: \_\_\_\_\_ Elective: \_\_\_\_\_ Service Course:

To receive Title IV financial aid funds, all institutions of higher education must comply with the federal definition of a credit hour. The Higher Learning Commission requires institutions to maintain policies and procedures for verifying compliance with this definition.

**Federal Credit Hour Definition:** A credit hour is an amount of work represented in intended learning outcomes and verified by evidence of student achievement that is an institutionally-established equivalency that reasonably approximates not less than:

(1) one hour of classroom or direct faculty instruction and a minimum of two hours of out-of-class student work each week for approximately fifteen weeks for one semester or trimester hour of credit, or ten to twelve weeks for one quarter hour of credit, or the equivalent amount of work over a different amount of time; or (2) at least an equivalent amount of work as required in paragraph (1) of this definition for other activities as established by an institution, including laboratory work, internships, practica, studio work, and other academic work leading toward to the award of credit hours. 34CFR 600.2 (11/1/2010)

Credit Hours: 3 (3+0)

Face-to-Face or Equivalent Hours per course:

Lecture 45 Lab 0 Internship \_\_\_\_\_ Practicum \_\_\_\_\_ Other (please specify type and hours): \_\_\_\_\_

Additional Student Work Hours per course: 90

Schedule Type: L Grade Mode: L

Variable topics umbrella course: No  Yes \_\_\_\_\_ If Yes, number of credit hours allowed \_\_\_\_\_

Specified repeatable course: No  Yes \_\_\_\_\_

Prerequisite(s): MTH 1410 and PHY 2311 with a grade of "C" or better

Corequisite(s):

Prerequisite(s) or Corequisite(s): PHY 2321

APPROVED:  
Suzha Balogh

Department Chair OR Program Director

[Signature]

Jan. 28, 2014

Date  
1-30-14

Dean OR Associate Dean

[Signature]

Date  
03/13/14

Associate VP, Academic and Student Affairs

Date

\*If crosslisted, attach completed Course Crosslisting Agreement Form

Prefix and Course Number: CET 2150

**Banner Enforced:**

**Prerequisite(s):** MTH 1410 and PHY 2311 with a grade of "C" or better

**Corequisite(s):**

**Prerequisite(s) or Corequisite(s):** PHY 2321

**Registration restrictions:** Level \_\_\_\_\_ Class \_\_\_\_\_ Program/Major \_\_\_\_\_ Student attribute \_\_\_\_\_

**Catalog Course Description:**

In this course students examine principles of statics, studies of vectors, their resolution and composition, forces and moments, force systems and their resultants. It also covers force systems in equilibrium, static friction, introduces section properties, shear and moment diagrams.

**Specific Variable Topics Course Description (if applicable, umbrella course description included above):**

**Required Reading and Other Materials will be equivalent to:**

R.C. Hibbeler, *Engineering Mechanics: Statics*; 13<sup>th</sup> ed. Pearson, 2013.

**Specific, Measurable Student Behavioral Learning Objectives:**

Upon completion of this course the student should be able to:

1. Describe force and moment systems and identify all unknown loads as applied to statically determinate rigid bodies.
2. Analyze statically determinate beams, trusses, frames, machines and systems with friction forces.
3. Introduce section properties.
4. Draw shear and moment diagrams for statically determinate beams under given loads
5. Practice finite element software application on statically determinate beams, frames and trusses.

**Detailed Outline of Course Content:**

- I. Force System
  - A. Vector notation
    1. Addition
    2. Dot product
    3. Cross product
  - B. Force
  - C. Moment
  - D. Couple
  - E. Resultants of force systems
- II. Equilibrium
  - A. Mechanical system isolation
  - B. Equilibrium conditions
  - C. Adequacy of constraint
- III. Structures
  - A. Trusses
  - B. Frames
  - C. Machines
  - D. Beams with concentrated and distributed loads
- IV. Distributed Forces
  - A. Centroids of lines, areas and volumes
  - B. Composite bodies and figures
  - C. Beams with distributed loads
- V. Shear force and bending moment diagrams for statically determinate beams under given loading conditions.
- VI. Friction
- VII. Section Properties

**Evaluation of Student Performance:**

1. Written examinations
2. Homework assignments
3. Oral presentation on instructor assigned example problem