Virginia Western Community College
EGR 240
Statics

Prerequisites
MTH 263

Corequisites
none

Course Description
Introduces basic concepts of engineering mechanics, systems of forces and couples, equilibrium of particles and rigid bodies, and internal forces and analysis of structures, including SI and U.S. customary units. Includes trusses, frames, machines, beams, distributed forces, friction, and centroids.

Semester Credits: 3 Lecture Hours: 3 Lab/Clinical/Internship Hours: 0

Required Materials

Textbooks:
Engineering Mechanics: Statics plus Mastering Engineering with Pearson eText -- Standalone Access Card, 14/E, Author: HIBBELER, Pearson Prentice Hall, ISBN# 9780134160689, Format: National Bundle

Other Required Materials:
Calculator (TI-89 or higher preferred)
Access to Online Homework program associated with textbook:
(http://www.masteringengineering.com)

General Course Purpose

This course prepares students for further studies in branches of engineering requiring mechanics.

See: https://courses.vccs.edu/courses/EGR240-Statics/detail

Course Outcomes

At the completion of this course, the student should be able to utilize the following:

- Critical Thinking
    - Calculate the moment caused by a two- and three-dimensional force or system of forces acting on a rigid body.
    - Use a free body diagram and the equilibrium equations to determine the reactions at the supports of two- and three-dimensional structures.
    - Use free body diagrams and the equilibrium equations to analyze structures (e.g., trusses, frames, simple machines).
    - Determine internal loading in a member at a specific point.
    - Use the internal loading to determine the internal shear and moment along the length of a member and draw shear and bending moment diagrams.
    - Solve equilibrium problems involving dry friction.
    - Explain the concepts of static and kinetic friction.
- Quantitative Reasoning
    - Apply vector algebra to resolve two- and three-dimensional force systems.
    - Locate the centroids and center of mass of homogenous and non-homogenous areas, volumes, and masses. Use the centroid location techniques to analyze distributed loads.

Topical Description

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Notes to Instructors

- All instructors teaching this course will use the same textbook.
- Course content within this course may be covered at the instructor's discretion but with all topics being covered.
- This course and its grades will be structured around a minimum of 2 tests, final exam, and homework.
- At the end of the semester, all instructors will give the outcome assessment as it relates to the final exam to the program head at the same time they prepare their student final grades.
- A comprehensive final exam will be given, which must be at least 10% of the final grade.

ADA Statement (PDF)
Title IX Statement (PDF)