

Common Course Outline

EGNT 121

Statics

3 Semester Hours

The Community College of Baltimore County

Description

EGNT 121 — 3 credits — Statics

covers fundamental concepts of mechanics relating to forces acting on rigid bodies. Other topics included are: problems involving actions and reactions on structures and machines in two and three dimensions, vector algebra operations and centroids. Specific scientific calculator required.

3 credits; 2 lecture hours per week; 2 laboratory hours per week. Prerequisite: MATH 135.

Overall Course Objectives

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

1. Construct free body diagrams of an object, group of connected objects, or part of an object;
2. Calculate the forces exerted on one member of a structure by another;
3. Associate and apply force analysis to system equilibrium;
4. Solve for forces in truss members using method of joints and method of sections;
5. Solve for the frictional forces due to sliding friction, belt friction, disk friction, and rolling resistance;
6. Locate the centroid or center of gravity of both a homogeneous and non-homogeneous body;
7. Calculate the moment of inertia of both two and three dimensional bodies; and
8. Use the software available to solve specific types of statics problems.

Major Topics

- I. Statics of Particles
- II. Forces, Vectors, and Resultants.
- III. Moments and Couples.
- IV. Statics of Rigid Bodies in Two Dimensions
- V. Statics of Rigid Bodies in Three Dimensions
- VI. Vector algebra operations
- VII. Distributed Forces: Centroids and Centers of Gravity
- VIII. Analysis of Structures and members
- IX. Forces in Beams and Cables
- X. Friction
- XI. Distributed Forces: Moments of Inertia

Course Requirements

Grading/exams: Grading procedures will be determined by the individual faculty member but will include the following:

- A mid-term and final written exam.
- A minimum of three laboratory assignments
- A written assignment.

Writing: The individual faculty member will determine specific writing assignments.

Other Course Information

This course is a required course in the Engineering Technology degree.

Individual faculty members may include additional course objectives, major topics, and other course requirements to the minimum expectations stated in the Common Course Outline.