

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 or MATH 165 or MATH 251

Overall Course Objectives

Upon successful 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.