

ENSC 221

Mechanics of Materials

3 Credits

Community College of Baltimore County
Common Course Outline

Description

ENSC 221 – Mechanics of Materials: Covers distortion of materials due to stress and temperature as well as internal strain and external displacement; examines application to beams, shafts, columns, and other structural, machine and vehicle members is emphasized.

Pre-requisites: ENSC 111 or consent of instructor

Overall Course Objectives

Upon completion of this course, students will be able to:

1. use the concepts of normal, shearing and bearing stress;
2. understand stress under general loading conditions;
3. understand ultimate and allowable stress;
4. understand stress-strain diagrams and applications;
5. understand deformations in a circular shaft;
6. understand pure bending in prismatic and symmetric members;
7. understand transverse loading of prismatic members;
8. understand transformation of plane stress;
9. understand the basic considerations for the design of prismatic beams; and
10. understand deformations in beams and columns.

Major Topics

- I. Concept of Stress
- II. Stress and Strain-Axial Loading
- III. Torsion
- IV. Pure Bending
- V. Transverse Loading
- VI. Transformation of Stress and Strain
- VII. Design of Beams and Shafts
- VIII. Deformation of Beams
- IX. Columns

Course Requirements

Grading will be determined by the individual faculty member, but shall include the following, at minimum:

The Common Course Outline (CCO) determines the essential nature of each course.
For more information, see your professor's syllabus.

Written assignments and research projects: Students are required to use appropriate academic resources in their research and cite sources according to the style selected by their professor.

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