

Common Course Outline
EMET 125
Mechanics and Maintenance Fundamentals
3 Semester Hours

Community College of Baltimore County

Description

EMET 125 - 3 Credits - Mechanics and Maintenance Fundamentals equips students with essential competencies in mechanical systems and industrial measurement skills. Concepts of fluid mechanics are presented, as well as the construction of simple machines, with a review of machine elements, fasteners, and friction and wear. Students apply newly gained knowledge of mechanical systems as they learn to use industrial precision measuring instruments to perform a variety of maintenance tasks. The industrial measurement concepts considered include identification and selection of material, installation and alignment of equipment, and the role of fit and clearance in determining premature or excessive equipment wear.

3 credits: 2 lecture hours per week; 2 lab hours per week
Co-requisite: EGNT 101

Overall Course Objectives

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

1. explain the principles and components involved in fluid mechanical systems;
2. describe the characteristics and operation of simple machines;
3. match measuring tools and instruments to tasks;
4. identify commonly used fasteners;
5. describe the characteristics and impact of friction;
6. safely operate standard power tools;
7. layout and drill a coupling;
8. apply varying degrees of pressure when tightening bolts with a torque wrench;
9. apply a variety of systems to calculate measurements used in industrial manufacturing;
10. apply the metric system to measurements of work and power, relating metric instruments to their u.s. standard equivalents;
11. explain the concepts of linear measurement;
12. explain the concepts, scales, and tools used to measure temperature;
13. describe the instruments used to measure water and fluid flow; and
14. apply basic knowledge of measurement systems and instruments to calculate length, diameter, dimension, and depth .

Major Topics

- I. Simple Machines, Machine Elements, and Fasteners
- II. Measurement Tools and Instruments
- III. Friction and Wear
- IV. Power Tools
- V. Metric, Linear, and Surface Measurements
- VI. Forces, Temperature, Fluids, and Electricity

Course Requirements

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

1. Written paper or suitable practical project
2. Midterm exam
3. Comprehensive final (including a practical exam)

In addition, students can expect grades from the following areas:

1. Quizzes
2. Lab Projects
3. Homework Assignments

Other Course Information

This is a required course for an A.A.S. in the Mechanical Engineering option of the Engineering Technology Program. It is taught in a classroom and lab environment, and includes hands-on activities which allow students to apply the knowledge they acquire during lecture sessions.