

## **EGNT 101**

### **Introduction to Engineering Technology**

3 Credits (2 lecture hours and 2 lab hours)

## Community College of Baltimore County Common Course Outline

### Description

**EGNT 101 – Introduction to Engineering Technology:** is a course in which students cover topics in a variety of construction and engineering disciplines. Students examine various careers in engineering and the methods and processes used in the fields of civil, surveying, construction, electrical, mechanical, and other engineering fields. Topics include robotics, soil mechanics, project management, ethics, engineering design, navigation systems, and measurement equipment. Skills are applied through engineering challenges and hands on field activities.

**Pre-requisites:** [ACLT 052 or ACLT 053 or (ESOL 052 and ESOL 054)] and [MATH 083 or MATH 135 or MATH 163 or higher]

### Overall Course Objectives

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

1. describe several roles and educational requirements of engineers and engineering technicians;
2. describe the major engineering disciplines and engineering careers;
3. describe the history of engineering, including the roles and impact of women and minorities;
4. describe the steps in the engineering design process;
5. apply basic engineering skills using analytical methods and dimensional consistency;
6. organize individual activities within a design group;
7. analyze forces on rigid bodies in equilibrium;
8. use Excel to perform calculations and graph data;
9. analyze a soil sample;
10. use surveying equipment;
11. analyze current and voltage in simple circuits;
12. program a robot and track its location using a navigation system;
13. explain analysis results clearly in various formats including orally, in writing, or through diagrams and calculations; and
14. describe the ethical responsibilities of an engineer and engineering technician.

### Major Topics

- I. Engineering disciplines
- II. Roles of engineers and engineering technicians

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

- III. The engineering design process
- IV. Engineering ethics
- V. Project management
- VI. Engineering analysis and calculations
- VII. Engineering measurements and equipment
  - a. Systems of units
  - b. Dimensional analysis
  - c. Accuracy and precision
- VIII. Soil mechanics
- IX. Statics
- X. Electric circuits
- XI. Surveying
- XII. Robotics
- XIII. Global Navigation System

### **Course Requirements**

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

- Four homework assignments
- Midterm exam
- Four lab assignments
- Final exam

Date Revised: 3/16/2021