Common Course Outline
ENSC 101
Introduction to Engineering Design
3 Semester Hours

The Community College of Baltimore County

Description

ENSC 101 – 3 Credits — Introduction to Engineering Design introduces students to the engineering design process, engineering disciplines, analytical analysis utilizing trigonometry, and graphical representation. Through classroom and lab assignments, students develop basic engineering and communication skills and; students work in teams to design and build a project by utilizing engineering principles and software.

3 credits: 3 lecture hours per week; 2 lab hours per week
Pre-requisite: MATH 165

Overall Course Objectives

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

1. describe the steps in the engineering design process;
2. apply basic engineering skills using analytic analysis and dimensional consistency;
3. develop, evaluate and select between alternative solutions to a design requirement;
4. coordinate individual activities within a design group;
5. utilize 3D modeling software to develop a product design;
6. utilize excel to perform calculations, analyze design situations and graph data;
7. prepare and present interim and final project reports and PowerPoint presentations;
8. utilize application software, email and the internet in a project environment;
9. describe the major engineering disciplines and engineering careers; and
10. describe the ethical responsibilities of a professional engineer.

Major Topics

I. Engineering design process
II. Sketching, orthographic projections and pictorial drawings
III. Scales and scaled drawings
IV. Design team organization, tasks and teamwork
V. Project development, design and construction
VI. Graphing
VII. Statics
VIII. Electricity
IX. Statistics
X. 3D Modeling
XI. Spreadsheet applications
XII. MATLAB

Course Requirements

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

1. Homework
2. Midterm and final exams
3. Minimum of four quizzes
4. Design project

Writing: The individual faculty member will determine specific writing assignments but will include interim and final design project reports.

Other Course Information

This course is a required core course for the A.S.E. in Computer Engineering and Electrical Engineering and for the A.S. in Engineering Science

Portions of this course will be taught in a computerized environment.

Date Revised: 02/7/14