Syllabus

ESC 100 Introduction to Engineering

General Information

Date

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Author

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Department

Science and Technology

Course Prefix

ESC

Course Number

100

Course Title

Introduction to Engineering

Course Information

Credit Hours

3

Lecture Contact Hours

2

Lab Contact Hours

2

Catalog Description

An introduction to various branches of engineering using descriptive and quantitative perspectives. Topics include modeling and mathematical analysis of basic engineering problems related to chemical, mechanical, and electrical systems with incorporation of topics of sustainability and clean environment. Problem solving, critical thinking, and technical writing skills are emphasized throughout the course.

Key Assessment

This course contains a Key Assessment for the AS Engineering Science program

Prerequisites

None

Co-requisites

MAT 145

Grading Scheme

Letter

First Year Experience/Capstone Designation

This course is designated as satisfying the outcomes applicable for status as a

First Year Experience

SUNY General Education

This course is designated as satisfying a requirement in the following SUNY Gen Ed category

None

FLCC Values

Institutional Learning Outcomes Addressed by the Course

Vitality
Inquiry
Perseverance
Interconnectedness

Course Learning Outcomes

Course Learning Outcomes

1. Define engineering and its various branches
2. Identify the various career paths that can be pursued with an engineering degree
3. Discuss the components of a modern engineering education
4. Use engineering analysis tools to solve basic, introductory level engineering problems involving mechanical or electrical systems

Outline of Topics Covered

I. Introduction to engineering
II. Branches of engineering
III. Engineering education

IV. Mechanical engineering

V. Linear equations in engineering

VI. Quadratic equations in engineering

VII. Trigonometry and vectors in engineering

VIII. Industrial engineering

IX. Data analysis using spreadsheet programs

X. Electrical engineering

XI. Complex numbers in engineering

XII. Sinusoids and harmonic signals in engineering

XIII. Systems of equations and matrices in engineering

XIV. Derivatives in engineering

XV. Civil engineering

XVI. Integrals in engineering

XVII. Chemical engineering

XVIII. Biomedical engineering

XIX. Differential equations in engineering