

NOVA COLLEGE-WIDE COURSE CONTENT SUMMARY EGR 120 - INTRODUCTION TO ENGINEERING (2 CR.)

Course Description

Introduces the engineering profession, professional concepts, ethics, and responsibility. Reviews hand calculators, number systems, and unit conversions. Introduces the personal computer, operating systems and processing, engineering problem solving and graphic techniques. Lecture 2 hours per week.

General Course Purpose

The purpose is to provide the incoming freshman engineering transfer student with probably his/her first exposure to the world of engineering. Here the student will obtain a first impression of what the engineering is all about as well as gaining some skills in basic engineering procedure and calculation, using the hand calculator and a personal computer. A major thrust of the course is to emphasize that the engineer is a team worker who needs strong skills in problem solving and communications.

Course Prerequisites/Corequisites

Prerequisites: MTH 162 or MTH 167 or testing into MTH 263.

Corequisite: ENG 111

Course Objectives

Upon completion of this course, the student should be:

- Familiar with the engineering world of work through readings in the text, lectures, and writing a term paper
- Acquainted with the engineering education process and particularly its realization at NOVA
- Familiar with fundamental proficiency in engineering calculations using hand calculators and the personal computer will be acquired, together with the discipline of engineering problem solving

MAJOR TOPICS TO BE INCLUDED

- Profession of Engineering
 - its history
 - ethics
 - responsibilities
- Library Research Paper on an engineering career field, engineering problem, or other topics related to the course
- Use of the Hand Microelectronic Calculator for Computations
- Use of the Personal Computer in Engineering
 - introduction to the computer and DOS commands
 - introduction to computer algorithm by flowcharting
 - BASIC programming language to solve engineering related problems
- Graphing Engineering Data to derive empirical equations in two variables:
 - using straight line curve fitting on linear, log-log and semi-log grids
 - **OR** using least-squares methods of curve fitting
- Engineering Accuracy and Significant figures
- Engineering Problem Solving Methodology
- Dimensions and Unit Systems: SI and AES
- Introduction to Two Dimensional Mechanics (statics) **OR** Fundamental Electric Circuit Theory

EXTRA TOPICS (optional)

The Engineering Design Process