ENGR 1000

Division: Natural Science and Mathematics
Department: Engineering and Computer Science
Course: ENGR 1000
Title: Introduction to Engineering
Catalog Description:

ENGR 1000 is a survey of various fields of engineering that could be considered as possible career choices. It is an introduction to the theory and practice of engineering science, including elementary problem solving and engineering design. The application of the computer as an engineering tool will be stressed, including the use of spreadsheets, word processors, and computational software.

General Education Requirements: N/A
Semesters Offered: Fall, Spring
Credit/Time Requirement: Credit: 2; Lecture: 2; Lab: 0
Clock/Hour Requirements: 0
Offered for Non-Credit: No
Prerequisites: College Algebra

Corequisites: N/A

Justification:

This course is designed as a component of the standard pre professional curriculum in engineering, which enables the student to transfer with junior level statuse into a four year engineering program. Similar courses are offered in university engineering schools. ENGR 1000 is to be taken during the freshman year of the pre engineering curriculum and will prepare the student for subsequent course work.

Student Learning Outcomes:

Upon successful completion of this course, students will:

- be familiar with the different engineering fields and have an insight into engineering as a profession
- be able to make an informed decision regarding engineering as a profession
- be able to set up and display the solution to a problem in acceptable engineering format
- have developed skill working with others in a group on a design project.

Content:

This course includes:

- an introduction to engineering as a profession
- overview of the various fields of engineering
- mathematical techniques used by engineers
- examples of elementary problems in several fields of engineering

- an introduction to engineering economics
- introduction to engineering design
- a group design project.

General Education Outcomes:

6) Apply computational skills to a variety of contexts.
Mathematical and computational skills are essential to the success of an engineering student. The student must be able to perform calculations both manually and through the use of computational software. This GE outcome will be assessed by computational problems on tests and quizzes.

7) Apply scientific reasoning to a variety of contexts.
Engineering consists of the application of scientific knowledge in order to design devices and systems with a practical purpose. Thus, students must be able to utilize the discoveries of science in the solution of engineering problems. This will be assessed by inclusion of scientific method related questions on tests and quzzes.

Key Performance Indicators:

- Daily homework assignments (30%), quizzes (10%), and tests (20%) will be administered -- all related to the above outcomes. These will be evaluated and recorded. Student teams will write a project proposal (10%) and a project report (10%) and make a class presentation (10%) on the team project, which will be evaluated by the instructor. A final exam (10%) will also be administrated and graded. These percentages are approximate.

Representative Text and/or Supplies:

- Eide, Jenison, Mashaw, and Northup, *Engineering Fundamentals and Problem Solving,* current edition, McGrawHill.
- Craver, Schroder, and Tarquin, *Introduction to Engineering*, current edition, Hold, Rinehart, and Winston.

Optimum Class Size: 20
Maximum Class Size: 40

Signatures:

I hereby submit this course syllabus:

Garth O. Sorenson, MS, Associate Professor

I hereby find this course consistent with the goals and resources of the Engineering and Computer Science Department:

Garth O. Sorenson, MS, Associate Professor, Chair

I hereby find this course consistent with the goals and resources of the Natural Science and Mathematics Division:

Dan Black, EdD, Associate Professor, Dean

I have discussed the need for library resources related to this class with the person submitting the syllabus:

Lynn Anderson, MLIS, Technical Services Librarian (Main Campus)

Michelle Olsen, MLS, Campus Librarian (Richfield Campus)