Course Prefix and Number: EGR 124

Credits: 3

Course Title: Introduction to Engineering and Engineering Methods

Course Description: Introduces the engineering profession, professionalism, and ethics. Covers problem presentation, engineering calculations, digital computer applications, word processing, worksheets, programming in MATLAB or C++, and elementary numerical methods. Design project also includes using presentation software, database searching, and prototyping. Prerequisite or Co-requisite: MTH 263. Lecture 3 hours per week.

General Course Purpose: Introductory engineering course for all Engineering AS majors.

Course Prerequisites and Co-requisites:
Prerequisite or Co-requisite: MTH 263

Student Learning Outcomes:
Upon completing the course, the student will be able to
a. Recognize the various branches of the engineering profession, code of ethics, and engineering professionalism;
b. Work problems involving algebra, trigonometry, exponential, roots, and logarithms;
c. Present technical data, perform dimensional analysis, and use engineering software;
d. Use presentation software and word processing software;
e. Search databases for content related to a specific engineering problem;
f. Independently develop, test, debug, and operate a computer program on an assigned engineering problem; and
g. Solve engineering problems using spreadsheet software, such as Excel.

Major Topics to Be Included:
  a. Introduction to the engineering profession and engineering solutions
  b. Selected topics from algebra, trigonometry, unit conversion, and dimensions
  c. Engineering estimation and approximation
  d. Representation of technical information and curve fitting
  e. Using computer software including equation solvers, word processors, worksheets and presentation software
  f. Introduction to computer programming using MATLAB: selective execution and repetitive execution
  g. Input/output: list-directed and format-directed
  h. Research of a real-world problem and alternate design solutions
  i. Design project in teams with prototype, final report, and presentation

Date Created/Updated (Month, Day, Year): January 26, 2019