EGR 150
INTRODUCTION TO ENGINEERING

COURSE DESCRIPTION:

Prerequisites: MAT 080 or DMA 010, 020, 030, 040, 050, 060, 070, 080; RED 080, and ENG 080 or DRE 097, or satisfactory score on placement test
Corequisites: None

This course is an overview of the engineering profession. Topics include goal setting and career assessment, ethics, public safety, the engineering method and design process, written and oral communication, interpersonal skills and team building, and computer applications. Upon completion, students should be able to understand the engineering process, the engineering profession, and utilize college resources to meet their educational goals. *This course has been approved to satisfy the Comprehensive Articulation Agreement for transferability as a premajor and/or elective course requirement.* Course Hours Per Week: Class, 1. Lab, 2. Semester Hours Credit, 2

LEARNING OUTCOMES:

1. Students will be able to describe the different engineering disciplines, career opportunities in engineering, and the roles engineers perform in society. Students will display proficiency by demonstrating the following competencies:
   
   a. Define the work of an engineer;
   b. Describe the different types of engineers and identify which types best suit the student’s own skill set;
   c. Identify ethical problems facing engineers.

2. Students will be able to work effectively on a team to plan, execute, and apply a structured engineering design process to a project using basic project management techniques. Students will display proficiency by demonstrating the following competencies:
   
   a. Demonstrate how to use engineering paper, engineering journals/lab books, and the engineering design process to outline a project;
   b. Complete two to three group projects;
   c. Participate in a group presentation demonstrating the completed project;
   d. Complete a peer review on classmates’ projects.

3. Students will be able to solve elementary engineering problems using a systematic approach and present these problems and solutions in an effective oral presentation. Students will display proficiency by demonstrating the following competencies:
   
   a. Perform an individual oral presentation;
b. Complete formal lab reports;
c. Use Microsoft Word, Excel, and PowerPoint for labs and presentations;
d. Demonstrate an understanding various units of measure and an ability to convert between them.

4. Students will be able to identify available resources and opportunities that assist in achieving unique educational and life goals. Students will display proficiency by demonstrating the following competencies:

   a. Identify the skills and attributes needed to successfully complete a degree in engineering;
   b. Identify the college resources available to help them decide on a course of study and a path to success in those courses.

OUTLINE OF INSTRUCTION:

I. Engineering Profession
   a. Definition of an engineer
   b. Types of engineers

II. Career Assessment
   a. Personality assessment test
   b. Study skills
   c. Planning ahead worksheet
   d. GPA

III. Utilizing College Resources
    a. Center for Academic Excellence
    b. Pre-engineering checklist
    c. Transfer of classes from community college to the university of choice

IV. Teamwork
    a. Two to three group projects
    b. Changing group members per project
    c. Peer reviews on all projects

V. Engineering Methods and Design Process
   a. Use of engineering paper
   b. Use of engineering journals/lab books
   c. Use the Engineering Design Process as an outline for all projects
   d. Units of Measure and Conversion
   e. Kinematics and Newton’s Laws

VI. Oral and Written Communication
    a. Presentations by groups
    b. Presentations by individuals
    c. Formal lab reports
VII. Computer Applications
   a. Word documents for all labs
   b. PowerPoint for all presentations
   c. Excel for electrical engineering lab and economics

VIII. Ethics and Safety
   a. Case study
   b. Oral discussion on case studies
   c. Video: “To Engineer is Human”
   d. Disasters

REQUIRED TEXTBOOKS AND MATERIALS:

To be determined by instructor

STATEMENT FOR STUDENTS WITH DISABILITIES:

Students who require academic accommodations due to any physical, psychological, or learning disability are encouraged to request assistance from a disability services counselor within the first two weeks of class. Likewise, students who potentially require emergency medical attention due to any chronic health condition are encouraged to disclose this information to a disability services counselor within the first two weeks of class. Counselors can be contacted by calling (919) 536-7207, ext. 1413, or by visiting the Student Development Office in the Phail Wynn Jr. Student Services Center, room 1209.