Piedmont Technical College Course Syllabus

COURSE INFORMATION

Course Prefix/Number: EGR 130
Title: Principles of Engineering
Responsible Division: Engineering and Industrial Technology
Last Day to Withdraw from this Course: For the last date to withdraw from this course, consult the current Student Calendar.

Course Description:
For course, credit hour, pre-requisite(s) and co-requisite(s) information, visit the Detailed Course Information page: www.ptc.edu/courses/egr130.

Textbook and Other Materials:
For textbook information and additional required and/or supplemental materials, visit the college bookstore (www.ptc.edu/bookstore).

Proctored Examinations:
Proctored examinations for distance learning courses taken at non-PTC campuses may require a proctoring fee for each exam taken.

COURSE POLICIES

Course policies are available online through the Academic Catalog and Student Handbook. Visit the Course Policies page (www.ptc.edu/syllabus/policies) for a detailed list of important policies and more information.

GRADE POLICY

Detailed grading policy information can be found on the Grading Policy webpage (http://www.ptc.edu/grading-policy). Final grade appeal information is available in the Academic Catalog (http://www.ptc.edu/catalog/).
ACCOMMODATIONS

Accommodations for ADA:

Information is available on the Student Disability Services webpage (http://www.ptc.edu/ada).

RATIONALE

Why do I need this course?

There is a critical shortage of engineering technologists at a time when technology is reinventing itself every few years. American competitiveness, prosperity and even national defense in a world economy depend not on production workers but on innovative engineering technologists to solve problems creatively and effectively. The number of job openings is increasing due to the expansion of employment opportunities in technical fields and the increasing number of engineering technologists who are retiring. In order to address this shortage, this course and the engineering technology curriculums, are designed to increase the quantity and quality engineering technologists graduating from our school.

PROGRAM INFORMATION

For program information including required courses, program learning outcomes, gainful employment information and advisement information, refer to the Academic Program webpage. Go to Academics (http://www.ptc.edu/academics), select your program, and then select Credentials Offered.

COURSE STUDENT LEARNING OUTCOMES

Upon successful completion of this course and/or clinical, each student will be able to:

- Utilize the studies of mathematics, science, and technology and apply them in engineering related problems.
- Effectively communicate ideas and solutions using different forms of presentations and demonstrations.
- Analyze the design processes and how to create an efficient, effective, and financially sustainable product.
- Use teamwork and/or collaboration to solve engineering problems.
• Compare why the design and production of mechanical machines requires training in a variety of subjects, including mechanical design, thermodynamics, fluid mechanics, and heat and mass transfer.
• Examine electrical engineering and how it deals with the transfer of energy and information.
• Analyze structural systems including the systematic study of the relationship of the material, members, and the construction of the structure when loaded to determine the resulting deflections and forces.
• Apply the knowledge of material and material testing including quality control and the choice of fabrication.
• Compare engineering for the reliability of a product and the design strategies to improve reliability.
• Examine kinematics including linear and trajectory motion.

GENERAL EDUCATION COMPETENCIES

Piedmont Technical College General Education Competencies for All Graduates:

This course may address one or more of the following General Education Competencies (assessment will be stated when applicable):

Communicate effectively.
Assessment:
Project presentations

Apply mathematical skills appropriate to an occupation.
Assessment:
Appropriate engineering calculations related to student assignments and projects

Employ effective processes for resolving problems and making decisions.
Assessment:
Using appropriate Algorithms in ROBOPRO software for material sorter project
Demonstrate the basic computer skills necessary to function in a technological world.

Assessment:

Students will use Microsoft products for use in their end of term presentation. The students also have access to department specific software as it applies to their projects, for example, AutoDesk Inventor. Students will also utilize D2L to access course specific information and assignments.

To validate proficiency in the general education competencies, students in some programs will be tested using Work Keys.