COURSE OUTLINE

Course Number  
CIV105

Course Title  
Introduction to Engineering

Credits  
1

Hours:  
lecture/Lab/Other  
1/0/0

Co- or Pre-requisite  
None

Implementation  
sem/year  
Fall 2019

Catalog description (as it appears in 2014-2015 edition):

Provides and introduction to the practice of engineering including: engineering disciplines, work environment, and competencies. The course outlines project management topics such as: scope, budget, schedule, effective communication, and proposal preparation. The course also includes career planning topics such as: resumes, interviews, internships, transferring to 4-year institutions, and professional licensure.

Is course New, Revised, or Modified?
New

Required texts/other materials:

None

Revision date:  
n/a

Course coordinator:  
James Maccariella, 609-570-3462, maccarij@mccc.edu

Information resources:

Other learning resources:
Guest speakers from the engineering industry will supplement the academic experience.
Course Competencies/Goals:

The student will be able to:

1. Identify the primary engineering disciplines and duties
2. Identify and interpret engineering competencies including: engineering computations, design plan preparation, cost estimation, and specifications
3. Identify and interpret project management competencies including: scope, budget, effective communication, and proposals
4. Demonstrate familiarity with career competencies including: preparation of resumes and business cards, interviewing skills, obtaining engineering internships, transferring to 4-year engineering schools, and earning a professional engineering licensure

Course-specific Institutional Learning Goals (ILGs)/General Education Goals.

Institutional Learning Goal 1. Written and Oral Communication in English. Students will communicate effectively in both speech and writing.

Institutional Learning Goal 2. Mathematics. Students will use appropriate mathematical and statistical concepts and operations to interpret data and to solve problems.


Institutional Learning Goal 4. Technology. Students will use computer systems or other appropriate forms of technology to achieve educational and personal goals.

Institutional Learning Goal 8. Diversity and Global Perspective: Students will understand the importance of a global perspective and culturally diverse peoples


Institutional Learning Goal 10. Information Literacy: Students will recognize when information is needed and have the knowledge and skills to locate, evaluate, and effectively use information for college level work.

Units of study in detail.

Unit I The Engineering Profession

Learning Objectives

The student will be able to:

• Identify the primary disciplines and duties of engineering including chemical, civil, electrical, and mechanical. (Course Competency 1; ILG Goals 1, 8 & 9)

• Demonstrate familiarity with the engineering work environment including schedules, locations, and types of assignments. (Course Competency 1; ILG Goals 1, 2, 8, 9 & 10)

• Demonstrate familiarity with federal, local and private practice engineering compensation. (Course Competency 1; ILG Goal 10)

• Demonstrate familiarity with the current occupational outlook for professional engineers. (Course Competency 1; ILG Goal 10)
Unit II  Engineering Competencies
Learning Objectives
The student will be able to:
• Demonstrate familiarity with the proper format of engineering computations. (Course Competency 2; ILG Goals 1 & 2)

• Demonstrate familiarity with the accepted formats for engineering design plans. (Course Competency 2; ILG Goals 1, 2, 3 & 4)

• Identify the primary components of an engineering construction cost estimate. (Course Competency 2; ILG Goals 1, 2, 3 & 4)

• Identify the primary components of an engineering specification. (Course Competency 2; ILG Goals 1, 2, 3 & 4)

Unit III  Project Management
Learning Objectives
The student will be able to:
• Demonstrate familiarity with the triple constraint (scope, budget, & schedule). (Course Competency 3; ILG Goals 1, 2 & 10)

• Demonstrate effective team communication. (Course Competency 3; ILG Goals 1, 8 & 9)

• Identify the primary components of an engineering proposal. (Course Competency 3; ILG Goals 1, 2, 3, 4, 8, 9 & 10)

• Demonstrate familiarity with budget tracking and estimation techniques. (Course Competency 3; ILG Goals 1, 2, 3 & 4)

• Demonstrate familiarity with financial project planning. (Course Competency 3; ILG Goals 1, 2, 3 & 4)

Unit IV  Career Planning
Learning Objectives
The student will be able to:
• Participate in resume and business card building exercises. (Course Competency 4; ILG Goals 1 & 10)

• Participate in mock interviews. (Course Competency 4; ILG Goals 1, 8, 9 & 10)

• Identify methods to obtain engineering internships. (Course Competency 4; ILG Goals 1, 8, 9 & 10)

• Understand how to effectively transfer to 4-year engineering programs. (Course Competency 4; ILG Goals 1, 8, 9 & 10)

• Understand how to earn a professional engineering license. (Course Competency 4; ILG Goals 1, 2, 3, 4, 8, 9 & 10)
Evaluation of student learning:

Quizzes and Homework 40%
Presentations 60%

Academic Integrity Statement:
Students are expected to comply with the college-wide requirements for academic integrity. Mercer County Community College is committed to Academic Integrity—the honest, fair, and continuing pursuit of knowledge, free from fraud or deception. This implies that students are expected to be responsible for their own work. Presenting another individual’s work as one’s own and receiving excessive help from another individual will qualify as a violation of Academic Integrity. The entire policy on Academic Integrity is located in the Student handbook and is found on the college website (http://www.mccc.edu/admissions_policies_integrity.shtml).

Mercer County Community College is committed to ensuring the full participation of all students in all activities, programs, and services. Please refer to the Student Handbook to review accommodations available for Students with Special Needs.