



SYLLABUS

CATALOG DESCRIPTION

An introduction to engineering as a career. Issues important to engineers, as students and professionals, are discussed along with answers to the question, “What can I expect to do as an engineer?” In addition, basic computer skills and electronic data acquisition are introduced in a laboratory setting, emphasizing a hands-on approach to experimentation and team design.

Prerequisites: MATH 115 (Co-requisite: ENGL 111)

Semester Offered: Fall

Common Student Learning Outcomes

Upon successful completion of San Juan College programs and degrees, the student will demonstrate competency in...

BROAD AND SPECIALIZED LEARNING

Students will actively and independently acquire, apply, and adapt skills and knowledge with an awareness of global contexts.

CRITICAL THINKING

Students will think analytically and creatively to explore ideas, make connections, draw conclusions and solve problems.

CULTURAL AND CIVIC ENGAGEMENT

Students will act purposefully, reflectively, and ethically in diverse and complex environments.

EFFECTIVE COMMUNICATION

Students will exchange ideas and information with clarity in multiple contexts.

INFORMATION LITERACY

Students will be able to recognize when information is needed and have the ability to locate, evaluate, and use it effectively.

INTEGRATING TECHNOLOGIES

Students will demonstrate fluency in the application and use of technologies in multiple contexts.

Student work from this class may be randomly selected and used anonymously for assessment of course, program, and/or institutional learning outcomes. For more information, please refer to the Dean of the appropriate School.

Course Learning Outcomes

Upon successful completion of the course, the student will be able to...

1. The engineering profession
2. Electronic data acquisition
3. Energy production, conservation, and efficiency

Specific Learning Outcomes

Upon successful completion of the course, the student will be able to...

- 1.1. Schedule their pre-engineering courses and know where to get proper advising
 - 1.2. Identify the differences between the various fields of engineering specialization
 - 1.3. Understand the process of transferring to a 4-year institution for completion of the engineering degree
 - 1.4. Identify various career paths associated with an engineering background
 - 1.5. Understand the testing and licensing procedure for professional registration
 - 1.6. Use the Internet to search for career information
 - 1.7. Appreciate the importance of creativity in the engineering profession
 - 1.8. Appreciate the importance of effective project management in the engineering profession
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- 2.1. Use basic electrical theory to design and analyze simple circuits
 - 2.2. Understand basic transducer (sensor) theory
 - 2.3. Take laboratory measurements with electronic devices
 - 2.4. Program a 4-channel data logger for a variety of experiments
 - 2.5. Build, test, and use voltage divider and instrumentation amplifier circuits
 - 2.6. Analyze and present electronic data using spreadsheet and word processing software
 - 2.7. Incorporate data acquisition skills into a group design project
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- 3.1. Understand the basics of electrical energy production and distribution
 - 3.2. Understand sustainable energy and development techniques
 - 3.3. Explain the importance of energy conservation and efficiency in engineering projects