Catalog Description
Overview of electrical and computer engineering; engineering as a profession; introduction to the different areas of ECE such as biomedical systems, circuits & electronics, communications, hardware design, control, networks and distributed systems, electromagnetics, energy, machines, signal processing, and software; basic computer tools such as SPICE, MATLAB, and LabVIEW; basic laboratory instruments; laboratory experiments and design project.

Prerequisites
High-school mathematics and physics

Class/Laboratory Schedule
Lecture: 2 hours per week
Laboratory: 3 hours per week

Class
Tuesday and Thursday 8:00 - 9:00 AM in the Engineering Lecture Hall

Lab
Tuesday or Thursday 9:30 AM - 12:30 PM in the ECE and FEA Labs

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Textbook

References on Reserve in the Engineering Library
1. Introduction to Electrical Engineering, Sarmar, Oxford University Press, 2001
2. Introduction to Electrical and Computer Engineering, Fleddermann and Bradshaw, Prentice Hall, 2003

**Computer Resources**
1. Moodle
2. PSpice
3. LabVIEW
4. MATLAB
5. MS Office

**Topics Covered**

<table>
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<tr>
<th>Topic</th>
<th>Duration</th>
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<td>Engineering As a Profession</td>
<td>10</td>
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<tr>
<td>ECE Tools</td>
<td>6</td>
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<tr>
<td>ECE Areas</td>
<td>11</td>
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**Course Objectives**
The objectives of this course are to:
1. Introduce students to the engineering profession
2. Provide students with an overview of engineering ethics
3. Present to the students the various areas of electrical and computer engineering
4. Introduce students to some basic mathematical and computing tools used in electrical and computer engineering
5. Foster effective communication and teamwork skills among students

**Learning Outcomes**
At the end of the course, students:
1. Have a realistic understanding of the engineering profession and the working environment of engineers.
2. Understand engineering ethics and are familiar with the IEEE code of ethics
3. Understand engineering problem-solving concepts and principles
4. Demonstrate an understanding of the engineering design concepts and principles
5. Have developed an awareness of challenges occurring in teamwork
6. Appreciate the importance of project planning and scheduling
7. Have developed presentation skills
8. Are aware of the various areas of electrical and computer engineering
9. Are familiar with the use of SPICE as a circuit analysis tool
10. Are familiar with the use of LabVIEW as a virtual instrumentation tool
11. Are familiar with the use of MATLAB as a mathematical tool
12. Are familiar with the use of MS Office for document production and presentation

**Assessment**

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<th>Component</th>
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<tr>
<td>Final exam</td>
<td>24%</td>
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<tr>
<td>Computer assignments (5)</td>
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<tr>
<td>Homework assignments (5)</td>
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<td>Lab experiments (5)</td>
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<td>Project(s)</td>
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<td>Contribution to online discussions</td>
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<td>Assessment of course outcomes</td>
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