The Electrical Engineering program covers a broad range of topics from circuits, automatic controls, micro-electronics, digital circuits, computers, communications, electric machines, electromagnetics, computer networks, signals, image and speech processing, and power systems. Electrical engineers design, develop, and test electrical systems, motors, generators, electronics, computer hardware, computer software, and communications systems that include the internet, Global Positioning Systems (GPS) and cellular networks. Electrical engineers work in the following industries: automotive, aerospace, semiconductor, electromechanical, control instruments, computer, communication, electric power generation, transmission and distribution, oil refineries, research and development, and manufacturing. They are employed in virtually all commercial industries and governmental agencies. Electrical engineers are responsible for bringing you electricity, cellular phones, music, television, automobiles, computers and the internet, to name only a few. Electrical engineers work in offices and may visit different manufacturing or testing sites. The Bureau of Labor Statistics predicts a 7% growth nationwide. Electrical engineers have annual mean salaries of $93,000 to $128,000, varying from industry to industry and region to region. Electrical engineers are at the forefront of information technologies and they innovate, create, design and bring to market things that are useful to improve the human condition.

Program Educational Objectives

The Electrical Engineering program offers an educational experience that enables graduates to:

1. Obtain professional-level employment in the Electrical Engineering field.
2. Practice Electrical Engineering in a wide variety of private and government institutions.
3. Work in diverse, multi-disciplinary teams and possess leadership skills, ethical standards, environmental concerns and social awareness.
4. Engage in lifelong-learning, participate in professional organizations and, if desired, pursue graduate studies.
5. Obtain licensure as a professional engineer.

ABET Student Learning Outcomes

1. an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
2. an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
3. an ability to communicate effectively with a range of audiences
4. an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
5. an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
6. an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
7. an ability to acquire and apply new knowledge as needed, using appropriate learning strategies. Criterion

Degree Requirements

Consistent with the existing Bachelor of Science (B.S.) degree programs in engineering, a minimum of 126 semester credit hours is required for the B.S. degree in Electrical Engineering. This degree requires a minimum of 55 upper division hours. Since all students seeking a B.S. degree in Electrical Engineering are required to take a cross-section of courses from a variety of engineering disciplines, the College does not award double majors. Students desiring a double major should seek a second baccalaureate degree. Minors are not required of students seeking a B.S. degree in Electrical Engineering.

General Education

<table>
<thead>
<tr>
<th>Course Type</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>Communication</td>
<td>ENGL 1301, 1302</td>
<td></td>
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<tr>
<td>Mathematics</td>
<td>MATH 2413</td>
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<tr>
<td>Life and Physical Sciences</td>
<td>CHEM 1311, PHYS 2325</td>
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<tr>
<td>American History</td>
<td>HIST 1301, 1302</td>
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<tr>
<td>Government/Political Science</td>
<td>PLSC 2305, 2306</td>
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<td>Language/Philosophy/Culture</td>
<td>ENGL 23xx</td>
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<tr>
<td>Social and Behavioral</td>
<td>one 3-hour course</td>
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<tr>
<td>Visual Performing Arts</td>
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<tr>
<td>Component Area Option</td>
<td>COMM 1315, CHEM 1111, PHYS 2125</td>
<td></td>
</tr>
</tbody>
</table>

42 Credits
Electrical Engineering Lower Division 29 Credits

Required Courses

MATH 2414 – Calculus II
MATH 2415 – Calculus III
PHYS 2326 – University Physics II
PHYS 2126 – University Physics II Laboratory
ENGR 1204 – Engineering Graphics
EENG 1303 – Object-Oriented Programming in Java
EENG 2105 – Fundamentals of Circuit Analysis Laboratory
EENG 2401 – Digital Circuits Design
ENGR 2305 – Fundamentals of Circuit Analysis
ENGR 2403 – Engineering Mechanics: Statics and Dynamics

Electrical Engineering Upper Division 49 Credits

Required Courses

MATH 3310 – Linear Algebra
MATH 3320 – Differential Equations
ENGR 4195 – Professional Practice
EENG 3303 – Electromagnetic Fields
EENG 3304 – Electric Circuits II
EENG 3106 – Electronic Circuit Analysis I Lab
EENG 3306 – Electronic Circuit Analysis I
EENG 3307 – Microprocessors
EENG 3314 – Design Methodology in Electrical Engineering
EENG 3373 – Engineering Probability and Statistics
EENG 3380 – Signals and Systems
EENG 3309 – Electronic Circuit Analysis II
EENG 4110 – Electric Power Systems Lab
EENG 4310 – Electric Power Systems
EENG 4325 – Communication Theory
EENG 4330 – Electric Machines
EENG 4340 – Control Systems
EENG 4460 – Senior Design
Electrical Engineering Upper Division 6 Credits

Elective Courses (Choose two)

EENG 4302 – Digital Systems
EENG 4312 – Instrumentation Systems
EENG 4320 – Computer Architecture and Design
EENG 4335 – Direct Generation Methods
EENG 4380 – Special Topics in Electrical Engineering
EENG 4390 – Independent Study in Electrical Engineering