Program: Electrical Engineering  
Major: Electrical Engineering  
Degree: Bachelor of Science (B.S.)  
Dept: Engineering and Physics  
College: Mathematics and Sciences  
Major Code: 6260

**University Core (Total Listed 42-44)**

Specific courses within the University Core are listed on pages 96-97.  
* Courses from the major may apply to the areas marked in the University Core.

**Written and Oral Communication** ................................................................. 9

**Quantitative Reasoning/Scientific Method** ................................................. 10-11
  * Math .......................................................... 3
  * Life Science .................................................. 4
  * Physical Science .......................................... 3-4

**Critical Inquiry and Aesthetic Analysis** ....................................................... 6
  Aesthetic Analysis .............................................. 3
  * Critical Inquiry ................................................ 3

**Support Courses**

**Support Courses**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHIL 1123</td>
<td>Contemporary Moral Problems</td>
</tr>
<tr>
<td>ECON 1103</td>
<td>Introduction to Economics</td>
</tr>
<tr>
<td>FMKT 2323</td>
<td>Global Protocol and Diversity (or Foreign Language)</td>
</tr>
</tbody>
</table>

*MATH 1533  Algebra for STEM OR Placement Score AND
*MATH 1593  Plane Trigonometry OR Placement Score

* A grade of ‘C’ or better is required for both MATH 1533 and 1593 to take MATH 2313.

Students majoring in the Engineering Physics program are encouraged to complete the following course in high school.

One year of high school physics OR
PHY 1003  Introduction to Physics

**Major Requirements**

**Electrical Engineering** ............................................................................ 92

**Physics** ........................................................................................................ 14

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHY 2014</td>
<td>Physics for Science and Engineering I and Lab</td>
</tr>
<tr>
<td>PHY 2114</td>
<td>Physics for Science and Engineering II and Lab</td>
</tr>
<tr>
<td>PHY 3103</td>
<td>Modern Physics</td>
</tr>
<tr>
<td>PHY 3883</td>
<td>Mathematical Physics I</td>
</tr>
</tbody>
</table>

**Engineering** ............................................................................................. 55

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGR 1112</td>
<td>Introduction to Engineering and Laboratory</td>
</tr>
<tr>
<td>ENGR 1213</td>
<td>Engineering Computing and Laboratory</td>
</tr>
<tr>
<td>ENGR 2033</td>
<td>Statics</td>
</tr>
<tr>
<td>ENGR 2303</td>
<td>Electrical Science</td>
</tr>
<tr>
<td>ENGR 2311</td>
<td>Electrical Science Laboratory</td>
</tr>
<tr>
<td>#ENGR 3183</td>
<td>Electromagnetic Fields I</td>
</tr>
<tr>
<td>ENGR 3223</td>
<td>Digital Logic Design and Laboratory</td>
</tr>
<tr>
<td>ENGR 3303</td>
<td>Engineering Probability &amp; Statistics</td>
</tr>
<tr>
<td>#ENGR 3323</td>
<td>Signals and Systems</td>
</tr>
<tr>
<td>ENGR 3331</td>
<td>Signals and Systems Laboratory</td>
</tr>
</tbody>
</table>

**Required courses:**

- ENGR 3403  Analog Electronics
- ENGR 3421  Analog Electronics Laboratory
- #ENGR 3413  Materials Science
- ENGR 3613  Microprocessors and Laboratory
- ENGR 3703  Computational Methods in Engineering
- ENGR 3803  Electrical Power Systems
- #ENGR 4323  Digital and Analog Communication
- #ENGR 4333  Digital Signal Processing
- ENGR 4351  Digital Signal Processing Laboratory
- #ENGR 4803  Mechatronics & Laboratory
- #ENGR 4882  Senior Engineering Design I
- #ENGR 4892  Senior Engineering Design II

**Mathematics** .................................................................................................. 15

**Required courses:**

- MATH 2313  Calculus 1
- MATH 2323  Calculus 2
- MATH 2333  Calculus 3
- MATH 2343  Calculus 4
- MATH 3103  Differential Equations

**Chemistry** ...................................................................................................... 5

**Required courses:**

- CHEM 1315  Chemistry for Engineering and Lab

**Guided Engineering Electives** ........................................................................ 3

Select from the following:

- #ENGR 4183  Electromagnetic Fields II
- ENGR 4263  Engineering Optics
- ENGR 4303  Control Systems
- #ENGR 4613  Photonics
- #ENGR 4633  Solid State Devices

*Students in the Accelerated BS/MS program in Engineering Physics must enroll in the graduate level versions of this course, and must choose the 5000 level of either Photonics, Electromagnetic Fields II or Solid State Devices as one of the engineering electives. Students need only three 5000-level courses as part of the accelerated program.

# Admission into Engineering and Physics Upper Division is required.

- CONTINUED ON NEXT PAGE -
Program: Electrical Engineering - continued
Major: Electrical Engineering
Degree: Bachelor of Science (B.S.)

- CONTINUED FROM PREVIOUS PAGE -

Minimum Hours required …………………… 125*

*Total hours required for this major may exceed the minimum 124 credit hour institutional requirement and will vary according to course selection. It is recommended students complete high school algebra II, trigonometry, physics and two years of a second language in high school.

Minimum Grade Requirements
1. Average in (a) all college course work, and (b) course work at UCO ................................................................. 2.00
2. A minimum grade of “C” must be earned in all courses in the major to count toward meeting degree requirements.

For other regulations pertaining to graduation, see pages 68-69 of the 2018-2019 catalog.

Admission into Engineering and Physics Upper Division

Students seeking the B.S. in Biomedical Engineering, Electrical Engineering, Engineering Physics – Physics and Mechanical Engineering are required to make formal application to the Chairperson of the Department of Engineering and Physics for admission into the upper division of each of these majors. Applications must be submitted to the Department of Engineering and Physics on or before the last Monday of January for Fall admission and the last Monday of August for Spring admission.

Upper division admission is open to students meeting Engineering and Physics upper division admission requirements. To be admitted into upper division, the student must have:

• A minimum retention grade point average (GPA) of 2.00 in all course work completed by the time the student is formally admitted into upper division.
• Completed 60 semester credit hours by the time the student is formally admitted into upper division.
• Completed the following courses or their equivalent with a minimum grade of “C” by the time the student is formally admitted into upper division:
  MATH 2313 Calculus 1
  MATH 2323 Calculus 2
  MATH 2333 Calculus 3
  MATH 2343 Calculus 4
  MATH 3103 Differential Equations (Recommended)
  PHY 2014 Physics for Science & Engineering I & Lab
  PHY 2114 Physics for Science & Engineering II & Lab
  ENGR 1112 Introduction to Engineering & Lab
  ENGR 1213 Engineering Computing & Lab
  ENGR 2033 Statics
  ENGR 2303 Electrical Science
  ENGR 2311 Electrical Science Lab
  ENGR 3303 Engineering Probability and Statistics (Recommended)
  CHEM 1112 General Chemistry I Recitation/Lab AND
  (for Biomedical Engineering)
  CHEM 1103 General Chemistry I OR (for Biomedical Engineering)

Formal approval by the department Faculty Advisor and Department Chair is required for admission. Preference is given to University of Central Oklahoma students. The student may enroll in no more than nine (9) hours of 3000 and 4000 level courses in the major prior to admission into upper division unless they secure formal approval from the Department of Engineering and Physics.