

# BS in Electrical Engineering

## Program Requirements

A minimum total of 124 credit hours is required for the electrical engineering program and includes the 62 credit hours of major courses that must be completed with a minimum grade point average of 2.000. All courses that are prerequisites to other courses must be completed with a grade of C- or better. In addition to meeting the requirements of the WSU General Education Program (<http://catalog.wichita.edu/undergraduate/academic-information/general-education-program/>) and the requirements of the College of Engineering, students in the electrical engineering program must take the following courses:

| Course                                                                                                                                                                                                                                                        | Title                                                         | Hours      |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------|------------|
| <b>General Education (34-35 credit hours)</b>                                                                                                                                                                                                                 |                                                               |            |
| Select courses to meet General Education requirements <sup>1, 2</sup>                                                                                                                                                                                         |                                                               | 24         |
| General Education courses that will also meet Program Requirements                                                                                                                                                                                            |                                                               |            |
| PHIL 385                                                                                                                                                                                                                                                      | Engineering Ethics                                            | 3          |
| CHEM 211                                                                                                                                                                                                                                                      | General Chemistry I                                           | 5          |
| MATH 242                                                                                                                                                                                                                                                      | Calculus I                                                    | 5          |
| <b>Mathematical/Natural Sciences</b>                                                                                                                                                                                                                          |                                                               |            |
| MATH 243                                                                                                                                                                                                                                                      | Calculus II <sup>3</sup>                                      | 5          |
| MATH 344                                                                                                                                                                                                                                                      | Calculus III                                                  | 3          |
| MATH 511                                                                                                                                                                                                                                                      | Linear Algebra                                                | 3          |
| MATH 555                                                                                                                                                                                                                                                      | Differential Equations I                                      | 3          |
| PHYS 313                                                                                                                                                                                                                                                      | Physics for Scientists I <sup>3</sup>                         | 4          |
| PHYS 314                                                                                                                                                                                                                                                      | Physics for Scientists II <sup>3</sup>                        | 4          |
| IME 254                                                                                                                                                                                                                                                       | Engineering Probability and Statistics I                      | 3          |
| <b>Major Courses</b>                                                                                                                                                                                                                                          |                                                               |            |
| ECE 115                                                                                                                                                                                                                                                       | ECE Freshman Seminar                                          | 0          |
| ECE 194                                                                                                                                                                                                                                                       | Introduction to Digital Design                                | 4          |
| CS 211                                                                                                                                                                                                                                                        | Introduction to Programming                                   | 4          |
| IME 255                                                                                                                                                                                                                                                       | Engineering Economy                                           | 3          |
| ECE 282                                                                                                                                                                                                                                                       | Circuits I                                                    | 4          |
| ECE 284                                                                                                                                                                                                                                                       | Circuits II                                                   | 3          |
| ECE 285L                                                                                                                                                                                                                                                      | Programming with MATLAB for Electrical and Computer Engineers | 1          |
| ECE 383                                                                                                                                                                                                                                                       | Signals and Systems                                           | 3          |
| ME 398                                                                                                                                                                                                                                                        | Thermodynamics I                                              | 3          |
| ECE 463                                                                                                                                                                                                                                                       | Applied Engineering Electromagnetics                          | 3          |
| ECE 488                                                                                                                                                                                                                                                       | Electric Machines and Transformers                            | 4          |
| ECE 492                                                                                                                                                                                                                                                       | Electronic Circuits I                                         | 4          |
| ECE 493                                                                                                                                                                                                                                                       | Electronic Circuit II                                         | 4          |
| or ECE 688                                                                                                                                                                                                                                                    | Power Electronics                                             |            |
| ECE 586                                                                                                                                                                                                                                                       | Introduction to Communication Systems                         | 4          |
| ECE 585 & ECE 595                                                                                                                                                                                                                                             | Senior Design Project I and Senior Design Project II          | 4          |
| ECE 684                                                                                                                                                                                                                                                       | Introductory Control System Concepts                          | 3          |
| or ME 659                                                                                                                                                                                                                                                     | Mechanical Control Systems                                    |            |
| <b>Technical Electives</b>                                                                                                                                                                                                                                    |                                                               |            |
| Select 11 credit hours which must be chosen with advisor's approval from a departmentally approved list. At least 9 of the 11 credit hours must be from the ECE department. Up to 2 credit hours of co-op can be used as nondepartmental technical electives. |                                                               | 11         |
| <b>Total Credit Hours</b>                                                                                                                                                                                                                                     |                                                               | <b>124</b> |

- <sup>1</sup> Required major courses may also count towards General Education requirements. Students will need to select additional electives to reach 124 credit hours required for graduation with assistance from an advisor.
- <sup>2</sup> See the requirements of the WSU General Education program (<http://catalog.wichita.edu/undergraduate/academic-information/general-education-program/>). Starting in fall 2024, first-year college students must take a First-Year Seminar (FYS) within their first two semesters at WSU. The FYS course should be completed in either fine arts or humanities or social/behavioral sciences.
- <sup>3</sup> May count as a general education course.

## Applied Learning

Students in the Bachelor of Science in electrical engineering program are required to complete an applied learning or research experience to graduate from the program. The requirement can be met by completing the two capstone design experiences consisting of ECE 585 and ECE 595.