ELECTRICAL ENGINEERING (BSEE)

The four-year curriculum, listed in the requirements section, includes required and elective courses in the pure and applied sciences, the humanities, and electrical engineering. Emphasis is on the mastery of fundamental principles, with added depth and provision for specialization in the major professional areas of communications, control systems, electronic circuit design and analysis, microelectronics and integrated circuit fabrication, photonics, and signal processing. Students are individually assisted and advised in their choices of elective courses. Departmental facilities include laboratories for electronics, circuits, electrophysics, control systems, communications, integrated circuit fabrication, photonics, microwave circuit/device characterization, and digital signal/ image processing.

Concentrations are available in the following areas for students: Bioengineering, Communications, Electromagnetics, Energy, Multimedia, Photonics, Robotics, Semiconductors, and Nanotechnology.

To earn the BSEE, students must complete the following requirements:

1. *Completion of University Core Curriculum requirements* ***(26 credits)***. Note the Liberal Arts 1, 2 and 3 requirements will be covered by courses required by the College of Engineering and the Department of Electrical Engineering.
2. *Completion of the College of Engineering requirements* ***(33 credits)***. Students must complete the following courses:
   - EG 10117 Engineering Design
   - EG 10118 Engineering Computing
   - MATH 10550 Calculus I
   - MATH 10560 Calculus II
   - MATH 20550 Calculus III
   - MATH 20580 Introduction to Linear Algebra and Differential Equations
   - CHEM 10171/CHEM 11171 Introduction to Chemical Principles
   - PHYS 10310 Engineering Physics I: Mechanics
   - PHYS 10320 Engineering Physics II: Electromagnetism
3. *Completion of the Electrical Engineering degree requirements.*
   a. *EE Core requirement* ***(24 credits)***. Students must complete the following courses:
      - EE 20100/EE 21100 Introduction to Electrical Engineering
      - CSE 20133 Introduction to Computing for EE Majors
      - EE 20221 Signal and Information Systems
      - EE 20231 Digital Design for Smart Interconnected Systems
      - EE 20241/EE 21241 Electronic Devices and Circuits
      - EE 30210 Random Phenomena in Electrical Engineering
      - EE 41430 Senior Design I
      - EE 41290 Senior Design II

   b. *EE Core Elective Requirement* ***(9 credits)***. Students must complete at least three of the following four classes:
      - EE 30062 Fundamentals of Semiconductors
      - EE 30122 System Theory and Application
      - EE 30132 Applied Embedded System Design
      - EE 30142 Analog and Digital Circuit Design
      - EE 30152 Applications of Electromagnetics

   c. *EE Lab Elective* ***(3 credits)***. Students must complete at least one of the following classes:
      - EE 30023/EE 31023 Communication Systems
      - EE 40024/EE 41024 Control Systems
      - EE 40053/EE 41053 RF & Microwave Circuits for Wireless Communications
      - EE 40063/EE 41063 IC Fabrication
      - EE 40054/EE 41054 Optics and Photonics

   d. *EE Electives* ***(15 credits)***. Students must complete 15 additional credits of *EE elective courses*. Students have a choice from over 20 courses offered by the departments of Electrical Engineering and Computer Science and Engineering.

   e. *Technical Electives* ***(9 credits)***. Students must complete 9 additional credits of *technical elective courses*. Students can choose from numerous courses offered by the College of Engineering and the College of Science.
4. *Earn a minimum of 125 credit hours of course credit* ***(6 credits)***. While the above requirements total 119 credits there is an additional requirement of completing a minimum of 125 credits. These credits can be earned by taking any graded course at the university and is often satisfied by students completing a minor or second major.

Details about the specific courses and course options can be found in the *Electrical Engineering Undergraduate Handbook* which can be found on the Electrical Engineering website at ee.nd.edu (https://ee.nd.edu/undergraduate/).