

# B.S.E.E. in Electrical Engineering

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## Description

The B.S. in electrical engineering program provides broad knowledge in basic and engineering sciences. The curriculum provides thorough knowledge of the field of electrical engineering. Emphasis areas offered are biomedical engineering, computer engineering and general.

**Minimum Total Credit Hours: 128**

## Goals/Mission Statement

**Mission Statement** The mission of the electrical engineering department is to provide quality education to the students of the department.

### Statement of Goals

- To provide high quality instruction and intellectual stimulation for the students
- To provide opportunity for undergraduate students to participate in research pursued by faculty
- To instill in our graduates the need for life-long learning
- To enable graduate students to pursue high quality research so that they will emerge as future technological leaders and academics
- To establish strong partnerships and lasting relationships with industry, government, professional societies, alumni and academia. These goals are consistent with the University of Mississippi Vision, Mission, and Core Values Statement and the flagship 2020 goals of UM/2020 Strategic Plan which focuses resources in the areas of instruction, research, and service.

**Undergraduate Program Philosophy** The electrical engineering undergraduate program is founded on basic sciences, mathematics, and engineering science fundamentals. The program emphasizes theoretical foundation as well as the application of scientific knowledge to the solution of engineering problems. This focus is intended to lead students to develop analysis and design skills, and original thought processes that will serve them throughout their careers in a rapidly changing world.

The electrical engineering program is a broad-based program with an emphasis on the fundamentals of electrical engineering. The curriculum consists of background courses in science and mathematics; courses in the humanities, social sciences, and fine arts that foster an appreciation of the interrelationship of basic sciences, technological advances, and society; and major multi- course sequences in engineering. Multi-course sequence areas are

1. Core topics common to many areas of engineering
2. Circuits, electronics, and systems
3. Digital Logic, computer architecture
4. Technical elective courses
5. Engineering design

The BSEE degree program can be pursued with biomedical engineering emphasis or computer engineering emphasis or no emphasis (general). In the first two cases, a specific set of required courses will determine that emphasis area. For general, a broad choice of technical elective courses is available to choose from.

**Program Educational Objectives** Based on our philosophy and goals the Faculty of the Department of Electrical Engineering have adopted the following Undergraduate Program Educational Objectives for graduates of the Bachelor of Science in Electrical Engineering (BSEE) undergraduate program. The graduates of the program will:

- Demonstrate professional engineering competence by holding positions of increasing responsibility in industry and/or government;
- Continue to improve their technical skills, knowledge and understanding through research and development activities, pursuit of professional certificates and/or advanced degrees;
- Pursue publications of patents and/or entrepreneurship.

**Student Outcomes** Students of the Bachelor of Science in Electrical Engineering program will demonstrate achievement of the following student outcomes:

- a. an ability to apply knowledge of mathematics, science, and engineering
- b. an ability to design and conduct experiments, as well as to analyze and interpret data
- c. an ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability
- d. an ability to function on multidisciplinary teams
- e. an ability to identify, formulate, and solve engineering problems
- f. an understanding of professional and ethical responsibility
- g. an ability to communicate effectively
- h. the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context
- i. a recognition of the need for, and an ability to engage in life-long learning
- j. a knowledge of contemporary issues
- k. an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

## Course Requirements

Specific requirements for the B.S.E.E. include two CSCi programming courses (Biomedical emphasis or General) or three CSCi programming courses (Computer emphasis); Engr 309, 310, 321, 360, 361, 410; EI E 100, 235, 236, 331, 341, 351, 352, 353, 367, 385, 386, 391, 431, 461, 462, 485, 486; 11 hours of specified courses for Biomedical, 12 hours of specified courses for Computer, 3 hours of specified course for General; and appropriate hours of



technical elective courses (6 hours for Biomedical, 2 for Computer, and 14 for General). Technical elective, if not already included in the requirement, may be chosen from EI E 313, 314, 413, 414, 415, 425, 433, 441, 443, 447, 451, 453, 482, 487, 523, 525, 533, 534, 535, 586; Engr 597; CSci 361, 423, 521, 530, 551, 561.

### **Specializations**

- [Emphasis - Biomedical Engineering](#)
- [Emphasis - Computer Engineering](#)
- [Emphasis - General Program](#)

