Emphasis - General Program

B.S.E.E. in Electrical Engineering

Description

The Bachelor of Science in Electrical Engineering program provides broad knowledge in basic and engineering sciences. The curriculum provides thorough knowledge of the field of electrical engineering. A manufacturing emphasis within B.S.E.E. is available to students admitted to the Center for Manufacturing Excellence (CME) Program. All other B.S.E.E. students follow the general program.

Minimum Total Credit Hours: 128

Goals/Mission Statement

Mission Statement

The mission of the electrical and computer 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 the manufacturing emphasis or no emphasis (general). In the manufacturing emphasis, a specific set of courses are required. For general, a broad choice of technical elective courses is available.

Program Educational Objectives

Based on our philosophy and goals the Faculty of the Department of Electrical and Computer 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, within 3-5 years after graduation, 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, continuing education credits and pursuit of professional certificates;
- Attain advanced degrees and work in academia, government agencies or high-tech companies;
- Generate professional publications, develop patents and foster entrepreneurship.

Student Outcomes

Students of the Bachelor of Science in Electrical Engineering program will demonstrate achievement of the following student 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 judgements, 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 judgement to draw conclusions
7. An ability to acquire and apply new knowledge as needed, using appropriate learning strategies

General Education Requirements

Students must complete at least 18 semester hours of general education requirements: 3 hours in humanities, 3 hours in fine arts, 3 hours in humanities/fine arts, 6 hours in social science (including Econ 310), and the remaining 3 hours can be in any of the humanities/fine arts, social science, or general education courses as specified by the School of Engineering.

Course Requirements

Major Coursework Requirements:

Specific requirements for the B.S.E.E. include: Writ 100, Writ 101, or Hon 101; Writ 102, Liba 102, or Hon 102; Math 261-264, Math 353; Chem 105, 115; Phys 211, 212, 221, 222; two Csci programming courses Csci 256, 356; ECE 361, Engr 309, 310, 360, 361; El E 235, 236, 237, 322, 331, 340, 341, 351, 352, 353, 385, 386, 391, 431, 447, 461, 462, 485, 486.

Coursework for General Emphasis:

Specific requirements for the General Emphasis include El E 100; ENGR 321; 14 credit hours of Technical Electives (BME 313, 314, 413; EL E 415, 425, 433, 441, 443, 451, 453, 482, 487, 523, 525, 533, 534, 535, 586; CSci 361, 423, 521, 530, 551, 561) for a total of 18 credit hours.

Coursework for Manufacturing Emphasis:

Specific requirements for the Manufacturing Emphasis include MANF 150, 152, 251, 252, 253, 255, 351, 353, 355, 455; 6 credit hours of Technical Electives (BME 313, 314, 413; EL E 415, 425, 433, 441, 443, 451, 453, 482, 487, 523, 525, 533, 534, 535, 586; CSci 361, 423, 521, 530, 551, 561) for a total of 24 credit hours.

Emphasis - General Program

Description

The B.S.E.E. with general emphasis provides broad training in basic and engineering sciences and fundamental knowledge of electrical engineering. The general emphasis provides greater flexibility for a student to choose 14 credit hours of technical elective courses from a breadth of electrical engineering topical areas.

Degree Requirements

The academic regulations for this degree program, as entered in the University of Mississippi Catalog, are in effect for the current or selected academic year and semester. The University of Mississippi reserves the right to 1) change or withdraw courses; 2) change rules for registration, instruction, and graduation; and 3) change other regulations affecting the student body at any time.

B.S.E.E. in Electrical Engineering

General Education

REQUIREMENT	HOURS	DESCRIPTION
First Year Writing I	3	Complete Hon 101, Writ 100 or Writ 101 with a passing grade.
First Year Writing II	3	Complete one of the following courses with a passing grade: Liba 102, Writ 102 or Hon 102.
3 hrs fine arts	3	Complete 3 hrs of fine arts with a passing grade chosen from art history, music, dance, and theatre arts. Studio and workshop courses cannot be used to satisfy this requirement. Courses that satisfy this requirement are any Art History (AH); Liba 130, 204, 314; Mus 101, 102, 103, 104, 105; Danc 200; Thea 201, 202.
3 hrs fine arts/humanities	3	Complete 3 additional hours in any of the humanities or fine arts categories defined by the School of Engineering general education requirements.
3 hrs humanities	3	Courses may be chosen from African American studies (AAS 201, 202); classical civilization (Clc); environmental studies (Envs 101); gender studies (G St 201, 202); history (Hst); Liba 202, 312, 305; literature (Eng 103, 220-226); philosophy (Phil); religion (Rel); Southern studies 100 level; or Hon 101, 102 (if not being used to fulfill composition requirements). Additionally, students of the School of Engineering may count up to 3 credit hours of a language course (modern or Greek or Latin) with a grade of C or better to fulfill a humanities requirement. The course will be entered upon request in the student's degree audit as an approved substitute.
3 hrs social sciences	3	Successfully complete 3 hrs of social science with a passing grade chosen from anthropology (Anth), economics (Econ), political science (Pol), psychology (Psy), sociology (Soc), Liba 203, 313, or Hon 101, 102
3 hrs gen ed or SS/H/FA	3	Successfully complete 3 hrs General Education work with a passing grade chosen from the following: additional fine art, additional social science, additional humanities, As 301, As 302, Bus 250, Bus 271, Edld 110, Edld 111, Edld 120, Edld 220, Engr 400, Mgmt 371,
Econ 310	3	Complete Econ 310 with a passing grade.
Math 261	3	Complete Math 261 with a passing grade.
Math 262	3	Complete Math 262 with a passing grade.
Math 263	3	Complete Math 263 with a passing grade.

REQUIREMENT	HOURS	DESCRIPTION
Math 264	3	Complete Math 264 with a passing grade.
Math 353	3	Complete Math 353 with a passing grade.
Chem 105	3	Complete Chem 105 with a passing grade.
Chem 115	1	Complete Chem 115 with a passing grade.
Phys 211	3	Complete Phys 211 with a passing grade.
Phys 212	3	Complete Phys 212 with a passing grade.
Phys 221	1	Complete Phys 221 with a passing grade.
Phys 222	1	Complete Phys 222 with a passing grade.

Major Requirements

REQUIREMENT	HOURS	DESCRIPTION
ECE 361	1	Complete ECE 361 with a passing grade.
El E 235	3	Complete El E 235 with a passing grade.
El E 236	1	Complete El E 236 with a passing grade.
El E 331	3	Complete El E 331 with a passing grade.
EL E 340,237	4	Complete EL E 340,237 with a passing grade.
El E 322	1	Complete El E 322 with a passing grade.
El E 341	3	Complete El E 341 with a passing grade.
El E 351	3	Complete El E 351 with a passing grade.
El E 352	3	Complete El E 352 with a passing grade.
El E 353	1	Complete El E 353 with a passing grade.
El E 385	3	Complete El E 385 with a passing grade.
El E 386	1	Complete El E 386 with a passing grade.
El E 391	3	Complete El E 391 with a passing grade.
El E 431	3	Complete El E 431 with a passing grade.
El E 447	3	Complete El E 447 with a passing grade.
El E 461	1	Complete El E 461 with a passing grade.
El E 462	3	Complete El E 462 with a passing grade.
Engr 309	3	Complete Engr 309 with a passing grade.
Engr 310	3	Complete Engr 310 with a passing grade.
Engr 360	3	Complete Engr 360 with a passing grade.
Engr 361	1	Complete Engr 361 with a passing grade.
School of Engineering GPA		Must be at least a 2.0
Enroll in a BSEE emphasis		Enroll in an emphasis within the BSEE program.

Emphasis - General Program

REQUIREMENT	HOURS	DESCRIPTION
El E 100 or Engr 100	3	Complete El E 100 or Engr 100 with a passing grade.
Engr 321	3	Complete Engr 321 with a passing grade.
Csci 256	3	Complete Csci 256 with a passing grade.
Csci 356	3	Complete Csci 356 with a passing grade.
El E 485	2	Complete El E 485 with a passing grade.

REQUIREMENT	HOURS	DESCRIPTION
EI E 486	1	Complete EI E 486 with a passing grade.
14 hrs technical electives	14	Complete 14 hours of technical elective courses. Technical elective courses may be chosen from BME 301, 313, 314, 413; EL E 415, 425, 433, 441, 443, 451, 453, 482, 487, 523, 525, 533, 534, 535, 536, 586; Cp E 421, 431, 432; CSci 361, 423, 521, 530, 551, 561) for a total of 18 credit hours. A maximum of 6 hrs. of 300+ level courses from CSCI, Math, Phys can be counted as technical electives, subject to approval by the Chair of ECE.