Emphasis - Computer Engineering

B.S.E.E. in Electrical Engineering

Description

The B.S. in electrical engineering provides broad training in the basic and engineering sciences. The curriculum provides thorough knowledge of the field of electrical engineering, supplemented by fundamentals of civil, mechanical, and chemical engineering. This program may be completed with an emphasis in computer engineering, RF/wireless engineering, or telecommunications.

Minimum Total Credit Hours: 128

Goals/Mission Statement

Program Goals - The program educational goals of the Department of Electrical Engineering undergraduate programs at The University of Mississippi are

1. To educate students in the fundamental practices and concepts of electrical engineering with an engineering science emphasis in a way that enables students to apply basic knowledge to achieve technological advances toward the satisfaction of human needs,
2. To support professional, industrial, and economic development by providing students with opportunities for an intensive learning experience and direct application of knowledge in the field of electrical engineering, and
3. To prepare students for continued professional education, including graduate study.

These goals are consistent with The University of Mississippi mission statement and the vision statements of The University of Mississippi strategic plan, Ole Miss through 2010: A Guide for the Journey, which focuses resources in the areas of instruction, research, and service.

Program Philosophy - The electrical engineering undergraduate program is founded on basic sciences, mathematics, and engineering science fundamentals. The program emphasizes engineering science and focuses on 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 based on the philosophy that specialization is better acquired at the graduate level. The program is a broad-based program with an emphasis on the fundamentals of electrical engineering. The curriculum consists of engineering 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 all areas of engineering,
2. Circuits and electronics,
3. Analog systems,
4. Digital systems,
5. Electromagnetic fields, RF and microwaves, and
6. Engineering design.

The basic program in electrical engineering requires multiple courses in each of the above areas. The emphasis areas of computer engineering, RF and wireless engineering, and telecommunications permit additional concentration in one of the areas and require multiple courses in at least five of the above areas.

Program Objectives - Based on our philosophy and goals, the faculty of the Department of Electrical Engineering has adopted the following undergraduate program educational objectives. Graduates of the B.S.E.E. undergraduate program at The University of Mississippi should

1. Have a sound understanding of the fundamentals of engineering science, computer applications, mathematics, and physics; and have the ability to apply this knowledge in engineering practice.
2. Be able to draw from physics, computer science, mathematics, and engineering science to identify, formulate, and develop practical design solutions to open-ended electrical engineering problems.
3. Have experience in using different computers and operating systems for scientific computation, graphics, word processing, data acquisition, process control, computer-aided design, and engineering communication.
4. Be able to communicate effectively with adequate written and oral technical communication skills.
5. Have laboratory experiences in chemistry, physics, engineering science, and electrical engineering that include a focus on health and safety issues. These experiences will include the design of experiments, computer-aided data acquisition, process control, and analysis and interpretation of data.
6. Have a general education of sufficient breadth to enhance their ability to work and deal with an ever-changing society involving people of different backgrounds and disciplines.
7. Have an understanding of professional and ethical responsibility.
8. Have an appreciation of the need for lifelong learning.

General Education Requirements

In addition to the courses specified by the School of Engineering general education requirements, the following are required: Math 263-264 and Math 353; laboratory science to be fulfilled by Chem 105, 115 and Phys 211, 212, 221, 222. The required 18 hours of humanities/behaviors and social science/fine arts are as specified by the School of Engineering general education requirements but must include Econ 310.

Course Requirements

The following are the requirements for the B.S.E.E. without an emphasis. A student can also complete the degree with an emphasis in either RF/wireless,

telecommunications, or computer engineering. The full requirements for these emphases are given separately.

Specific requirements for the B.S.E.E. include CSci 251, 259; Engr 309, 321, 360, 361, 410; El E 100, 331, 335, 336, 341, 351, 352, 353, 367, 385, 386, 391, 431, 441, 447, 461, 462, 485, 486, 533; and 11 hours of technical elective courses. Technical elective courses may be chosen from El E 333, 433, 442, 443, 451, 453, 487, 523, 525; Engr 597; Tc 415, 432, 433, 491, 534, 535; CSci 361, 521, 530, 551, 561.

Other Academic Requirements

Students in the Department of Electrical Engineering are required to take the Fundamentals of Engineering examination prior to awarding of the baccalaureate degree.

Emphasis - Computer Engineering

Description

The B.S.E.E. with emphasis in computer engineering provides broad training in basic and engineering sciences and fundamental knowledge of electrical engineering, with a focus on computer engineering.

General Education Requirements

In addition to the courses specified by the School of Engineering general education requirements, the following are required: Math 263-264 and Math 353; laboratory science to be fulfilled by Chem 105, 115 and Phys 211, 212, 221, 222. The required 18 hours of humanities/behaviors and social science/fine arts are as specified by the School of Engineering general education requirements but must include Econ 310.

Course Requirements

Specific requirements for the B.S.E.E. with emphasis in computer engineering include Math 301; CSci 111, 112, 211, 223, 361, 423; Engr 309, 321, 360, 361, 410; El E 100, 331, 335, 336, 341, 351, 352, 353, 367, 385, 386, 391, 431, 461, 462, 485, 486, 533; and 2 hours of technical elective courses. Technical elective courses may be chosen from El E 333, 433, 441, 442, 443, 447, 451, 453, 487; Engr 310, 597; Tc 535; CSci 521, 523, 530, 551, 561.

Other Academic Requirements

Students in the Department of Electrical Engineering are required to take the Fundamentals of Engineering examination prior to awarding of the baccalaureate degree.

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
Chem 105	3	Complete Chem 105 with a passing grade.
Chem 115	1	Complete Chem 115 with a passing grade.
Econ 310	3	Complete Econ 310 with a passing grade.
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.
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.
Math 264	3	Complete Math 264 with a passing grade.
Math 353	3	Complete Math 353 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.
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 fine arts	3	Student must successfully complete 3 hours in the fine arts. The course may be chosen from art history, art appreciation, and criticism of art, dance, music, and theatre arts. Courses emphasizing the enhancement of skills and performance are not acceptable.
3 hrs general education work	3	Complete 3 hrs General Education work 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, Msl 102, Nsc 211, Spch 102, or Spch 105.

REQUIREMENT	HOURS	DESCRIPTION
3 hrs humanities	3	Complete 3 hrs of humanities choosing from course work in classics, literature, history, modern language, philosophy, religion, Southern studies, African American Studies, and Gender Studies.
3 hrs social sciences	3	Complete 3 hours of social sciences choosing from the following; economics, anthropology, political science, psychology, and sociology.

Major Requirements

REQUIREMENT	HOURS	DESCRIPTION
EI E 100 or Engr 100	3	Complete EI E 100 or Engr 100 with a passing grade.
EI E 331	3	Complete EI E 331 with a passing grade.
EI E 235	3	Complete EI E 235 with a passing grade.
EI E 236	1	Complete EI E 236 with a passing grade.
EI E 341	3	Complete EI E 341 with a passing grade.
EI E 351	3	Complete EI E 351 with a passing grade.
EI E 352	3	Complete EI E 352 with a passing grade.
EI E 353	1	Complete EI E 353 with a passing grade.
EI E 367	3	Complete EI E 367 with a passing grade.
EI E 385	3	Complete EI E 385 with a passing grade.
EI E 386	1	Complete EI E 386 with a passing grade.
EI E 391	3	Complete EI E 391 with a passing grade.
EI E 431	3	Complete EI E 431 with a passing grade.
EI E 461	1	Complete EI E 461 with a passing grade.
EI E 462	2	Complete EI E 462 with a passing grade.
EI E 533	3	Complete EI E 533 with a passing grade.
Engr 309	3	Complete Engr 309 with a passing grade.
Engr 321	3	Complete Engr 321 with a passing grade.
Engr 360	3	Complete Engr 360 with a passing grade.
Engr 361	1	Complete Engr 361 with a passing grade.
Engr 410	4	Complete Engr 410 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 - Computer Engineering

REQUIREMENT	HOURS	DESCRIPTION
Csci 111	3	Complete Csci 111 with a passing grade.
Csci 112	3	Complete Csci 112 with a passing grade.
Csci 211	3	Complete Csci 211 with a passing grade.
Csci 223	3	Complete Csci 223 with a passing grade.
Csci 361	3	Complete Csci 361 with a passing grade.
Csci 423	3	Complete Csci 423 with a passing grade.
EI E 485	2	Complete EI E 485 with a passing grade.
EI E 486	1	Complete EI E 486 with a passing grade.
Math 301	3	Complete Math 301 with a passing grade.

REQUIREMENT	HOURS	DESCRIPTION
2 hrs technical electives	2	Complete 2 hrs technical electives from the following: El E 313, 314, 413, 414, 415, 433, 441, 443, 451, 453, 482, 487, 523, 525, 533, 534, 535, 586; Engr 597; CSci 361, 521, 530, 551, 561.