B.S.Ch.E. in Chemical Engineering

Overview
Degree Requirements

Description

The B.S. in chemical engineering provides the student with a fundamental knowledge of chemical engineering science and prepares graduates for a variety of careers in industry and government, or for advanced study in engineering, business, or professional school.

Minimum Total Credit Hours: 128

Goals/Mission Statement

Mission Statement

The School of Engineering at the University of Mississippi strives to continuously improve the quality of teaching, research, and service. In so doing, the School

- Prepares students with a broad based education for entering the engineering profession, for advanced studies, and for careers in research;
- Develops in students leadership skills, communication and creative thinking skills, global perspective, and commitment to lifelong learning; and
- Provides practicing professionals with continuing education opportunities.

The School capitalizes on its engineering science tradition, its low student to faculty ratio, and the liberal arts environment of the University of Mississippi to give our graduates the abilities to adapt to the rapid changes in engineering and to give our graduates the interdisciplinary background and capacity for innovation that sets them apart from the graduates of larger engineering schools.

Statement of Goals

- To provide an environment conducive to learning, teaching, and research. This includes a diverse and multicultural first-rate faculty, staff and students and state-of-the-art facilities.
- To provide a top-quality ABET accredited undergraduate program suitable for the 21st century.
- To foster a vibrant graduate program and perform quality research in line with national trends and achieve national recognition in selected areas.
- To establish strong partnerships and lasting relationships with industry, government, professional societies, alumni and academia.
- To make significant contribution to the technological and economic development of the State of Mississippi and the region through education, research, and service.
- To increase the visibility of the School of Engineering locally and nationally.

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, 106, 115, 116 and Phys 211, 212, 221, 222. Students must complete 18 "SHFA" credits defined as follows: 3 hours of fine arts (nonperforming), 12 credits of liberal arts course work, and 3 credits of "additional general education course work" as defined below. The liberal arts course work must include one sequential work in the humanities and one sequential work in the social/behavioral sciences. "Sequential work" is defined as two or more courses from the same department using the acceptable courses in the humanities and social/behavioral sciences as defined in the School of Engineering general education requirements. One sequential work (either humanities or social/behavioral science) must contain a 300 or higher course number. If the student meets the fine arts, humanities, and social/behavioral science work defined above in 15 credits, then the final 3 credits of "additional general education course work" could be from any humanities, social/behavioral science, or the list of nonliberal art courses found in the "3 credits of additional general education course work" located in the School of Engineering general education requirements with the exception that speech and math content courses may not be used to satisfy any of these required 18 "SHFA" credits.

- SHFA Examples:
  Example 1: Fr 201, Fr 202, Southern Studies; Psy 201, 301; Mus 104
  Example 2: Rel 101, Phil 103, Phil 328, Pol 101, Pol 102, Thea 201
  Example 3: His 101, His 102; Soc 101, Soc 301, Bus 250; Art 201

Course Requirements

Specific requirements for the individualized emphasis in chemical engineering are as follows: Chem 221, 222, 225, advanced chemistry (defined below); Csci 251 or Engr 309, 310, 313, 321, 322, 360 or 362; Ch E 103, 104, 307, 308, 317, 345, 411, 417, 421, 423, 445, 446, 451, 452, 511; technical electives to include three 3-hour electives of 300 or higher course number from among engineering, science, or mathematics. Any of the following will satisfy the advanced chemistry requirement: Chem 334, Chem 471, Ch E 545, G E 503, Engr 540, and Manf 350. The following alternative courses may satisfy course requirements as specified:

- Alternatives to Ch E 103 and 104: Engr 100, Manf 150, and Manf 252
- Alternative to Ch E 452: The combination of Ch E 460 and Ch E 461
- Alternatives for 300-level technical electives: Manf 251, Manf 253, Manf 254, and the combination of Bisc 160, 161, 162, and 163. In the case of the Bisc 160-163 series, the student must take all 8 credits to fulfill the requirement for one 3-credit technical elective. A maximum of 3 credits of Ch E 330 may be used to satisfy the technical elective requirements.

Emphases in Chemical Engineering: Alternative to the individualized emphasis in chemical engineering (defined above), a student may choose to obtain

a B.S. in Chemical Engineering with one or more of the following five emphases: biotechnology, biomedical engineering, environmental, materials, and manufacturing (in collaboration with the Center for Manufacturing Excellence). The same general education and course requirements (defined above) apply to all emphases in chemical engineering. The taking of specific advanced chemistry and elective courses satisfy an emphasis requirement as defined below.

Other Academic Requirements

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

Specializations

- Emphasis - Biomedical Engineering
- Emphasis - Biotechnology
- Emphasis - Environmental
- Emphasis - Manufacturing
- Emphasis - Materials
- Pre-Med Option
- Standard Option