B.S.Ch.E. in Chemical Engineering

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

Graduates from the Department of Chemical Engineering of the University of Mississippi are:

1. Globally competitive in the professional world
2. Prepared for success in their chosen career or in continued education
3. Equipped with flexible problem solving skills to address complex issues in society.

As students progress through the B.S ChE Program, they develop a set of abilities that comprise the program out comes. These outcomes are consistent with and encompass those proscribed by our accrediting organization.

Program Outcomes - Our students will demonstrate an:

- Ability to apply knowledge of math, engineering, and science
- Ability to design and conduct experiments
- Ability to analyze and interpret data
- 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
- Ability to function on multi-disciplinary teams
- Ability to identify, formulate, and solve engineering problems
- Understanding of professional and ethical responsibility
- Ability to communicate effectively
- The broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context
- Recognition of the need for, and an ability to engage in life-long learning
- Knowledge of contemporary issues
- Ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

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 3 hours of fine arts (nonperforming) and 15 of liberal arts course work. 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 liberal arts work may be chosen as defined in the "3 credits of additional general education course work" located in the School of Engineering general education requirements with the exception that speech courses may not be used to satisfy any of these required 18 credits.

Examples: Fr 201, Fr 202, Southern Studies; Psy 201, 301; Mus 104 Rel 101, Phil 103, Phil 328, Pol 101, Pol 102, Thea 201 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, 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 four emphases: biotechnology, 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 - Biotechnology
- Emphasis - Environmental
- Emphasis - Manufacturing
- Emphasis - Materials
- Pre-Med Option
- Standard Option