Emphasis - Biotechnology

- B.S.Ch.E. in Chemical Engineering
- Emphasis - Biotechnology
- Degree Requirements

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

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 104Example 2: Rel 101, Phil 103, Phil 328, Pol 101, Pol 102, Thea 201Example 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: Math 261-264, Math 353, Writ 100, Writ 101, Writ 102, or Liba 102; Chem 105, 106, 115, 116, and Phys 211, 212, 221, 222; Chem 221, 222, 225, advanced chemistry (defined below); Csci 251 or Engr 309, 310, 313, 321, 322, 360; Ch E 103, 104, 307, 308, 317, 345, 411, 417, 421, 423, 445, 446, 451, 452, 412 or 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, Chem 472, Ch E 543, Ch E 545, G E 503, and Engr 540. The following alternative courses may satisfy course requirements as specified:

- Alternatives to Ch E 103 and 104: Engr 100, or Manf 150 and Manf 252
- Alternative to Ch E 452: The combination of Manf 451 and Manf 452
- Alternative to Engr 313: The combination of Manf 251 and 252
- Alternatives for 300-level technical electives: 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 one of the technical elective requirements.

Emphases in Chemical Engineering: As alternative to the standard or PreMed options in chemical engineering, 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, manufacturing (in collaboration with the Center for Manufacturing Excellence), and materials. The same general education and course requirements (defined above) apply to all emphases in chemical engineering. Taking specific advanced chemistry and elective courses satisfy specific emphasis requirements.

The University of Mississippi is accredited by the Southern Association of Colleges and Schools Commission on Colleges to award certificates and baccalaureate, master's, specialist, and doctoral degrees. Contact the Commission on Colleges at 1866 Southern Lane, Decatur, Georgia 30033-4097, call 404-679-4500, or visit online at www.sacscoc.org for questions about the accreditation.

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.

Emphasis - Biotechnology

Course Requirements

Biotechnology

Ch E 520	3 Credit Hours
Chem 334, Chem 471, or Bisc 333	3 Credit Hours
Chem 222 or Bisc 160, 161, 162 and 163	3 Credit Hours
300 level or higher Biotech Elective	3 Credit Hours
300 level or higher Technical Electives	6 Credit Hours
Add'l hum/soc sci/gen ed	3 Credit Hours

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.Ch.E. in Chemical 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 Hon 102, Liba 102, or Writ 102 with a passing grade.
Chem 105	3	Complete Chem 105 with a passing grade.
Chem 106	3	Complete Chem 106 with a passing grade.
Chem 115	1	Complete Chem 115 with a passing grade.
Chem 116	1	Complete Chem 116 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.
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	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.
Serial humanities	6	Complete 6 hrs (from the same department) of humanities choosing from course work in classics, literature, history, philosophy, religion, Southern Studies, African American Studies, and Gender Studies.
Serial social science	6	Complete 6 hours (from the same department) of social sciences choosing from the following; economics, anthropology, political science, psychology, and sociology.Psy 202 and Econ 230 are excluded from these options.

Major Requirements

REQUIREMENT	HOURS	DESCRIPTION
Ch E 103/104 or approved course	2	Complete Ch E 103 and Ch E 104. As an alternative, students may complete one one of the following courses: Engr 100, Manf 150 or Manf 252. Coursework must be completed with a passing grade.
Ch E 307	2	Complete Ch E 307 with a passing grade.
Ch E 308	2	Complete Ch E 308 with a passing grade.

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REQUIREMENT	HOURS	DESCRIPTION
Ch E 317	3	Complete Ch E 317 with a passing grade.
Ch E 345	3	Complete Ch E 345 with a passing grade.
Ch E 411	1	Complete Ch E 411 with a passing grade.
Ch E 417	3	Complete Ch E 417 with a passing grade.
Ch E 421	3	Complete Ch E 421 with a passing grade.
Ch E 423	3	Complete Ch E 423 with a passing grade.
Ch E 445	2	Complete Ch E 445 with a passing grade.
Ch E 446	2	Complete Ch E 446 with a passing grade.
Ch E 451	4	Complete Ch E 451 with a passing grade.
Ch E 452 or Ch E 460/461	3	Complete either Ch E 452 or Ch E 460/461 with a passing grade.
Ch E 412 or 511	3	Complete Ch E 412 or 511 with a passing grade.
Enroll in a BSChE emphasis		Enroll in an emphasis in BSChE program.
School of Engineering GPA		Must be at least a 2.0

Major Requirements II

REQUIREMENT	HOURS	DESCRIPTION
Chem 225	1	Complete Chem 225 with a passing grade.
Chem 222	3	Complete Chem 222 with a passing grade.
Chem 221	3	Complete Chem 221 with a passing grade.
Engr 310	3	Complete Engr 310 with a passing grade.
Engr 313	3	Complete Engr 313 with a passing grade.
Engr 321	3	Complete Engr 321 with a passing grade.
Engr 322	3	Complete Engr 322 with a passing grade.
Engr 309 or Csci 251	3	Complete either Engr 309 or Csci 251 with a passing grade.
Engr 360	3	Complete Engr 360 with a passing grade.

Emphasis - Biotechnology

REQUIREMENT	HOURS	DESCRIPTION
Ch E 520	3	Complete Ch E 520 with a passing grade.
Chem 334	3	Complete Chem 334 with a passing grade.
Phar 331	3	Complete Phar 331 with a passing grade.
Tech elective or Ch E 330	3	Complete a technical elective or ChE R&D Experience (ChE 330).
Add'l hum/soc sci	3	Complete an additional 3 hours in humanities or social sciences.

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