Emphasis - Biotechnology

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

Program Educational Objectives

Graduates from the Department of Chemical Engineering of the University of Mississippi will be:

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

Student Outcomes

In accordance with ABET accreditation requirements, BSChE students at the University of Mississippi should demonstrate the attainment 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

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.

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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.

REQUIREMENT	HOURS	DESCRIPTION
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 101 or 103/104 or Engr 100	2	Complete Ch E 101 or Ch E 103/104 or Engr 100 with a passing grade.
Ch E 251	3	Complete Ch E 251 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.
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 412	3	Complete Ch E 412 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 431	1	Complete Ch E 431 with a passing grade.
Ch E 432	1	Complete Ch E 432 with a passing grade.
Ch E 433	2	Complete Ch E 433 with a passing grade.
Ch E 449 & Ch E 450	4	Complete Ch E 449 & CH E 450 with a passing grade.
Ch E 452	3	Complete Ch E 452 with a passing grade.
Enroll in a BSChE emphasis		Enroll in an emphasis in BSChE program.

REQUIREMENT	HOURS	DESCRIPTION
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 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.

Emphasis - Biotechnology

REQUIREMENT	HOURS	DESCRIPTION
Ch E 520	3	Complete Ch E 520 with a passing grade.
Chem 334, Chem 471, or Bisc 333	3	Complete either Chem 334, Chem 471, or Bisc 333 with a passing grade.
Chem 222 or Bisc sequence	3	Complete either Chem 222 or Bisc 160, 161, 162 and 163 with a passing grade.
1 Biotech Emph Elective	3	Complete either Bisc 333, 509, BME 313, 413, Chem 473, or Pharm 331 with a passing grade.
2 Technical Electives	6	Complete at least 6 credit hours of technical electives at 300 or higher course numbers from among engineering, science, or mathematics with a passing grade. (Alternatives for 300-level technical electives: Chem 222, Manf 253, Manf 254, the combination of [Bisc 160](https://catalog.olemiss.edu/2021/fall/graduate/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.)
3 hrs add'l hum/soc sci/gen ed	3	Complete 3 additional hours of humanities, social science, or a general education course as defined by the School of Engineering with the exception that speech and math content courses such as Psy 202 and Econ 230 may not be used to satisfy any of these required 18 credits.