

Emphasis - Biotechnology

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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, within 3-5 years after graduation, will:

1. Meet or exceed the expectations of employers of chemical engineers;
2. Continue their professional development by pursuing advanced study if they so desire; and
3. Continue their professional development by pursuing leadership opportunities and other positions of service in their profession and/or communities.

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

General Education Requirements

For detailed information see the [the General Education Requirements of the School of Engineering](#).

Students must complete at least 15 hours of general education requirements: 3 hours of fine arts, 6 hours of humanities, and 6 hours of social science, with the exception that math content courses may not be used to satisfy any of these required 15 credits.

Course Requirements

Alternatives for 300-level technical electives: Chem 222, Manf 253, Manf 254, 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.

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, BME 520 or BME 305	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

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

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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.
6 hrs humanities	6	Successfully complete 6 hrs of humanities with a passing grade chosen from the following: African American studies (Aas 201 , 202), classics (Clc), English (Eng 220-226), gender studies (G St 201 , 202), history (Hst), liberal arts (Liba 202 , 305 , 312), philosophy (Phil), religion (Rel), Southern studies (S St 100 -level), and either Hon 101 or 102 (if not being used to fulfill composition requirements).
6 hrs social sciences	6	Students need to complete 6 hours of social science with a passing grade chosen from the following: anthropology (Anth), economics (Econ), liberal arts (Liba 203 , Liba 313), political science (Pol), psychology (Psy), sociology (Soc), and either Hon 101 or Hon 102 (if not being used to fulfill composition requirements).
3 hrs fine arts	3	Complete 3 hrs of fine arts with a passing grade chosen from art history, music, dance, and theatre arts. Studio and workshop courses cannot be used to satisfy this requirement. Courses that satisfy this requirement are any Art History (AH); Liba 130 , 204 , 314 ; Mus 101 , 102 , 103 , 104 , 105 ; Danc 200 ; Thea 201 , 202 .

General Education II

REQUIREMENT	HOURS	DESCRIPTION
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.
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.

Major Requirements

REQUIREMENT	HOURS	DESCRIPTION
Ch E 252	3	Complete Ch E 252 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 316	3	Complete Ch E 316 with a passing grade.
Ch E 318	3	Complete Ch E 318 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.



REQUIREMENT	HOURS	DESCRIPTION
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	3	Complete Ch E 449 with a passing grade.
Ch E 450	1	Complete 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.
School of Engineering GPA		Must be at least a 2.0

Major Requirements II

REQUIREMENT	HOURS	DESCRIPTION
Chem 221	3	Complete Chem 221 with a passing grade.
Chem 225	1	Complete Chem 225 with a passing grade.
Engr 101 & 111	3	Complete Engr 101 and 111 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.
CSci 256	3	Complete CSci 256 with a passing grade.

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REQUIREMENT	HOURS	DESCRIPTION
Ch E/ BME 520 or BME 305	3	Complete Ch E/ BME 520 or BME 305 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/2026/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.)

