

## Emphasis - Manufacturing

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## **B.S.M.E. in Mechanical Engineering**

### **Description**

The B.S.M.E. provides students with fundamentals in the field and a specialization in the following disciplines: mechanics, thermodynamics, fluid mechanics, materials, design, and laboratory diagnostics. The preparation fosters an inquisitiveness and understanding that will preclude future obsolescence of the mechanical engineering graduate.

**Minimum Total Credit Hours: 128**

### **Goals/Mission Statement**

The program educational objectives of the Department of Mechanical Engineering derive their foundation from the statement of purpose for The University of Mississippi's statement of purpose and vision statement. The academic mission of the Department of Mechanical Engineering (ME) is focused on broad, overarching goals that reflect both the academic purpose of the School of Engineering and the university. The stated university goals have been used to refine the goals and objectives of the department. The goals and objectives have been established from input by the faculty, students, and the Ole Miss Engineering School Advisory Board as constituency groups. These goals and objectives are listed as follows.

- Educate students in the broad scope of the mechanical engineering discipline so as to be successful in applying and advancing knowledge in industry, academia, and related fields;
- Conduct basic and applied research in fields related to mechanical engineering to maintain and enhance the quality and reputation of the faculty and the School of Engineering;
- Serve industry, the engineering community, and the community at large in the State of Mississippi, the nation, and the world;
- Teach students the influence of issues related to health, safety, economy, environment, and society while seeking engineering solutions.

This process and these goals have resulted in the development of the Department of Mechanical Engineering curriculum consisting of lecture, design, and laboratory courses that stress the departmental goals. The mechanical engineering faculty, advisory board, and students, as constituency groups, have established the following undergraduate program educational objectives:

1. Graduates will achieve a high level of technical expertise so that they are able to succeed in positions in mechanical engineering practice or in other related fields they choose to pursue.
2. Graduates will produce engineering designs that are based on sound principles and that consider functionality, safety, cost effectiveness, manufacturability, and sustainability.
3. Graduates will involve in community and/or professional organizations, communicate effectively, and exhibit leadership skills in their career.
4. Graduates will increase their own and others' awareness of environmental, social and ethical responsibilities of the engineering profession.

Students of the Bachelor of Science in Mechanical Engineering program will demonstrate achievement of the following student outcomes:

- an ability to apply knowledge of mathematics, science, and engineering
- an ability to design and conduct experiments, as well as 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
- an ability to function on multidisciplinary teams
- an ability to identify, formulate, and solve engineering problems
- an understanding of professional and ethical responsibility
- an ability to communicate effectively
- the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context
- a recognition of the need for, and an ability to engage in life-long learning
- a knowledge of contemporary issues
- an 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, 353, and 375; laboratory science to be fulfilled by Chem 105, 106, 115, 116 and Phys 211, 212, 221, 222. Students must complete 18 hours of general education requirements as specified by the School of Engineering.

### **Course Requirements**

Specific requirements for the B.S.M.E. include Csci 251; Econ 310; Engr 207, 309, 310, 312, 313, 314, 321, 322, 330, 362, 363, 553; M E 324, 325, 401, 402, 404, 416, 419, 427, 428, 438.

One technical elective must be chosen from Engineering Elective A (includes 1 hour of design): M E 405, 417, 418, 422, 523, 524, 526, 527, 531, 534, 535, 538, 540, 541, 555.

A second technical elective must be chosen from any of the Engineering Elective A courses or from Engineering Elective B courses, including M E 421, 521, 522, 530, 532, 533, Engr 410, 515, 558, 559, 585, 590, 593.

## **Emphasis - Manufacturing**



## Description

The B.S.M.E. provides students with fundamentals in the field and a specialization in the following disciplines: mechanics, materials, thermodynamics, fluid mechanics, design, and laboratory diagnostics. The preparation fosters an inquisitiveness and understanding that will preclude future obsolescence of the mechanical engineering graduate. An emphasis in manufacturing is also available under the B.S.M.E. degree in cooperation with the Center for Manufacturing Excellence. The B.S.M.E. with emphasis in manufacturing provides broad training in the basic and engineering sciences along with a cross-disciplinary account and business focus on manufacturing.

## 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, 115 and Phys 211, 212, 221, 222. The required 18 hours of humanities/behavioral and social science/fine arts are as specified by the School of Engineering general education requirements but must include Bus 250 and Econ 310.

## Course Requirements

Specific requirements for the B.S.M.E. with an emphasis in manufacturing include Csci 251; Engr 309, 312, 313, 314, 321, 322, 330, 362, 420, 553; M E 324, 325, 404, 416, 419, 427, 428; Manf 150, 250, 251, 252, 253, 254, 350, 351, 450, 451.

Two electives are required. One elective may be chosen from Mechanical Engineering Elective A (includes 1 hour of design): M E 417, 418, 422, 523, 524, 526, 527, 531, 534, 535, 538, 540, 541, 555.

A second elective may be chosen from any of the Mechanical Engineering Elective A courses or from Mechanical Engineering Elective B courses, including M E 421, 521, 522, 530, 532, 533; Engr 410, 515, 558, 559, 585, 590, 593.

Or, both electives may be chosen from Accy 201, Bus 321, Fin 331, Mgmt 372, Mgmt 383, Mktg 351.

## 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.M.E. in Mechanical Engineering

### General Education

REQUIREMENT	HOURS	DESCRIPTION
<a href="#">Chem 105</a>	3	Complete <a href="#">Chem 105</a> with a passing grade.
<a href="#">Chem 115</a>	1	Complete <a href="#">Chem 115</a> with a passing grade.
First Year Writing I	3	Complete <a href="#">Hon 101</a> , <a href="#">Writ 100</a> or <a href="#">Writ 101</a> with a passing grade.
First Year Writing II	3	Complete one of the following courses with a passing grade: <a href="#">Liba 102</a> , <a href="#">Writ 102</a> or <a href="#">Hon 102</a> .
<a href="#">Math 261</a>	3	Complete <a href="#">Math 261</a> with a passing grade.
<a href="#">Math 262</a>	3	Complete <a href="#">Math 262</a> with a passing grade.
<a href="#">Math 263</a>	3	Complete <a href="#">Math 263</a> with a passing grade.
<a href="#">Math 264</a>	3	Complete <a href="#">Math 264</a> with a passing grade.
<a href="#">Math 353</a>	3	Complete <a href="#">Math 353</a> with a passing grade.
<a href="#">Math 375</a>	3	Complete <a href="#">Math 375</a> with a passing grade.
<a href="#">Phys 211</a>	3	Complete <a href="#">Phys 211</a> with a passing grade.
<a href="#">Phys 212</a>	3	Complete <a href="#">Phys 212</a> with a passing grade.
<a href="#">Phys 221</a>	1	Complete <a href="#">Phys 221</a> with a passing grade.
<a href="#">Phys 222</a>	1	Complete <a href="#">Phys 222</a> with a passing grade.
3 hrs fine arts/humanities	3	Complete 3 hours of humanities or fine arts choosing from course work in classics, literature, history, modern language, philosophy, religion, Southern studies, African American Studies, and Gender Studies; art history, art appreciation, and criticism of art, dance, music, and theatre arts. Courses emphasizing the enhancement of skills and performance are not acceptable.
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.
3 hrs humanities	3	Complete 3 hrs of humanities choosing from course work in classics, literature, history, modern language, philosophy, religion, Southern studies, African American Studies, and Gender Studies.
3 hrs social science	3	Complete 3 hours of social sciences choosing from the following; economics, anthropology, political science, psychology, and sociology.

### General Education (non-emphasis)

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](http://www.sacscoc.org) for questions about the accreditation.



REQUIREMENT	HOURS	DESCRIPTION
<a href="#">Chem 106</a>	3	Complete <a href="#">Chem 106</a> with a passing grade.
<a href="#">Chem 116</a>	1	Complete <a href="#">Chem 116</a> with a passing grade.
3 add'l hrs social science	3	Complete 3 additional hours of social sciences choosing from the following; economics, anthropology, political science, psychology, and sociology.
3 hrs general education work	3	Complete 3 hrs General Education work chosen from the following: additional fine art, additional social science, additional humanities, <a href="#">As 301</a> , <a href="#">As 302</a> , <a href="#">Bus 250</a> , <a href="#">Bus 271</a> , <a href="#">Edld 110</a> , <a href="#">Edld 111</a> , <a href="#">Edld 120</a> , <a href="#">Edld 220</a> , <a href="#">Engr 400</a> , <a href="#">Mgmt 371</a> , <a href="#">Msl 102</a> , <a href="#">Nsc 211</a> , or <a href="#">Spch 105</a> .

### Major Requirements

REQUIREMENT	HOURS	DESCRIPTION
<a href="#">M E 324</a>	3	Complete <a href="#">M E 324</a> with a passing grade.
<a href="#">M E 325</a>	3	Complete <a href="#">M E 325</a> with a passing grade.
<a href="#">M E 401</a> or <a href="#">Engr 551</a>	3	Complete either <a href="#">M E 401</a> or <a href="#">Engr 551</a> with a passing grade.
<a href="#">M E 427</a>	4	Complete <a href="#">M E 427</a> with a passing grade.
<a href="#">M E 419</a>	1	Complete <a href="#">M E 419</a> with a passing grade.
<a href="#">M E 416</a>	1	Complete <a href="#">M E 416</a> with a passing grade.
School of Engineering GPA		Must be at least a 2.0

### Major Requirements II

REQUIREMENT	HOURS	DESCRIPTION
<a href="#">Csci 251</a>	3	Complete <a href="#">Csci 251</a> with a passing grade.
<a href="#">Econ 310</a>	3	Complete <a href="#">Econ 310</a> with a passing grade.
<a href="#">Engr 309</a>	3	Complete <a href="#">Engr 309</a> with a passing grade.
<a href="#">Engr 310</a>	3	Complete <a href="#">Engr 310</a> with a passing grade.
<a href="#">Engr 312</a>	3	Complete <a href="#">Engr 312</a> with a passing grade.
<a href="#">Engr 313</a>	3	Complete <a href="#">Engr 313</a> with a passing grade.
<a href="#">Engr 314</a>	1	Complete <a href="#">Engr 314</a> with a passing grade.
<a href="#">Engr 321</a>	3	Complete <a href="#">Engr 321</a> with a passing grade.
<a href="#">Engr 323</a>	3	Complete <a href="#">Engr 323</a> with a passing grade.
<a href="#">Engr 330</a>	3	Complete <a href="#">Engr 330</a> with a passing grade.
<a href="#">Engr 362</a>	3	Complete <a href="#">Engr 362</a> with a passing grade.
<a href="#">Engr 553</a>	3	Complete <a href="#">Engr 553</a> with passing grade

### Non-specialization Requirements

REQUIREMENT	HOURS	DESCRIPTION
<a href="#">M E 401</a>	3	Complete <a href="#">M E 401</a> with a passing grade.
<a href="#">M E 402</a>	3	Complete <a href="#">M E 402</a> with a passing grade.
<a href="#">M E 428</a>	3	Complete <a href="#">M E 428</a> with a passing grade.
<a href="#">M E 438</a>	3	Complete <a href="#">M E 438</a> with a passing grade.
<a href="#">Engr 207</a>	1	Complete <a href="#">Engr 207</a> with a passing grade.
<a href="#">Engr 363</a>	1	Complete <a href="#">Engr 363</a> with a passing grade.
1 Group A elective	3	Complete 1 Mechanical Engineering Technical elective from the following <a href="#">M E 405</a> , <a href="#">M E 417</a> , <a href="#">M E 418</a> , <a href="#">M E 422</a> , <a href="#">M E 523</a> , <a href="#">M E 524</a> , <a href="#">M E 526</a> , <a href="#">M E 527</a> , <a href="#">M E 531</a> , <a href="#">M E 534</a> , <a href="#">M E 535</a> , <a href="#">M E 538</a> , <a href="#">M E 540</a> , <a href="#">M E 541</a> , <a href="#">M E 555</a>



REQUIREMENT	HOURS	DESCRIPTION
1 Group A or Group B Elective	3	Complete 1 Mechanical Engineering Technical elective from Elective A courses, including <a href="#">M E 405</a> , <a href="#">M E 417</a> , <a href="#">M E 418</a> , <a href="#">M E 422</a> , <a href="#">M E 523</a> , <a href="#">M E 524</a> , <a href="#">M E 526</a> , <a href="#">M E 527</a> , <a href="#">M E 531</a> , <a href="#">M E 534</a> , <a href="#">M E 535</a> , <a href="#">M E 538</a> , <a href="#">M E 540</a> , <a href="#">M E 541</a> , <a href="#">M E 555</a> OR Elective B courses, including <a href="#">M E 421</a> , <a href="#">M E 521</a> , <a href="#">M E 522</a> , <a href="#">M E 530</a> , <a href="#">M E 533</a> , <a href="#">Engr 410</a> , <a href="#">Engr 515</a> , <a href="#">Engr 558</a> , <a href="#">Engr 559</a> , <a href="#">Engr 585</a> , <a href="#">Engr 590</a> , <a href="#">Engr 593</a> , <a href="#">M E 417</a> , <a href="#">M E 418</a> , <a href="#">M E 422</a> , <a href="#">M E 523</a> , <a href="#">M E 524</a> , <a href="#">M E 526</a> , <a href="#">M E 527</a> , <a href="#">M E 531</a> , <a href="#">M E 534</a> , <a href="#">M E 535</a> , <a href="#">M E 538</a> , <a href="#">M E 540</a> , <a href="#">M E 541</a> , <a href="#">M E 555</a> , <a href="#">M E 405</a>

### Emphasis - Manufacturing

REQUIREMENT	HOURS	DESCRIPTION
<a href="#">Bus 250</a>	3	Complete <a href="#">Bus 250</a> with a passing grade.
<a href="#">Manf 150</a>	1	Complete <a href="#">Manf 150</a> with a passing grade.
<a href="#">Manf 250</a>	1	Complete <a href="#">Manf 250</a> with a passing grade.
<a href="#">Manf 251</a>	3	Complete <a href="#">Manf 251</a> with a passing grade.
<a href="#">Manf 252</a>	1	Complete <a href="#">Manf 252</a> with a passing grade.
<a href="#">Manf 253</a>	3	Complete <a href="#">Manf 253</a> with a passing grade.
<a href="#">Manf 254</a>	3	Complete <a href="#">Manf 254</a> with a passing grade.
<a href="#">Manf 350</a>	3	Complete <a href="#">Manf 350</a> with a passing grade.
<a href="#">Manf 351</a>	1	Complete <a href="#">Manf 351</a> with a passing grade.
<a href="#">Manf 451</a>	1	Complete <a href="#">Manf 451</a> with a passing grade.
<a href="#">Manf 450</a>	3	Complete <a href="#">Manf 450</a> with a passing grade.
2 Manf Technical electives	6	Choose two electives from the following courses: <a href="#">M E 417</a> , <a href="#">418</a> , <a href="#">422</a> , <a href="#">523</a> , <a href="#">524</a> , <a href="#">526</a> , <a href="#">527</a> , <a href="#">531</a> , <a href="#">534</a> , <a href="#">535</a> , <a href="#">538</a> , <a href="#">540</a> , <a href="#">541</a> , <a href="#">555</a> ; <a href="#">M E 421</a> , <a href="#">521</a> , <a href="#">522</a> , <a href="#">530</a> , <a href="#">532</a> , <a href="#">533</a> ; <a href="#">Engr 410</a> , <a href="#">515</a> , <a href="#">558</a> , <a href="#">559</a> , <a href="#">585</a> , <a href="#">590</a> , <a href="#">593</a> ; <a href="#">Accy 201</a> , <a href="#">Bus 321</a> , <a href="#">Fin 331</a> , <a href="#">Mgmt 372</a> , <a href="#">Mgmt 383</a> , <a href="#">Mktg 351</a> .

