

## Emphasis - Aerospace Engineering

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### **B.S. in Engineering Description**

The B.S. in engineering provides the student with a fundamental knowledge of 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: 127**

### **Goals/Mission Statement**

#### **Program Educational Objectives**

Graduates from the program, within 3-5 years after graduation, will:

- Meet or exceed the expectations of employers of general engineers;
- Continue their professional development by pursuing advanced study, including licensure and certifications if they so desire; and
- Continue their professional development by pursuing leadership opportunities and other positions of service in their profession and/or communities.

### **Student Outcomes**

BSE 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**

- Writ 101 and 102
- 3 hours of fine arts
- 3 hours of humanities
- 3 hours of fine arts, languages (modern, Greek, or Latin), or humanities
- 3 hours of social science
- 3 additional hours of humanities, languages (modern, Greek, or Latin), social science, or a general education course as defined by the School of Engineering
- Econ 310
- Math 261, 262, 263, 264, and 353
- Chem 105, 106, 115, 116
- Phys 211, 212, 221, 222

### **Course Requirements**

- Engr 100 or Engr 102,
- Csci 251
- Engr 309, 310, 312, 313, 314, 321, 323, 330, 360, 361, 400, and Engr 450
- Manf 460
- 12 hours of approved engineering electives
  - 3 hours of which must be above the 200 level and
  - 9 hours of which must be above the 300 level
- The pre-approved engineering electives are Engr 340, BME 200, BME 222, BME 301, BME 311, BME 313, BME 314, BME 333, BME 350, BME 370, BME 510, BME 523, BME 524, Ch E 307, Ch E 308, Ch E 413, Ch E 520, Ch E 521, Ch E 522, Ch E 523, Ch E 524, C E 207, C E 208, C E 210, C E 325, C E 471, C E 472, Csci 111, Csci 112, Csci 343, El E 235, El E 331, G E 305, G E 405, M E 324, M E 325, M E 401, M E 406, and M E 421. Engineering courses not included in this list must be pre-approved by the director of general engineering



## Emphasis - Aerospace Engineering Description

"The emphasis in aerospace engineering provides a cross-disciplinary foundation in topics critical to the modern aerospace industry. The curriculum provides core knowledge in typical aerospace topics such as fluid mechanics and structures while also providing a foundation in digital architectures and programming, materials, and electrical systems. The curriculum appropriately prepares the student for either entry into the aerospace industry or to graduate education in aerospace-related fields. Electives can be selected under approval of the student's academic adviser to further a knowledge base in relevant aerospace areas such as flight mechanics, controls, and digital systems, and communications."

### Course Requirements

Engineering Electives (12 hours) \* Ch E 316: Chemical Engineering Fluid Mechanics (3) \* M E 401: Thermo-Fluid Dynamics (3) \* M E 402: Elements of Propulsion (3) \* M E 529: Aerodynamics (3)

Emphasis Courses (3 hours) \* PHYS 308: Mathematical Physics (3)

Emphasis Courses (select 9 hours from suggested or other by approval) Csci 111, Csci 112, ISS 125, EI E 235, EI E 236, PHYS 310, Csci 325, Csci 356, C E 310, M E 527

Open Emphasis Hours (6 hours open for student selection based on interest)

### 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. in Engineering

### General Education

REQUIREMENT	HOURS	DESCRIPTION
First Year Writing I	3	Successfully complete <a href="#">Hon 101</a> , <a href="#">Writ 100</a> , or <a href="#">Writ 101</a> .
First Year Writing II	3	Successfully complete one of the following courses: Liba 1 <a href="#">Writ 102</a> or <a href="#">Hon 102</a> .
3 hrs humanities	3	Successfully complete 3 hrs of humanities with a passing grade chosen from the following: African American studies ( <a href="#">Aas 201</a> , <a href="#">202</a> ), classics (Clc), environmental studies ( <a href="#">Envs 101</a> ), gender studies ( <a href="#">G St 201</a> , <a href="#">202</a> ), history (Hst), liberal arts ( <a href="#">Liba 202</a> , <a href="#">305</a> , <a href="#">312</a> ), literature ( <a href="#">Eng 103</a> , <a href="#">220-226</a> ), philosophy (Phil), religion (Rel), Southern studies 100-level, and either <a href="#">Hon 101</a> or <a href="#">102</a> (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); <a href="#">Liba 130</a> , <a href="#">204</a> , <a href="#">314</a> ; <a href="#">Mus 101</a> , <a href="#">102</a> , <a href="#">103</a> , <a href="#">104</a> , <a href="#">105</a> ; <a href="#">Danc 200</a> ; <a href="#">Thea 201</a> , <a href="#">202</a> .
3 hrs FA/Lang/Hum	3	Successfully complete 3 hrs of Fine Arts, Humanities, or Modern language with a passing grade. Modern Language include courses in courses in Ancient Greek (Gr), Arabic (Arab) nd Swahili (Swa). (Japn), Korean (Kor), Latin (Lat), Portuguese (Port), Russian (Russ), Spanish
<a href="#">Econ 310</a>	3	Successfully complete <a href="#">Econ 310</a> .

### General Education II

REQUIREMENT	HOURS	DESCRIPTION
<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="#">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.
<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.
<a href="#">Phys 211</a>	3	Complete <a href="#">Phys 211</a> with a passing grade.
<a href="#">Phys 221</a>	1	Complete <a href="#">Phys 221</a> with a passing grade.
<a href="#">Phys 212</a>	3	Complete <a href="#">Phys 212</a> with a passing grade.
<a href="#">Phys 222</a>	1	Complete <a href="#">Phys 222</a> with a passing grade.



## Major Requirements

REQUIREMENT	HOURS	DESCRIPTION
<a href="#">Engr 100</a> or <a href="#">Engr 102</a>	3	Complete <a href="#">Engr 100</a> or <a href="#">Engr 102</a> with a passing grade.
<a href="#">CSci 251</a>	3	Complete <a href="#">CSci 251</a> with a passing grade.
<a href="#">Engr 201</a>	3	Complete <a href="#">Engr 201</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 360</a>	3	Complete <a href="#">Engr 360</a> with a passing grade.
<a href="#">Engr 361</a>	1	Complete <a href="#">Engr 361</a> with a passing grade.
<a href="#">Engr 400</a>	1	Complete <a href="#">Engr 400</a> with a passing grade.
<a href="#">Engr 431</a>	3	Complete <a href="#">Engr 431</a> with a passing grade.
<a href="#">Engr 451</a>	2	Complete <a href="#">Engr 451</a> with a passing grade.
<a href="#">Engr 452</a>	1	Complete <a href="#">Engr 452</a> with a passing grade.
<a href="#">Manf 460</a>	3	Complete <a href="#">Manf 460</a> with a passing grade.
12 hrs approved engr electives	12	Complete 12 hours of approved engineering electives with 9 hrs at the 300+ level chosen from: <a href="#">Engr 340</a> , <a href="#">BME 200</a> , <a href="#">BME 222</a> , <a href="#">BME 301</a> , <a href="#">BME 311</a> , <a href="#">BME 313</a> , <a href="#">BME 314</a> , <a href="#">BME 333</a> , <a href="#">BME 350</a> , <a href="#">BME 370</a> , <a href="#">BME 510</a> , <a href="#">BME 523</a> , <a href="#">BME 524</a> , <a href="#">Ch E 307</a> , <a href="#">Ch E 308</a> , <a href="#">Ch E 413</a> , <a href="#">Ch E 520</a> , <a href="#">Ch E 521</a> , <a href="#">Ch E 522</a> , <a href="#">Ch E 523</a> , <a href="#">Ch E 524</a> , <a href="#">C E 207</a> , <a href="#">C E 208</a> , <a href="#">C E 210</a> , <a href="#">C E 325</a> , <a href="#">C E 471</a> , <a href="#">C E 472</a> , <a href="#">Csci 111</a> , <a href="#">Csci 112</a> , <a href="#">Csci 343</a> , <a href="#">El E 235</a> , <a href="#">El E 331</a> , <a href="#">G E 305</a> , <a href="#">G E 405</a> , <a href="#">M E 324</a> , <a href="#">M E 325</a> , <a href="#">M E 401</a> , <a href="#">M E 406</a> , and <a href="#">M E 421</a>

## Emphasis - Aerospace Engineering

REQUIREMENT	HOURS	DESCRIPTION
<a href="#">Phys 308</a>	3	Complete <a href="#">Phys 308</a> with a passing grade.
9 hrs ae electives (BS Engr (ae))	9	Complete 9 hrs of electives with a passing grade chosen from the following: <a href="#">CSci 111</a> , <a href="#">112</a> , <a href="#">325</a> , <a href="#">356</a> ISS <a href="#">125</a> , <a href="#">El E 235</a> , <a href="#">236</a> , <a href="#">Phys 310</a> , <a href="#">C E 310</a> , and <a href="#">M E 527</a> .
6 hrs general electives	6	Complete 6 hrs of electives of your choice.
<a href="#">Ch E 316</a>	3	Complete <a href="#">Ch E 316</a> with a passing grade. This course is meant to share with Engineering electives.
<a href="#">M E 401</a>	3	Complete <a href="#">M E 401</a> with a passing grade. This course is intended to share with Engineering Electives.
<a href="#">M E 402</a>	3	Complete <a href="#">M E 402</a> with a passing grade. This course is intended to share with Engineering electives.
<a href="#">M E 529</a>	3	Complete <a href="#">M E 529</a> with a passing grade. This course is intended to share with Engineering Electives.
3 hrs social sciences	3	Successfully complete 3 hrs of social science with a passing grade chosen from anthropology (Anth), economics (Econ), political science (Pol), psychology (Psy), sociology (Soc), <a href="#">Liba 203</a> , <a href="#">313</a> , or <a href="#">Hon 101</a> , <a href="#">102</a>
3 hrs gen ed, lang, or SS/H/FA	3	Complete 3 additional hours with a passing grade of humanities, languages (modern, Greek, or Latin), social science, or a general education course as defined by the School of Engineering

