The Department of Aerospace Engineering at Mississippi State University provides an accredited undergraduate curriculum with the mission of preparing students to enter the workplace as qualified entry-level aerospace engineers or to enter any aerospace engineering graduate program adequately prepared for advanced study. This mission is accomplished by a strong foundation in mathematics and physical and engineering sciences upon which student problem-solving and application skills are developed. The curriculum stresses analytical and communication skills, with particular emphasis placed on engineering design throughout the curriculum. A capstone design experience in the senior year provides the opportunity to integrate design, analytical, and problem-solving skills along with communication skills in a team environment that emulates aerospace engineering practice.

The mission is accomplished by the following educational objectives, which describe the career and professional accomplishments we are preparing our graduates to achieve. Our graduates will:

1. Be involved in solving unstructured engineering problems within their organization that will allow them to successfully advance in the engineering profession.
2. Be engaged in lifelong learning and pursue professional development through actions such as persistent study of the current literature in the field, participation in graduate education, professional education or continuing education opportunities, attainment of professional licensure, or membership in professional societies.
3. Be professionally and ethically responsible to the profession, society, and the environment incumbent on an engineering professional.
4. Collaborate successfully and positively on multi-disciplinary, culturally-diverse teams in support of their organizational goals.
5. Communicate effectively in various settings and contexts by activities such as writing technical reports and peer-reviewed articles and presenting at technical interchanges.

These objectives are accomplished in two different concentrations in the aerospace engineering curriculum, an aeronautics concentration and an astronautics concentration. The concentration in aeronautics focuses on the analysis and design of aircraft and other vehicles that operate primarily within the earth’s atmosphere, and the concentration in astronautics focuses on the analysis and design of spacecraft and other vehicles that operate primarily outside the earth’s atmosphere. A student in aerospace engineering will choose one of these two concentrations upon choosing the aerospace engineering major.

The aerospace engineering program is accredited by the Engineering Accreditation Commission of ABET, http://www.abet.org.

**General Education Requirements**

**English Composition**

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<tr>
<th>Course</th>
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<tr>
<td>EN 1103</td>
<td>English Composition I</td>
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<td>or EN 1163</td>
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</tr>
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<td>EN 1113</td>
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<tr>
<td>or EN 1173</td>
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**Mathematics**

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<tr>
<td>MA 1713</td>
<td>Calculus I</td>
<td>3</td>
</tr>
<tr>
<td>MA 1723</td>
<td>Calculus II</td>
<td>3</td>
</tr>
<tr>
<td>MA 2733</td>
<td>Calculus III</td>
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<td>Calculus IV</td>
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<tr>
<td>MA 3113</td>
<td>Introduction to Linear Algebra</td>
<td>3</td>
</tr>
<tr>
<td>MA 3253</td>
<td>Differential Equations I</td>
<td>3</td>
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<tr>
<td>CH 1213</td>
<td>Chemistry I</td>
<td>3</td>
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<tr>
<td>CH 1211</td>
<td>Investigations in Chemistry I</td>
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<td>PH 2213</td>
<td>Physics I</td>
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<td>PH 2223</td>
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<td>PH 2233</td>
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**Engineering Topics**

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<tbody>
<tr>
<td>ECE 3413</td>
<td>Introduction to Electronic Circuits</td>
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</tr>
<tr>
<td>EM 2413</td>
<td>Engineering Mechanics I</td>
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</tr>
<tr>
<td>EM 2433</td>
<td>Engineering Mechanics II</td>
<td>3</td>
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<tr>
<td>EM 3213</td>
<td>Mechanics of Materials</td>
<td>3</td>
</tr>
<tr>
<td>EM 3313</td>
<td>Fluid Mechanics</td>
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<tr>
<td>EM 3413</td>
<td>Vibrations</td>
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<tr>
<td>ASE 1013</td>
<td>Introduction to Aerospace Engineering</td>
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<tr>
<td>ASE 2013</td>
<td>Astrodynamics, Propulsion and Structures</td>
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<td>ASE 2113</td>
<td>Introduction to Aircraft and Spacecraft Performance</td>
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<td>ASE 3233</td>
<td>Aerospace Structural Analysis I</td>
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<td>ASE 3243</td>
<td>Aerospace Structural Analysis II</td>
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<td>ASE 3333</td>
<td>Aerothermodynamics</td>
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<tr>
<td>ASE 4113</td>
<td>Aerospace Engineering Laboratory I</td>
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<tr>
<td>ASE 4123</td>
<td>Aerospace Controls</td>
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<td>ASE 4343</td>
<td>Compressible Aerodynamics</td>
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<td>ASE 4623</td>
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<tr>
<td>ASE 4721</td>
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Technical Electives | 6

**Oral Communication Requirement**

Satisfied by successful completion of ASE 2013, ASE 4513/ASE 4523 or ASE 4533/ASE 4543, ASE 4623, ASE 4721 and GE 3513.

**Writing Requirement**

<table>
<thead>
<tr>
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<td>GE 3513</td>
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**Computer Literacy**

Satisfied by successful completion of ASE 1013, ASE 2013, and ASE 2113.

**Choose one of the following concentrations:** 15

**Aeronautics Concentration (ARO)**

<table>
<thead>
<tr>
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<tr>
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<tr>
<td>ASE 3313</td>
<td>Incompressible Aerodynamics</td>
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<tr>
<td>ASE 4413</td>
<td>Aircraft Propulsion</td>
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<tr>
<td>ASE 4513</td>
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<tr>
<td>ASE 4523</td>
<td>Aircraft Design II</td>
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**Astronautics Concentration (ASO)**

<table>
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<tr>
<td>ASE 3813</td>
<td>Introduction to Orbital Mechanics</td>
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<tr>
<td>ASE 3823</td>
<td>Spacecraft Attitude Dynamics</td>
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<td>ASE 4443</td>
<td>Spacecraft Propulsion</td>
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<tr>
<td>ASE 4533</td>
<td>Spacecraft Design I</td>
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<tr>
<td>ASE 4543</td>
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</table>

**Total hours** 128

1 The department maintains a list of pre-approved math/science electives on its website. Other courses may be selected upon approval of the department.
Technical electives may be selected from any of the department’s listing of Advanced Undergraduate/Graduate Courses, plus EM 4123, EM 4133 and EM 4143. Other courses may be selected upon approval of the department. All required courses in one concentration qualify as technical electives for students in the other concentration.