MECHANICAL ENGINEERING: PRE-MEDICAL, BSME

Requirements for Students Matriculating in or before Academic Year 2020-2021. Learn more about University Academic Regulation 3.1 (http://catalog.okstate.edu/university-academic-regulations/#matriculation).

Minimum Overall Grade Point Average: 2.00
Total Hours: 135

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
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<tbody>
<tr>
<td>ENGL 1113</td>
<td>Composition I 1</td>
<td>3</td>
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<tr>
<td>or ENGL 1313</td>
<td>Critical Analysis and Writing I</td>
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<tr>
<td>Select one of the following:</td>
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<td>3</td>
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<tr>
<td>ENGL 1213</td>
<td>Composition II 1</td>
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<tr>
<td>ENGL 1413</td>
<td>Critical Analysis and Writing II 1</td>
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<tr>
<td>ENGL 3323</td>
<td>Technical Writing 1</td>
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American History & Government
Select one of the following: 3
- HIST 1103 | Survey of American History          |        |
- HIST 1483 | American History to 1865 (H)        |        |
- HIST 1493 | American History Since 1865 (DH)   |        |
- POLS 1113 | American Government                 | 3     |

Analytical & Quantitative Thought (A)
- MATH 2144 | Calculus I (A) 1                    | 4     |
- MATH 2153 | Calculus II (A) 1                   | 3     |
- MATH 2163 | Calculus III 1                      | 3     |
- MATH 2233 | Differential Equations 1            | 3     |

Humanities (H)
Select 3 hours designated (H) from PHIL 2 3
Select 3 hours designated (H) from ENGL 3

Natural Sciences (N)
Must include one Laboratory Science (L) course
- CHEM 1515 | Chemistry II (LN) 1                 | 5     |
- BIOL 1114 | Introductory Biology (LN)           | 4     |

Social & Behavioral Sciences (S)
Select 3 hours designated (S) from PSYC or SOC 2 3

Hours Subtotal 43

Diversity (D) & International Dimension (I)
May be completed in any part of the degree plan
Select at least one Diversity (D) course
Select at least one International Dimension (I) course

College/Departmental Requirements

Basic Science
- PHYS 2014 | University Physics I (LN) 1         | 4     |
- PHYS 2114 | University Physics II (LN) 1        | 4     |

Engineering and Engineering Science
- ENGR 1111 | Introduction to Engineering 1       | 1     |
- ENGR 1332 | Engineering Design for MAE 1        | 2     |
- ENGR 1412 | Introductory Engineering Computer   | 2     |
- ENGR 2421 | Engineering Data Acquisition Controls Lab 1 | 1 |
- ENSC 2113 | Statics 1                           | 3     |
- ENSC 2123 | Elementary Dynamics 1               | 3     |
- ENSC 2141 | Strength of Materials Lab 1         | 1     |
- ENSC 2143 | Strength of Materials                | 3     |
- ENSC 2213 | Thermodynamics 1                    | 3     |
- ENSC 2613 | Introduction to Electrical Science 1 | 3     |

Hours Subtotal 37

Upper Division Major Requirements 3
- ENSC 3231 | Fluids and Hydraulics Lab           | 1     |
- ENSC 3313 | Materials Science                   | 3     |
- MAE 3013 | Engineering Analysis and Methods I  | 3     |
- MAE 3153 | Introduction to MAE Design          | 3     |
- MAE 3233 | Heat Transfer                       | 3     |
- MAE 3333 | Fundamental Fluid Dynamics          | 3     |
- MAE 3324 | Mechanical Design I                 | 4     |
- MAE 3403 | Computer Methods in Analysis and Design | 3 |
- MAE 3524 | Thermal Fluids Design               | 4     |
- MAE 3724 | Dynamic Systems Analysis and Introduction to Control | 4 |
- CHEM 3112 | Organic Chemistry Laboratory        | 2     |
- CHEM 3153 | Organic Chemistry II                | 3     |
- IEM 3503 | Engineering Economic Analysis       | 3     |
- MICR 3033 | Cell and Molecular Biology          | 3     |
Select 7 hours of the following 2 categories, selecting one course from each category so that both categories are represented:

Category I (Realization): 3
- MAE 4243 | Aerospace Propulsion and Power      |        |
- MAE 4263 | Energy Conversion Systems           |        |
- MAE 4353 | Mechanical Design II                |        |
- MAE 4363 | Advanced Methods in Design          |        |
- MAE 4513 | Aerospace Structures                |        |
- MAE 4623 | Biomechanics                        |        |
- MAE 4703 | Design of Indoor Environmental Systems |        |
- MAE 4713 | Thermal Systems Realization         |        |
- MAE 4723 | Refrigeration Systems Design        |        |

Category II (Capstone Design): 3
- MAE 4344 | Design Projects                     |        |
- MAE 4354 | Aerospace Systems Design for Mechanical Engineers | |

Upper Division Elective Requirements
6 hours of MAE electives to be selected from the following list, or from courses in the Category I listed above, but not used to satisfy the category requirement:
- MAE 3033 | Design of Machines and Mechanisms  |
MAE 3123 Manufacturing Processes
MAE 3223 Thermodynamics II
MAE 3253 Applied Aerodynamics and Performance
MAE 3293 Fundamentals of Aerodynamics
MAE 4053 Automatic Control Systems
MAE 4063 Mechanical Vibrations
MAE 4273 Experimental Fluid Dynamics
MAE 4313 Advanced Processing of Engineered Materials
MAE 4333 Mechanical Metallurgy
MAE 4583 Corrosion
MAE 4733 Mechatronics Design

The following are suggested, but not required:
BIOC 3653 Survey of Biochemistry
BIOL 3023 General Genetics
BIOL 3204 Physiology
BIOL 4134 Embryology
CHEM 1314 is recommended with CHEM 1515 to meet the Oklahoma medical schools’ requirement for 9 hours of inorganic chemistry

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<th>Hours Subtotal</th>
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1. MAE requires grades of "C" or better in all prerequisite courses, their prerequisites, and courses that directly support ABET* student outcomes.

2. Denotes medical school requirements. PSYC 1113 Introductory Psychology (S) is recommended to satisfy (3) hours of (S) requirement. PHIL 3833 Biomedical Ethics (H) is recommended to satisfy (3) hours of (H) requirement.

3. Grades of "C" or higher in all Upper Division Major Requirements courses and ME Realization Category course and Capstone Design Category course.

Note: The entrance requirements of medical schools of choice should be reviewed to ensure an application is competitive.

* ABET is the Accreditation Board for Engineering and Technology, who accredits the Pre-medical, BSME degree.

**Graduation Requirements**

1. A minimum Technical GPA of 2.00. The Technical GPA is calculated from all courses in the curriculum with a prefix belonging to the degree program, or substitutions for these courses.

2. A "C" or better is required in each course that is designated with footnote 1 and footnote 3. In cases where there is a choice on a course that has footnote 1, the footnote applies to both courses.

3. The major engineering design experience, capstone course, is satisfied by MAE 4344 Design Projects or MAE 4354 Aerospace Systems Design for Mechanical Engineers.

**Additional State/OSU Requirements**

- Limit of: one-half of major course requirements as transfer work; one-fourth of hours earned by correspondence; 8 transfer correspondence hours.
- Students will be held responsible for degree requirements in effect at the time of matriculation and any changes that are made, so long as these changes do not result in semester credit hours being added or do not delay graduation.
- Degrees that follow this plan must be completed by the end of Summer 2026.