MECHANICAL ENGINEERING: PRE-MEDICAL, BSME

Requirements for Students Matriculating in or before Academic Year 2023-2024. 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

Code	Title	Hours
General Education Requirements		
All General Education coursework requirements are satisfied upon completion of this degree plan		
English Composition		
See Academic Regulation 3.5 (http://catalog.okstate.edu/university-academic-regulations/#english-composition)		
ENGL 1113	Composition I [1]	3
or ENGL 1313	Critical Analysis and Writing I	
Select one of the following:		3
ENGL 1213	Composition II [1]	
ENGL 1413	Critical Analysis and Writing II [1]	
ENGL 3323	Technical Writing [1]	
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) [1]		
Must include one Laboratory Science (L) course		
BIOL 1113 & BIOL 1111	Introductory Biology (N) and Introductory Biology Laboratory (LN)	4
or BIOL 1114	Introductory Biology (LN)	
CHEM 1515	Chemistry II (LN) [1]	5
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		
BIOL 1604	Animal Biology	4
CHEM 3053	Organic Chemistry I	3
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 with CAD for MAE [1]	2
ENGR 1412	Introductory Engineering Computer Programming [1]	2
ENSC 2113	Statics [1]	3
ENSC 2123	Elementary Dynamics [1]	3
ENSC 2143	Strength of Materials [1]	3
ENSC 2213	Thermodynamics [1]	3
ENSC 2613	Introduction to Electrical Science [1]	3
Select one of the below laboratory options: [1]		3
OPTION 1 (ENGR 2421 is required for this option)		
ENGR 2421	Engineering Data Acquisition Controls Lab	
and two more from the following options:		
ENSC 2141	Strength of Materials Lab	
ENSC 2411	Electrical Science Lab	
ENSC 2611	Electrical Fabrication Lab	
ENSC 3231	Fluids and Hydraulics Lab	
ENSC 3311	Material Science Lab	
ENSC 3431	Thermodynamics and Heat Transfer Lab	
OPTION 2		
MAE 3113	Measurements and Instrumentation [3]	
Hours Subtotal		**38**
Upper Division Major Requirements [3]		
CHEM 3112	Organic Chemistry Laboratory	2
CHEM 3153	Organic Chemistry II	3
ENSC 3313	Materials Science	3
IEM 3503	Engineering Economic Analysis	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
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:		*7*
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	
MAE 4374	Aerospace System Design	
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:		6
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 4003	Introduction to Autonomous Systems	
MAE 4010	Mechanical and Aerospace Engineering Projects	
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		
Hours Subtotal		**54**
Total Hours		**135**

1

MAE requires grades of "C" or better for any course that is a pre-requisite or co-requisite to a required course on the degree plan.

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.

Graduation Requirements

1. A "C" or better is required in each course taken that is designated with footnote 1 or footnote 3.
2. The major engineering design experience, capstone course, is satisfied by MAE 4344 Design Projects or MAE 4354 Aerospace Systems Design for Mechanical Engineers or MAE 4374 Aerospace Systems Design.

Additional State/OSU Requirements

- At least: 60 hours at a four-year institution; 30 hours completed at OSU; 15 of the final 30 or 50% of the upper-division hours in the major field completed at OSU.
- 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 2029.