

# B.S. in Mechanical Engineering

Catalog Year 2022-23

Below is the *advised sequence* of courses for this degree program as of 7/12/22.

Official degree requirements and course prerequisites are in the University General Catalog; prerequisites are subject to change.

Course Number and Title	Units	Prerequisites/Enrollment Requirements
<b>1<sup>ST</sup> SEMESTER</b>		
MATH 122A/B or MATH 125 Calculus I with Applications	5/3	Appropriate Math Placement
*CHEM 151 Chemical Thinking I or CHEM 105A/ 106A	4	Appropriate Math Placement
ENGL 101 or 107 or 109H First-Year Composition	3	
ENGR 102A/B Introduction to Engineering or ENGR 102	3	<u>ENGR102A</u> : MATH 112; <u>ENGR102B</u> : Concurrently enrolled or completion of MATH 122B or 125; FR & SOPH Status
UNIV 101 Intro to the General Education Experience	1	
Semester Total	<b>16/14</b>	
<b>2<sup>nd</sup> Semester</b>		
MATH 129 Calculus II	3	MATH 122B or 125 with C or better
AME 105 Introduction to MATLAB I	1	MATH 120R or 122B or 125
ECE 175 Computer Programming for Engineering Applications	3	Concurrent enrollment or completion of MATH 122B or MATH 125
*PHYS 141 Introductory Mechanics or PHYS 161H	4	MATH 122B or 125 or appropriate Math Placement Level
ENGL 102 or 108 First-Year Composition	3	ENGL 101 or ENGL 107
General Education: Exploring Perspectives (Artist)	3	
Semester Total	<b>17</b>	
<b>3<sup>rd</sup> Semester</b>		
CE 214 Statics	3	PHYS 141 or 161H; MATH 129
MATH 223 Vector Calculus	4	MATH 129 with C or better
PHYS 241 Introductory Electricity and Magnetism or PHYS 261H	4	For PHYS 241 or 261H: PHYS 141 or 161H; MATH 129 or appropriate math placement level
AME 211 Computer-Aided Drafting and Manufacturing	3	MATH 122B
General Education: Exploring Perspectives (Humanist)	3	
Semester Total	<b>17</b>	
<b>4<sup>th</sup> Semester</b>		
AME 230 Thermodynamics	3	PHYS 141 or 161H
AME 250 Dynamics	3	CE 214; Concurrent enrollment or Completion of MATH 254
MATH 254 Intro to Ordinary Differential Equations	3	MATH 129 or 223 with C or better
ECE 207 Elements of Electrical Engineering	3	PHYS 241 or 261H
AME 205 Introduction to MATLAB II	1	AME 105
General Education: Exploring Perspectives (Social Scientist)	3	
Semester Total	<b>16</b>	

\*Each of the following foundational science courses satisfies the requirements for General Education: Exploring Perspectives (Natural Scientist): CHEM 151 or 152 or 161 or 162; or PHYS 141 or 161H.

Advanced Standing is required for 300- and 400-level engineering courses (see your academic advisor for details).

Course Number and Title	Units	Comments
<b>5<sup>th</sup> Semester</b>		
AME 301 Engineering Analysis	3	
AME 324A Mechanical Behavior of Engr. Materials	3	
AME 331 Introduction to Fluid Mechanics or BME 331 Introduction to Fluid Mechanics	3	
AME 352 Dynamics of Machines	3	
AME 313 Aerospace/Mechanical Engineering Laboratory	1	
†General Education: Building Connections	3	
Semester Total	<b>16</b>	
<b>6<sup>th</sup> Semester</b>		
AME 324B Engineering Component Design	3	
AME 300 Instrumentation Laboratory	3	
AME 302 Numerical Methods	3	
MSE 331R Fundamentals of Materials for Engineers	3	
AME 324L Mechanics of Materials Laboratory	1	
†General Education: Building Connections	3	
Semester Total	<b>16</b>	
<b>7<sup>th</sup> Semester</b>		
ENGR 498A Interdisciplinary Capstone (Fall Only)	3	Senior Status
AME 432 Heat Transfer	3	
AME 495S Senior Colloquium	1	
AME 400A Senior Mechanical Laboratory ( <b>Effective Fall 2025</b> )	1	Prior to Fall 2025 Consult major advisor
Technical Elective	3	
Technical Elective	3	
†General Education: Building Connections	3	
Semester Total	<b>17</b>	
<b>8<sup>th</sup> Semester</b>		
ENGR 498B Interdisciplinary Capstone (Spring Only)	3	Senior Status
AME 455 Control System Design	3	
AME 400B Dynamics & Controls Laboratory ( <b>Effective Fall 2025</b> )	1	Prior to Fall 2025 Consult major advisor
Technical Elective	3	
Technical Elective	3	
Technical Elective	1 - 3	Depends on selection of General Education course, Consult major advisor for course approval
UNIV 301 General Education Portfolio	1	
Semester Total	<b>15/17</b>	

†Students should work closely with their academic advisor to select General Education: Building Connections courses; some course work in the major, such as some Technical Elective courses, may also fulfill General Education: Building Connections requirements.