

# B.S. IN MECHANICAL ENGINEERING

## CATALOG YEAR 2020-2021

Below is the *advised sequence* of courses for this degree program and prerequisites as of 12/18/19  
The official degree requirements and prerequisites can be found in the University General Catalog and  
the prerequisites are subject to change.

| COURSE NUMBER AND TITLE                                      | UNITS | PREREQUISITES  |
|--|-------|--|
| <b>1<sup>ST</sup> SEMESTER</b>                               |       |  |
| MATH 122A/B or MATH 125 Calculus I with Applications         | 5/3   | Appropriate Math Placement   |
| CHEM 151 General Chemistry 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     | ENGR102A: MATH 112 or 120R & CHEM 151; Concurrent enrollment or completion of MATH 122B or 125 |
| Tier I General Education                                     | 3     |  |
| <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     | Concurrent enrollment or completion of MATH 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   |
| Tier I General Education                                     | 3     |  |
| <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  |
| Tier I General Education                                     | 3     |  |
| <b>4<sup>TH</sup> SEMESTER</b>                               |       |  |
| AME 230 Thermodynamics                                       | 3     | PHYS 141   |
| 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  |
| Tier I General Education                                     | 3     |  |

| COURSE NUMBER AND TITLE   | UNITS |
|---|-------|
| <b>CURRENT PREREQUISITES FOR UPPER DIVISION COURSES CAN BE FOUND IN THE UA GENERAL CATALOG.</b> |       |
| <b>ADVANCED STANDING IS REQUIRED FOR 3XX AND 4XX COURSES (SEE ADVISOR FOR REQUIREMENTS)</b>     |       |
| <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<br>BME 331 Introduction to Fluid Mechanics           | 3     |
| AME 352 Dynamics of Machines  | 3     |
| AME 313 Aerospace/Mechanical Engineering Laboratory   | 1     |
| Tier II General Education   | 3     |
| <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     |
| Tier II General Education   | 3     |
| <b>7<sup>TH</sup> SEMESTER</b>  |       |
| ENGR 498A Cross-disciplinary Design (Fall Only) – Senior Status                                 | 3     |
| AME 432 Heat Transfer   | 3     |
| AME 495S Senior Colloquium  | 1     |
| AME 400 Senior Mechanical Laboratory  | 2     |
| AME 324L Mechanics of Materials Laboratory  | 1     |
| Technical Elective  | 3     |
| Technical Elective  | 3     |
| <b>8<sup>TH</sup> SEMESTER</b>  |       |
| ENGR 498B Cross-disciplinary Design (Spring Only) – Senior Status                               | 3     |
| AME 455 Control System Design   | 3     |
| Technical Elective  | 3     |
| Technical Elective  | 3     |
| **Technical Elective/Math Intensive Elective  | 3     |

\*Tier I and II General Education Courses must meet University general education requirements. One course must be recognized by the university as meeting the Diversity Requirement.

\*\*Course taken may satisfy both requirements, see academic advisor.