

## AEROSPACE ENGINEERING TECHNICAL ELECTIVES

*(This is a general TE list- refer to the [mae.ucsd.edu](http://mae.ucsd.edu) website for the specific list of TEs for a specialization)*

Aerospace Engineering majors following the Fall 2023 catalog must complete five TE's.  
Aerospace Engineering majors following the Fall 2019 catalog must complete two TE's.  
Aerospace Engineering majors following a pre-Fall 2019 catalog must complete one TE

*-Not all courses are offered each year/quarter.  
-All prerequisites are enforced.*

**At least one of your electives must be an MAE course.**

**The following classes that are not already required for your major are approved as TEs:**

|          |                                                                                                                                                                                        |
|----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| MAE-101C | Heat Transfer (approved TE for FA23 plan only)                                                                                                                                         |
| MAE-101D | Intermediate Heat Transfer                                                                                                                                                             |
| MAE-108  | Probability and Statistical Methods for Engineering<br>(Credit <b>not</b> offered for MAE-108 if ECE-109, ECON-120A, MATH-180A,<br>MATH-183, MATH-186, or SE-125 were taken)           |
| MAE-110  | Thermodynamic Systems ( <i>formerly 110B</i> )                                                                                                                                         |
| MAE-114  | Space Propulsion                                                                                                                                                                       |
| MAE-118  | Intro to Energy & Environment                                                                                                                                                          |
| MAE-119  | Intro to Renewable Energy: Solar & Wind                                                                                                                                                |
| MAE-120  | Intro to Nuclear Energy                                                                                                                                                                |
| MAE-122  | Flow & Transport in the Environment                                                                                                                                                    |
| MAE-130  | Advanced Vibrations                                                                                                                                                                    |
| MAE-131B | Solid Mechanics II                                                                                                                                                                     |
| MAE-133  | Finite Element Methods                                                                                                                                                                 |
| MAE-144  | Embedded Control and Robotics                                                                                                                                                          |
| MAE-145  | Robotic Planning and Estimation                                                                                                                                                        |
| MAE-146  | Intro to ML Algorithms                                                                                                                                                                 |
| MAE-148  | Intro to Autonomous Vehicles                                                                                                                                                           |
| MAE-150  | Computational Methods for Design                                                                                                                                                       |
| MAE-153  | Design of Machine Components                                                                                                                                                           |
| MAE-154  | Product Design & Entrepreneurship                                                                                                                                                      |
| MAE-180  | Orbital Mechanics                                                                                                                                                                      |
| MAE-181  | Space Mission Analysis and Design                                                                                                                                                      |
| MAE-182  | Spacecraft Guidance and Navigation                                                                                                                                                     |
| MAE-184  | Flight Simulation Techniques                                                                                                                                                           |
| MAE-185  | Computational Fluid Mechanics                                                                                                                                                          |
| MAE-190  | Topics: Marine Robotics ( <i>Note: Must be this specific course topic</i> )                                                                                                            |
| MAE-190  | Topics: Radiation and Light Sources ( <i>Note: Must be this specific course topic</i> )                                                                                                |
| MAE-199  | Independent Study ( <i>2 quarters of MAE-199 can be used for 1 TE under<br/>certain circumstances. See our website, <a href="http://mae.ucsd.edu">mae.ucsd.edu</a>, for details.</i> ) |

SE-120 Engineering Graphics and Computer-Aided Structural Design

Department of Mechanical and Aerospace Engineering  
Updated: Reviewed and Updated May 2025

|         |                                |
|---------|--------------------------------|
| SE-131A | Finite Element Analysis        |
| SE-142  | Design of Composite Structures |
| SE-143A | Aerospace Structural Design I  |
| SE-143B | Aerospace Structural Design II |

*Note: SE-143A/B are the SE senior design capstone courses so students will be expected to complete both A&B in consecutive quarters (credit will be given for 2 TEs)*

SE-160B      Aerospace Structural Mechanics II (approved TE for FA23 plan only)

SE-163 Nondestructive Evaluation  
SE-171 Aerospace Structures Repair  
ECE-120 Solar System Physics  
ECE-172A Introduction to Intelligent Systems  
MATH-102 Applied Linear Algebra  
MATH-120A Elements of Complex Analysis  
MATH-175 Numerical Methods for Partial Differential Equations  
MATH-187A Intro to Cryptography

***MAE 160 is not an approved TE due to overlapping material in SE 160A/B.***

#### **GRADUATE COURSES\***

MAE-200 Controls  
MAE-201 Mechanics of Fluids  
MAE-202 Thermal Processes  
MAE-203 Solid Mechanics and Materials  
MAE-204 Robotics  
MAE-206 Energy Systems  
MAE-208 Mathematics for Engineers  
MAE-211 Intro to Combustion  
MAE-212 Introductory Compressible Flow  
MAE-222 Human Space Exploration  
MAE-240 Space Flight Mechanics  
SE-201A Advanced Structural Analysis  
SE-202 Structural Stability  
SE-203 Structural Dynamics

**Global TIES:** One quarter of ENG-100D and two consecutive quarters of ENG-100L can be used for one TE. (*only for students following the FA19, FA23 catalog*)

\* Enrollment in graduate courses requires approval by the instructor and course dept via an EASy request.  
*All TEs must be taken for a letter grade. No P/NP grades allowed except in MAE 199.* For information about receiving TE credit for courses not on this list, please contact a MAE undergraduate advisor through the VAC.