

## MECH Technical Elective Policy

Technical electives build on the fundamental **mechanical engineering** curriculum, allowing upper-division students to deepen their understanding in mechanical engineering and broaden their skills across multiple subject areas. No courses from other departments are allowed unless you receive pre-approval from the department. As of Fall 2024, only ECEN131 is pre-approved.

Students must take 12 units of technical electives. This requirement may be satisfied by:

- (a) taking upper-division MECH courses, and/or
- (b) taking MECH graduate courses (except MECH 200, 201, and 202) with advisor approval (major GPA 3.0 or above required), and/or
- (c) enrolling in MECH 199: Directed Research/Reading with a faculty advisor. Students may only satisfy up to 8 units of the technical elective requirement with MECH 199.

Please note that many of the upper-division MECH courses are not offered every year.

You may not double dip more than 8 units of technical electives to fulfill both your major and minor requirements, even if all of your technical elective courses meet the minor requirements. For example, you cannot use three aerospace minor courses to fulfill 12 units requirement, even if you choose not to accept the minor. You would need to take another 4 units of MECH course(s) in order to fulfill the mech technical electives requirement.

### Approved Upper-Division Technical Electives (by area):

#### **Aerospace**

MECH 132: Aerodynamics  
MECH 145: Introduction to Aerospace Engineering  
MECH 153: Aerospace Structures  
MECH 155: Astrodynamics  
MECH 158: Aerospace Propulsion Systems

#### **Mechanics, Materials, Manufacturing, and Design (MMMD)**

MECH 144: Smart Product Design  
MECH 146: Mechanism Design  
MECH 151: Finite Element Theory and Applications  
MECH 152: Composite Materials  
MECH 156/ECEN 156: Introduction to Nanotechnology  
MECH 157: Engineering Simulation and Modeling  
MECH 159: Engineering and Design with Applied Machine Learning  
MECH 163: Materials Selection and Design  
MECH 171: Special Topics in MMMD (topics change per quarter)  
MECH 177: Continuum Mechanics

***Thermofluids and Energy (TE)***

MECH 125: Thermal Systems Design

MECH 131: Thermodynamics II

MECH 172: Special Topics in TE (topics change per quarter)

***Vibrations, Dynamics, and Robotics (VDR)***

ECEN 131: Introduction to Robotics

MECH 143/ECEN 123: Mechatronics

MECH 173: Special Topics in VDR (topics change per quarter)

***Cooperative Education (requires faculty co-op advisor)***

MECH 188: Co-op Education

MECH 189: Co-op Technical Report