

# 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 subdisciplines. 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.

**N.B.** Only up to 8 units of technical electives may be used to fulfill both major and (any) minor requirements (i.e., double-dipping). Only up to 8 units of Aerospace courses (undergraduate or graduate) may be used to satisfy the technical elective 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/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)  
MECH/BIOE 174/L: Microfabrication and Microfluidics

***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