

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 the course receives approval from the department. Currently, only ECEN131 is an approved non-MECH technical elective.

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, 202, and 297) 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