

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. As of September 2023, only ELEN131 is pre-approved.

Students must take 12 units of technical electives. This requirement may be satisfied by (a) taking upper-division MECH courses, (b) taking MECH graduate courses (except MECH 200, 201, and 202) with advisor approval (GPA 3.0 or above required), and/or (c) enrolling in MECH 199: Directed Research 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. e.g. you cannot use three aerospace minor courses to fulfill 12 units requirement. You will need to take another 4 units of MECH course(s) in order to fulfill the mech technical electives requirement.

Upper-Division MECH Course List

Aerospace

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

Mechanics, Materials, Manufacturing, and Design

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

Thermofluids and Energy

MECH 125: Thermal Systems Design
MECH 131: Thermodynamics II

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

Vibrations, Dynamics, and Robotics

MECH 143/ELEN 123: Mechatronics

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

Cooperative Education (requires faculty co-op advisor)

MECH 188: Co-op Education (2 units)

MECH 189: Co-op Technical Report (2 units)

Research Experience (requires faculty advisor)

MECH 199: Directed Research (1~4 units per quarter, up to 8 units)

Recently Declined Course from Other Departments

ELEN 115, 164, 183, 184