



DREXEL UNIVERSITY

# Mechanical Engineering and Mechanics

College of Engineering

S p e c i a l i z a t i o n s

## What Can You Do with a Degree in Mechanical Engineering?

Student may customize their degrees in mechanical engineering by selecting electives in one of the following specialty areas offered by the department. While these subspecialties are NOT offered as academic concentrations (with the exception of aerospace), students nonetheless have the flexibility to tailor their coursework to prepare them for courses in each of these subfields.



**Biomechanics:** Orthopedics, cardiovascular engineering, biomimetics, bio-inspired robotics and control, rehabilitations, forensic engineering, injury protection; artificial organs, tissues, and biological sensors; lab-on-a-chip, cell and protein mechanics.  
*Potential careers at:* Exponent, Synthes, Children's Hospital of Philadelphia, Johnson & Johnson, Glaxo Smith Klein, Nike...



**Design and Manufacturing.** 3D-printing, bio-fabrication, laser etching; CAD, CNC machining; wrought metal alloys production, macrofabrication of devices; bio-inspired designs and design methodologies.  
*Potential careers at:* Volvo, Boehringer, Synthes, Merck, Black & Decker, Air Products...



**Mechanics and Structures:** Mechanical behavior of structures and machine parts, failure mechanisms, advanced materials, finite element methods for stress analysis; design of electronic parts, biomechanical systems, buildings, aircraft, machine components.  
*Potential careers at:* Airbus, GM, Black & Decker, DuPont, NASA, DoD, DoE, NIST...



**Autonomous Systems, Control, and Robotics:** Systems modeling, simulation, and control system design; networked robotic systems, autonomous air, land, and sea vehicles; adaptive and intelligent controls, swarms, multi robot systems.  
*Potential careers at:* NAVSEA, Ocean Power Technologies, Pratt & Whitney...



**Thermal Fluids and Energy Sciences:** Fluid Dynamics, heat transfer, combustion, applied thermodynamics; Alternative/green-energy systems, fuel cell technology, battery, hydrogen energy, plasma energy, propulsion, chemical processing, power generation.  
*Potential careers at:* Volvo, Exelon Nuclear, Sunoco, Johnson Matthey, Siemens, DuPont, AirProduct...



**Aerospace:** Air and space systems design, atmospheric flight mechanics, orbital mechanics, guidance and control, structural design, propulsion systems, computational fluid mechanics.  
*Potential careers at:* NASA, Boeing, Augusta Aerospace, Lockheed Martin...

**Create your own.** We will work with students to customize a specialization targeted to emphasize their individual interest.