MECHANICAL ENGINEERING

AUBURN
GINN ENGINEERING

Mechanical engineers are involved in conceptualizing, design, manufacturing, testing, marketing and maintenance of everything from aircraft to automobiles, power plants to hydroelectric dams, and computers to robots. Job opportunities exist in areas including business, public utilities, teaching, the armed services, the space program, and industries such as power, chemical, petroleum, automotive, aerospace, biomedical, pharmaceutical, food, textile, computer, metal casting, electronics, paper, wood, rubber and glass.

NOTABLE

- The College of Engineering's largest department
- 1,342 undergraduate and 187 graduate students enrolled in fall 2024
- 49 full-time faculty members
- The department collaborated with NASA to form the National Center for Additive Manufacturing Excellence, while also partnering with ASTM International's Additive Manufacturing Center of Excellence and the U.S. Department of Commerce's National Institute of Standards and Technology.

ABOUT MECHANICAL ENGINEERING

Auburn University's Department of Mechanical Engineering, established in 1885, consists of two undergraduate programs: mechanical engineering and materials engineering. The Mechanical Engineering program includes four general areas of interest:

- **Dynamics, systems and controls** – interaction, motion, vibration and design of multi-component systems of solid structures
- **Mechanics** – deformations of solid and liquid substances under static and dynamic loads so their behavior, including failure, can be modeled for designing and developing components and systems
- **Design and manufacturing** – selection, analysis, implementation, design and production of mechanical components and systems found in vehicles, machinery, consumer products and the manufacturing environment
- **Thermal sciences** – heat and mechanical power, energy, conversion systems, combustion and air-conditioning and fluid flow in machines

UNDERGRADUATE PROGRAMS

Bachelor of Mechanical Engineering
(with specializations available in automotive engineering and pulp and paper engineering, additive manufacturing, and minors available in Automotive Design and Manufacturing, Tribology and Lubrication Science and Nuclear Power Generation Systems)

The mechanical engineering curriculum emphasizes fundamental engineering sciences with a strong foundation in mathematics. At the senior level, students can specialize through a sequence of technical electives in areas such as additive manufacturing, vibrations and control, heating, ventilation and air conditioning, robotics and mechatronics, vehicle dynamics, sensors, engines and electronic packaging. The senior design project consists of student teams developing industry-sponsored design solutions to real-world engineering problems.

For information about academic programs and minors, visit **www.eng.auburn.edu/programs**

GRADUATE PROGRAMS

Master of Science (M.S.) — requires the completion of graduate level courses and a thesis. Candidates must pass an on-campus comprehensive oral examination covering course work and the thesis.

Master of Science-Non Thesis (M.S.NT) — non-thesis degree based on the successful completion of graduate courses.

Doctor of Philosophy (Ph.D.) — doctoral candidates complete and defend a research dissertation after finishing of graduate course work. Candidates must pass written and oral qualifying exams.

RESEARCH, LABS, AND CENTERS

The department's teaching resources are complemented by nationally recognized research activities. Research sponsors include the National Science Foundation (NSF), the National Aeronautics and Space Administration (NASA), the U.S. Army Research Office, the Air Force Office of Scientific Research (AFOSR), the Office of Naval Research (ONR), the U.S. Department of Defense and a variety of industrial sponsors such as the Semiconductor Research Corporation (SRC). Research is performed in areas such as dynamic systems, manufacturing, materials, mechanics, sound and vibration and thermal systems.

Our research laboratories offer students an opportunity to develop special skills in several emerging technologies:

- Additive Manufacturing Laboratory
- Biomechanics Laboratory
- Computer-Aided Engineering Laboratory
- Design and Manufacturing Laboratory
- Electronics Cooling Laboratory
- Electronics Packaging Laboratory
- Environmental Testing Laboratory
- Failure Mechanics and Optical Techniques Laboratory
- Flexible Electronics Laboratory
- GPS and Vehicle Dynamics Laboratory
- HVAC Laboratory
- Measurements Laboratory
- Mechanics of Materials Laboratory
- Robotics and Haptics Laboratory

A fully equipped machine shop and 3D printing laboratory can be accessed for student projects.

LIFE AFTER GRADUATION

Job opportunities exist in areas including business, public utilities, teaching, military, the space program, and industries such as power, chemical, petroleum, automotive, aerospace, biomedical, pharmaceutical, food, textile, computer, metal casting, electronics, paper, wood, rubber and glass. Many students also pursue graduate school or professional programs.

TEAMS AND ORGANIZATIONS

Among the student projects available to mechanical engineering students are cross-disciplinary undergraduate teams that design and build vehicles to compete in endurance and speed races on the regional, national and international level:

- Baja SAE, all-terrain vehicles
- Formula SAE, formula race cars (combustion and electric)
- Lunar Exploration Rover
- Autonomous Indy race car

Mechanical engineering students are encouraged to participate in various campus and departmental organizations, including:

- American Society of Mechanical Engineers
- Pi Tau Sigma, honorary mechanical engineering fraternity
- Society of Automotive Engineers
- American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE)
- Theme Park Engineering Group

For more information, visit **www.eng.auburn.edu/organizations**

SCHOLARSHIPS

The College of Engineering and the Department of Mechanical Engineering provide scholarship opportunities to students at every stage of their academic career. To be eligible for scholarships at Auburn University, all students must apply through AUSOM.

For information about engineering scholarships, visit **www.eng.auburn.edu/scholarships**

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