Mechanical Engineering

Chair

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Undergraduate major: mechanical engineering (BSE)

Graduate degrees: MS in mechanical engineering; PhD in mechanical engineering

Faculty: https://engineering.uiowa.edu/me-people

Website: https://engineering.uiowa.edu/me

The Department of Mechanical Engineering offers distinct undergraduate and graduate degrees and research programs in mechanical engineering. It also is the administrative home of the undergraduate Certificate in Naval Science and Technology and the undergraduate and graduate Certificates in Artificial Intelligence, Modeling and Simulation in Engineering.

Mechanical engineering is broadly concerned with the energy, manufacturing, and design of machines. Mechanical engineers conceive, plan, design, and direct the manufacture, distribution, and operation of a wide variety of devices, machines, and systems—including complex human-machine systems—for energy conversion, biofuel production, environmental control, materials processing, transportation, materials handling, and other purposes. Major subspecialties of mechanical engineering include thermal-fluids engineering and mechanical systems engineering.

Thermal-fluid phenomena occur in many engineering systems and devices such as aircraft; automobiles; off-road vehicles; ships; gas turbines; heat exchangers; material processes; heating, ventilating, air-conditioning, and refrigerating systems; hydraulic and wind turbines; airbag inflators; fuel cells; biofuel processes; environmental control devices; and biomedical systems.

Machines and mechanical systems are the foundations of human technology. Mechanical systems are found in mechanical engineering systems and devices such as manufacturing equipment, medical equipment, ground vehicles, heavy equipment, farm equipment, aircraft, ships, home appliances, packaging machinery, wind turbine blades and gearboxes, robots, and biomedical systems.

Mechanical engineers find a wide variety of career opportunities in industry, government, and education. Mechanical engineers form an integral part of most industries, including aerospace firms, energy companies, automobile manufacturers, health care providers, food- and metal-processing industries, petroleum refineries, electronic and computer manufacturers, heavy construction and agricultural vehicle manufacturers, wind turbine manufacturers, thermal comfort equipment firms, farm equipment firms, and consulting companies.

Certificates

Artificial Intelligence, Modeling and Simulation in Engineering

The Department of Mechanical Engineering offers the undergraduate and graduate certificate programs in Artificial Intelligence, Modeling and Simulation in Engineering; see Artificial Intelligence, Modeling and Simulation in Engineering in the catalog.

Naval Science and Technology

The Department of Mechanical Engineering offers the undergraduate certificate program in Naval Science and Technology; see the Certificate in Naval Science and Technology in the catalog.