

# Mechanical Engineering

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The department of mechanical engineering offers courses of study leading to the Master of Science (MS) and Doctor of Philosophy (PhD) degrees. Departmental faculty have developed research activities in the following areas of specialization:

- Materials science and engineering (including composites, nano- and biocomposites, nanotechnology);
- Energy and thermal-fluid sciences (including alternative fuels and fuel safety, non-Newtonian and viscoelastic materials, biofluids and bioheat transfer, computational fluid dynamics, heat transfer) and renewable energy;
- Mechanical systems analysis and design (including vehicle crashworthiness and impact dynamics, mechanical design); and
- Robotics and control (including biosensors and biomedical devices, nonlinear control).

State of the art research laboratories within the department complement the above activities. In addition, faculty members are associates of Wichita State's National Institute for Aviation Research (NIAR). This association makes NIAR facilities available for the research activities of these faculty and their graduate students.

Research facilities include the computational fluid dynamics laboratory (CFD lab) with a linux-based network, the crash dynamics laboratory, the shock and vibration laboratory, the computer integrated manufacturing laboratory, and the mechatronics laboratory.

Departmental facilities in the Engineering Research building:

- Nanotechnology Laboratory
- Nanocomposites and Biocomposites Laboratory
- Biodynamics Laboratory
- BioDevice Laboratory
- Acoustic Measurements and Material Characterization Laboratory
- Thermal Spray Coating Systems Laboratory
- Advanced Joining Processes and Assembly Lab
- Controls Laboratory
- Fuel and Fire Safety

The department's programs and efforts are influenced by the concentration of technology-oriented industries in the Wichita area. Particular attention is given to scheduling coursework so that engineers employed by local industry may pursue a graduate degree in mechanical engineering.

## Programs in Mechanical Engineering

- PhD in Mechanical Engineering (<http://catalog.wichita.edu/graduate/engineering/mechanical-engineering/phd-in-mechanical-engineering/>)
- MS in Mechanical Engineering (<http://catalog.wichita.edu/graduate/engineering/mechanical-engineering/ms-in-mechanical-engineering/>)
- Dual/Accelerated Bachelor's to Master's in Mechanical Engineering (<http://catalog.wichita.edu/graduate/engineering/mechanical-engineering/dualaccelerated-bachelors-masters-mechanical-engineering/>)

## Certificates in Mechanical Engineering

- Certificate in Additive Manufacturing (<http://catalog.wichita.edu/graduate/engineering/mechanical-engineering/certificate-additive-manufacturing/>)

- Certificate in Nano Engineering (<http://catalog.wichita.edu/graduate/engineering/mechanical-engineering/certificate-in-nano-engineering/>)
- Certificate in Sustainable Energy (<http://catalog.wichita.edu/graduate/engineering/mechanical-engineering/certificate-sustainable-energy/>)

## Courses in Mechanical Engineering

- Mechanical Engineering (ME) (<http://catalog.wichita.edu/graduate/courses/me/>)