

Graduate Programs in Mechanical Engineering

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 Bio-Composites; Nanotechnology);
- Energy and Thermal-Fluid Sciences (including Alternative Fuels and Fuel Safety; non-Newtonian and Viscoelastic materials; Bio-Fluids and Bio-Heat Transfer; Computational Fluid Dynamics and Heat Transfer);
- Mechanical Systems Analysis and Design (including Vehicle Crashworthiness and Impact Dynamics; Mechanical Design); and
- Robotics and Control (including biosensors and biomedical devices; non-linear control).

State of the art research laboratories within the department complement the above activities. In addition, many departmental 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 include the Nanotechnology Laboratory, the Nanocomposites and Biocomposites Laboratory, the Biodynamics Laboratory, the BioDevice Laboratory, the Acoustic Measurements and Materials Characterization Laboratory, the Thermal Spray Coating Systems Laboratory, the Advanced Joining Processes and Assembly

Laboratory, the Controls Laboratory, and Fuel and Fire Safety.

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

Admission Requirements

In addition to the general admission requirements for all engineering students, admission to the MSME program requires an undergraduate degree in engineering or physical sciences, a grade point average of 3.0/4.0 for the last two years of undergraduate work, or First Class standing, and a statement of purpose indicating research interests. Scores for the General Test of the Graduate Record Examination (GRE) are strongly recommended to be considered for graduate assistantship positions.

In addition to the general admission requirements for all engineering students, admission to the PhDME program requires a grade point average of 3.25/4.0 in all graduate coursework. Official (general) GRE scores are required. Applicants must also submit two letters of recommendation from graduate faculty and a statement of purpose indicating their research interests.

For both programs, non-native speakers of English must provide a TOEFL score of at least 550 paper or 79 internet based, OR an overall band score of 6.5 on the IELTS examination.

Degree and Examination Requirements

The MSME degree requires the completion of one of three options:

- (1) The thesis option requires a minimum of 24 hours of course work plus a minimum of 6

hours of thesis. Candidates in the thesis option must pass an oral examination over the thesis.

(2)The directed project option requires a minimum of 30 hours of course work plus a minimum of 3 hours of directed project.

Candidates in the directed project option must give an oral presentation and submit a written report on their directed project.

(3)The course work option requires a minimum of 33 hours of course work. Candidates in the course work option must pass a written examination

To ensure the proper breadth of coursework, the PhD-ME plan of study must include at least 15 hours in the major; 18 hours outside the major field which will include 6 hours in a minor area (defined by the advisory committee); a minimum of 6 hours of mathematics/statistics. A plan of study normally contains about 60 credit hours, including courses from the master's degree, and 24 hours of dissertation. 60 percent of the hours beyond the master's work must be at the 800-900 level. Candidates must pass the comprehensive examination that will cover their major and minor fields. After the dissertation is completed, the student must defend the dissertation.

Faculty

The faculty of the department of mechanical engineering and their areas of specialization are listed below.

Ikramuddin Ahmed, PhD, University of Texas at Austin. Computational Methods in Transport Phenomena; Inverse Heat Transfer; Nanostructured Thermal Spray Coatings; Coatings for Composites, and Sustainability

Ramazan Asmatulu, PhD, Virginia Polytechnic Institute. Magnetic and Conductive Nanoparticles, Nanofilms, and Nanocomposites; Bionanotechnology; Colloidal Photonic Crystals; Corrosion and Filtration

Brian Driessen, PhD, Georgia Institute of Technology. Control Theory and Design; Dynamic Systems; Robotics; Optimization and Trajectory Generation; Scalability and Robustness of Control Implementation

David Koert, PhD, Drexel University. Combustion and Combustion Chemistry; Alternative Fuels; Air Pollution Control; High Temperature Processes and Material Properties, and Flammability of Materials

Hamid Lankarani, PhD, University of Arizona. Mechanical Engineering Design; Impact Dynamics; Crashworthiness; Multibody Dynamics; Structures; Biomechanics; and Occupant Protection

Bob Minaie, PhD, University of Minnesota. Advanced Polymer Composites; Nanocomposites; Functionally Graded Hybrid Composites; Intelligent Process Design and Optimization; and Finite Element Method

T. S. Ravigururajan, PhD, PE, Iowa State University. Heat Transfer Enhancement; HVAC; Microscale Heat Transfer; Biothermal and Biodevice Applications; Alternative Energy and Power Storage Devices

For More Information

Graduate Coordinator
Mechanical Engineering
Wichita State University
1845 Fairmount
Wichita, Kansas 67260-0044
Phone (316) 978-3402
E-mail TS.Ravi@wichita.edu
Web site: <http://www.wichita.edu/mechanical>

Apply On-Line

<http://webs.wichita.edu/?u=apply&p=/OnlineApplicationGateway>