Mechanical Engineering
Master of Engineering

The Department of Mechanical Engineering offers graduate programs leading to either the Master of Science (M.S.) or Master of Engineering (M.Engr.) degrees. The M.S. degree is a research-oriented degree that is available in either thesis or non-thesis options. The non-thesis M.S. degree requires completion of an independent study. The M. Engr. degree is an engineering practice-oriented degree that requires completion of an engineering design project.

The mission of the Master of Engineering in Mechanical Engineering program is to provide advanced preparation in the practice of mechanical engineering for mechanical engineers seeking technical careers in industry. This preparation will include a guided, independent design project and advanced coursework in mechanical engineering and related areas. Both the design project and the coursework will be selected as appropriate in specific areas of interest to the student and graduate advisor and for which the faculty is qualified to direct and instruct.

Goal 1: Graduates will demonstrate a mastery of the practical implementation of engineering concepts by identifying a substantial need, formulating a design or process to meet the need and implementing their solution to meet that need.

Goal 2: Graduates will be well prepared for a career in industry in mechanical engineering or a related field.

Admission Requirements

The applicant must meet the School of Graduate Studies' current minimum general admission requirements as published in the graduate catalog.

1. B.S. degree in Mechanical Engineering from an ABET accredited program and have an acceptable GPA
2. GRE general test required for those applicants with undergraduate degrees from other than ABET accredited programs.
3. 2.50 overall undergraduate GPA or a GPA of at least 2.75 for the junior and senior years of their undergraduate programs.
4. Satisfy the School of Graduate Studies' English Language Proficiency requirements as published in the graduate catalog.
5. Students seeking admission to a combined B.S./Master's program must have a GPA of at least 3.0 at the time of admission.

Students who hold an undergraduate engineering or science degree other than mechanical engineering may be admitted to provisional or qualified status with an obligation to acquire additional background in mechanical engineering as appropriate.

Degree Requirements

Students seeking the Master of Engineering degree at the University of North Dakota must satisfy all general requirements set forth by the School of Graduate Studies' as well as particular requirements set forth by the Mechanical Engineering Department.

1. 30 credits approved by the graduate advisor.
2. 15 credits at the 500 level or above.
3. 9 credits of engineering science, basic science, and/or mathematics.
4. ME 595 Design Projects for 9 credits.

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5. A written report on the design project.
6. All major department courses must be at the 400 level or above, and no courses below 300 level may be included in the program.
7. Comprehensive final examination.

The research project, independent study, or design project may be from interdisciplinary areas such as bioengineering or environmental engineering, or they may be topics in design, manufacturing processes, vibrations, stress analysis, materials, power, fluid mechanics, heat transfer, thermodynamics, or combustion.

Faculty and Areas of Expertise

- Forrest Ames, Ph.D., P.E., External Gas Path Heat Transfer, Film Cooling, and Aerodynamics, Influence of Flow Field Turbulence, Turbulence Modeling, Gas Turbine Component Cooling
- Bishu Bandyopadhyay, Ph.D., Manufacturing Processes with emphasis on Machining, Ceramics Machining, Low-Volume, High Product Mix FMS
- George Bibel, Ph.D., P.E., Finite Element Analysis, Failure Analysis, Pressure Vessel Component Design, Materials
- Matthew Cavalli, Ph.D., Solid Mechanics, Materials, Manufacturing
- Nanak Grewal, Ph.D., Heat Transfer in Fluidized Beds
- Surojit Gupta, Ph.D., Green/energy saving materials and novel nano-laminated 2D and 3D solids
- Jeremiah Neubert, Ph.D., Augmented Reality, Computer Vision, Robotics, Mechantronics, and Controls
- William Semke, Ph.D., Dynamics, Vibrations, Finite Element Methods, Aerospace Hardware Design, Nanotechnology and Experimental Methods
- Clement Tang, Ph.D., Microfluidics and Multi-phase flow
- Marcellin Zahui, Ph.D., Control Systems, Acoustic, Active Noise and Vibration Control

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