Mechanical Engineering
Master of Science

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.

Thesis Option
The mission of the Master of Science (Thesis) in Mechanical Engineering program is to prepare mechanical engineers for either technical careers in government or industry or for doctoral studies in mechanical engineering or related fields. This preparation will include guided, independent research and advanced coursework in mechanical engineering and related areas. Both the research and the coursework will be selected as appropriate in specific areas of interest to the student and their graduate committee and for which the faculty is qualified to direct and instruct.

Goal 1: Graduates will demonstrate a mastery of scientific research by formulating, assessing, and documenting a scientific hypothesis.
Goal 2: Graduates will be well prepared for a career in government/industry and/or doctoral studies in mechanical engineering or a related field.

Non-Thesis Option
The mission of the Master of Science (Non-Thesis) in Mechanical Engineering program is to prepare mechanical engineers for technical careers in government or industry in mechanical engineering or related fields. This preparation will include guided, independent research and advanced coursework in mechanical engineering and related areas. Both the research and the coursework will be selected as appropriate in specific areas of interest to the student and their graduate advisor and for which the faculty is qualified to direct and instruct.

Goal 1: Graduates will demonstrate a mastery of scientific investigation by researching and preparing a scholarly report on a topic related to mechanical engineering.
Goal 2: Graduates will be well prepared for a career in government/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 applicants with undergraduate degrees from other than ABET accredited programs.
3. 2.75 overall undergraduate GPA or a GPA of at least 3.00 for the junior and senior years.
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.

Apply online: http://graduateschool.und.edu
Deadlines apply. See our website for more details.
**Degree Requirements**

Students seeking the Master of Science 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.

**Thesis Option**

6. A minimum of 30 semester credits in a major field approved by the graduate committee, including the credits granted for the thesis and the research leading to the thesis.

7. At least one-half of the credits must be at or above the 500-level.

8. A maximum of one-fourth of the credit hours required for the degree may be transferred from another institution.

9. Completion of a research project and its presentation in a thesis (4-9 credits for ME 998 Thesis).

**Non-Thesis Option**

1. Thirty-two (32) credits including credits approved by the graduate advisor required for the major.

2. Two credits of ME 997 Independent Study.

3. At least one-half of the credits must be at or above the 500-level.

4. A maximum of one-fourth of the credit hours required for the degree may be transferred from another institution.

5. Preparation of a written independent study approved by the faculty advisor.

6. 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

**Contact Information**

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