Industrial and Manufacturing Engineering

Department Information

- **Department Chair:**
  David Grewell, Ph.D.

- **Email:**
  david.grewell@ndsu.edu

- **Graduate Coordinator:**
  Yiwen Xu, Ph.D.

- **Email:**
  yiwen.xu@ndsu.edu

- **Department Location:**
  202 Civil & Industrial Engineering Building

- **Department Phone:**
  (701) 231-9818

- **Department Web Site:**
  www.ndsu.edu/ime/

- **Application Deadline:**
  International applications due March 1 for fall; August 15 for spring and summer. Domestic applications due one month prior to start of semester. For assistantship consideration, fall applications due March 1; limited spring openings.

- **Credential Offered:**
  Ph.D., M.S.

- **Test Requirement:**
  GRE - General

- **English Proficiency Requirements:**
  TOEFL iBT 79; IELTS 6.5

Program Description

The Department of Industrial and Manufacturing Engineering offers graduate studies at both the Master of Science and Doctor of Philosophy levels. A Master of Science degree may be earned in either Industrial Engineering and Management (IE&M) or Manufacturing Engineering (MfgE). The Master of Science degree can be completed through a thesis option. The IE&M master’s programs are designed to equip students with the ability to analyze, design, and manage industrial and business systems as well as to enable students to develop scholarly abilities to further pursue a Ph.D. degree in industrial and manufacturing engineering. Students have an opportunity to conduct research in the development of theoretical concepts and industrial systems.

Graduate study in the Department of Industrial and Manufacturing Engineering is open to all qualified baccalaureate graduates from universities and colleges of recognized standing. In addition to the Graduate School requirements, applicants must submit a GRE score.

- **M.S.** - 310 (Verbal + Quantitative) and 160 Quantitative minimum and Analytical Writing score of 3.5 or better
- **Ph.D.** - 310 or better (Verbal + Quantitative) and 160 Quantitative minimum and Analytical Writing score of 3.5 or better

Financial Assistance

There are a limited number of teaching assistantships available in Industrial and Manufacturing Engineering, which are normally assigned as support for classes with large enrollments and/or heavy laboratory content. Research assistantships are offered when student’s capabilities and background experience match the needs of the project. While teaching assistantships are funded through the University, research assistantships are generally funded through externally-funded grants and contracts. In both cases, assistantships are considered as employment, and the graduate student should view these appointments as a job. The student’s thesis or dissertation may or may not be in the area of their job duties for the assistantship.

Full assistantships are for half-time employment (20 hours per week). Tuition for all graduate credits, resident or nonresident, are waived for individuals officially appointed as research or teaching assistants. Student fees are not waived. When a student is offered an appointment as a Graduate Research Assistant, the faculty and the department will carry the expectation that the student has made a full commitment to fulfill both the degree requirements and the job responsibilities.
The Master of Science degree in Industrial Engineering and Management or Manufacturing Engineering requires 30 credits of graduate-level study. A minimum of 15 credits from didactic IME courses (numbered IME 601-689 and IME 700-789) is required. In addition, a minimum of 6 credits of other courses is required for a department-funded student (no matter GTA or GRA). This part of the course credits may come from approved graduate level courses of other departments. If a student is funded by himself/herself, then the minimum requirement of "other courses" is 8 credits. A minimum of 3 credits (i.e., from three semesters) from IME graduate seminar (IME 790) is required for a department-funded student (no matter GTA or GRA). If a student is funded by himself/herself, then the minimum requirement of the graduate seminar is 1 credit. In addition, a minimum of 6 credits of the dissertation is required to get the master’s degree.

The Doctor of Philosophy degree requires 60 credits beyond the M.S. requirement (90 credits total). Didactic course work must account for at least 27 credits, and of these, 15 credits must be earned in 700-level courses. It is customary for the remainder of the didactic credit requirement to be dedicated directly to the dissertation related topics, either through course preparation or focused research writing.

For either the M.S. or Ph.D., all courses taken outside of the IME Department must be approved in advance by the student’s academic adviser. The total courses of study must be approved by the student’s academic adviser, thesis committee, and department chair. Students completing graduate degrees within the IME Department are expected to exhibit demonstrable expertise in the core competencies of either industrial engineering or manufacturing engineering. Students whose undergraduate major is in another field may be required to include some or all of the core competencies in their graduate coursework. For further information in this regard, please consult the IME department.

Each new student must have an academic advisor within six months of beginning graduate studies, and it is recommended that this be completed during the first semester in residence. The proposal, if approved by the IME Graduate Studies Committee, will provide the direction for the remainder of the student’s degree work. By the end of the first year in residency, the student must have selected a supervisory committee. This committee will be chaired by the faculty adviser and will provide direction, advice and examination of the student's work and achievement.

Canan Bilen-Green, Ph.D.
University of Wyoming, 1998
Research Interests: Statistical Process Control, Quality Management

Kambiz Farahmand, Ph.D., P.E.
University of Texas, 1992
Research Interests: Ergonomics Design, Layout Planning and Management

David Grewell, Ph.D.
Ohio State University, 2005
Research Interests: Bio-renewable Biodegradable polymers, High Power Ultrasonics, Micro-Fabrication and Polymer and Metal Welding

Trung (Tim) Q. Le, Ph.D.
Oklahoma State University, 2013
Research Interests: Data Analytics & Reliability Engineering, Medical Instrumentation

Lokesh Narayanan, Ph.D.
North Carolina State University, 2019
Research Interests: Biomedical Design, Bio-Manufacturing and Automation

Yiwen Xu, Ph.D.
University of Arizona, 2015
Research Interests: Network Reliability and System Reliability Models, Integer Programming, Network Models and Stochastic Programming

Om Prakash Yadav, Ph.D.
Wayne State University, 2002
Research Interests: Reliability Engineering, Robust Design

Nita Yodo, Ph.D.
Wichita State University, 2017
Research Interests: Modeling and Optimization of Complex Systems, Predictive Analysis for Failures, Data Driven Decision Making Under Uncertainties