Manufacturing Engineering

Department Information

- **Department Location:**
  106 Engineering Building
- **Department Phone:**
  701-231-9818
- **Department Web Site:**
  www.ndsu.edu/ime/ (http://www.ndsu.edu/ime/)
- **Credential Offered:**
  B.S.Mfg.E.; Minor
- **Official Program Curriculum:**
  catalog.ndsu.edu/undergraduate/program-curriculum/manufacturing-engineering/ (http://catalog.ndsu.edu/undergraduate/program-curriculum/manufacturing-engineering/)

Manufacturing engineers make things. Everything manufacturing engineers do is ultimately tied to the production of goods. Almost everything we use, whether at home, at work, or at play, is manufactured. By its official professional definition, manufacturing occurs when the shape, form or properties of a material are altered in a way that adds value. Manufactured goods are everywhere: aircraft structures, machinery, electronics, medical devices, automobile parts, household products, toys, textiles and clothing, cans and bottles—virtually everything we use.

The Profession

Everything needed in modern society is manufactured. Manufacturing engineers design, direct and coordinate the processes and production systems for making virtually every kind of product from beginning to end. As businesses try to make products better and at a lower cost, they turn to manufacturing engineers to find out how.

Manufacturing engineers apply scientific principles to the production of goods. They are key team members in production of a wide range of products: automobiles, airplanes, tractors, electronics, surgical instruments, toys, building products, foodstuffs, sports and recreational equipment, and more. In all cases, manufacturing engineers design the processes and systems to make products with the required functionality, to high quality standards, available when and where customers prefer, at the best possible price and in ways that are environmentally friendly.

The Program

The Department of Industrial and Manufacturing Engineering (IME) at North Dakota State University offers two programs leading to either a Bachelor of Science degree in Manufacturing Engineering or Industrial Engineering and Management. Both programs are accredited by the Engineering Accreditation Commission of ABET, www.abet.org.

As a graduate of manufacturing engineering, you will have the opportunity to design systems and processes that improve the quality and productivity of an organization's business activities. You will employ a strong base of fundamental engineering and management skills to effectively integrate people, technology, machines and money to create positive change. Quite simply, you will design and implement the best way to make things.

Faculty and Facilities

The faculty and staff members in the department have extensive experience in industrial and manufacturing specialties. The IME faculty and staff will know your name, understand your potential and problems, and will offer encouragement when you need it. When you leave NDSU, you will have built excellent capabilities for career success, the confident ability for lifelong personal growth, and a network of friends and professional colleagues.

The department has 7 laboratories with a significant amount of equipment that provide valuable services in support of students' educational needs. The departmental laboratories include manufacturing, rapid prototyping, CNC, machining, microfabrication, welding, electronics, precision manufacturing, automation and robotics, and PLC, as well as computer simulation, quality & reliability, SPACHES, and human factors.

Career Opportunities

The IME programs at NDSU can help you to open the door to various opportunities for starting your professional career in a wide range of industries or to seek advanced degrees at NDSU or another institution. The IME programs will help you to develop a strong basis in general education and engineering fundamentals that provide the foundation for a very wide range of career choices and for a lifetime of growth. IME programs will help you develop industry-standard skills you can use to open the door to many career opportunities that can offer you financial rewards and exceptional professional success.

Manufacturing engineering graduates have become a source of talent working in industries that produce such products as biomedical devices, microelectronics, transportation and construction equipment, aircraft and spacecraft, and processed foods. Recent IME graduates command starting salaries in the top rank of engineering disciplines. According to Payscale.com, the national average salary was $70,000 in February of 2020 (https://

www.payscale.com/research/US/Job=Manufacturing_Engineer/Salary (https://www.payscale.com/research/US/Job=Manufacturing_Engineer/Salary/)).

Transfer Admission

Students who have studied two years of pre-engineering at another institution may be able to transition into the manufacturing engineering program with no loss of credits. Students who transfer with an AA or AS degree will have lower division general ed credits satisfied.

Scholarship and Financial Aid

The Department of Industrial and Manufacturing Engineering awards several scholarships annually. Scholarships are available for incoming freshman, transfer students and currently enrolled students. Other forms of financial aid are available through the Office of Financial Aid and Scholarships.

Selective Admission

The Department of Industrial and Manufacturing Engineering has minimum admission requirements for transfer students. Transfer students must have a minimum grade point average of 2.3.

MANUFACTURING Engineering Minor

Students majoring in any engineering discipline may elect a minor in Manufacturing Engineering. These optional studies offer engineering students the opportunity to add important career-enhancing skills to their technological competencies. Total requirement is 18 credits (12 credits are required courses and 6 credits of approved electives).