Industrial Engineering

As competition from around the globe increases, so does the demand for improved productivity, output, and service quality from domestic companies. As a result, the need for industrial engineers has never been greater. In fact, according to the U.S. Department of Labor, industrial engineering employment is expected to grow 14 percent over the next decade.

Industrial engineers are charged with developing more efficient processes, reducing costs, and increasing productivity within the manufacturing industry – essential functions that employers depend on to remain successful. In order to improve efficiency, industrial engineers use their knowledge of mathematics to study product requirements and then design the manufacturing and information systems needed to meet those requirements. They also design production planning and control systems, improve systems for the distribution of goods and services, develop wage and salary administration systems and job evaluation programs, and create management control systems to help with cost analysis and financial planning. Due to the nature of their work, many industrial engineers have management positions.

Why Industrial Engineering at Lawrence Tech?
Continuing your studies at the graduate level can be crucial to a successful – and stable – career. Lawrence Tech’s Master of Science in Industrial Engineering can prepare you to compete in today’s ever-changing workforce by not only helping you stay abreast on current trends and technologies within the field, but also by developing your leadership skills. The MS in Industrial Engineering focuses on providing advanced knowledge in operations optimization, process control, reliability, design of experiments, and more. This rigorous program, consisting of 30 credit hours, allows you to choose either a course-work only option or a thesis option. Both feature the flexibility demanded by busy professionals, with most courses available in the evenings and some offered online.

CURRICULUM
Your 30-credit-hour program consists of:

- **Course-work only option**
  - Core Courses 18
    - Advanced Optimization Techniques
    - Applied Stochastic Processes
    - Engineering Systems Simulation
    - Quality Control
    - Production, Planning, and Control
    - Technology Management
  - Electives 12
  - Choose from the following:
    - Value Engineering
    - Engineering Supply Chain Management
    - Design of Experiments
    - Design for Reliability
    - Six Sigma Processes
    - Project Risk and Project Quality Management
  - Total Credit Hours 30

- **Thesis Option**
  - Core Courses 18
  - Electives 6
  - Thesis 6
  - Total Credit Hours 30

- **Health Care Concentration**
  - Core Courses 18
  - Health Care Electives 12
  - Choose from the following:
    - Health Care Systems Engineering
    - Health Care Operations Analysis
    - Health Care Information Systems
    - Health Care Human Factors
    - Health Care Economics
    - Logistics in Health Care Systems
  - Total Credit Hours 30
Health Care Systems – A Growing Trend

Just as industrial engineering itself is growing, so are certain disciplines within the field, most notably in health care. According to a recent report from the Partnership for Michigan’s Health, health care is Michigan’s largest private-sector employer, providing 515,700 direct jobs and more than 278,000 related jobs. In response to this growing trend, Lawrence Tech’s MS in Industrial Engineering features a unique concentration in health care systems. In fact, Lawrence Tech is currently the only school in southeast Michigan offering this concentration, which focuses on designing and improving the safety, cost, efficiency, and quality of health care processes and systems. As an industrial engineer specializing in health care systems, you may be involved in improving scheduling and sequencing, operational control, and overall quality management.

Regardless of the path you choose, you will benefit from Lawrence Tech’s state-of-the-art learning facilities, small class sizes, and faculty who are passionate about your future. In addition, you will be exposed to real-world, hands-on experiences, reflecting the University’s commitment to theory and practice.

Getting Started

Admission to Lawrence Tech’s Master of Science in Industrial Engineering program is competitive. Applicants must:
- Hold an undergraduate degree in engineering, science, math, computer science, or physical science (or other technical field) from an accredited college or university.
- Have a minimum undergraduate GPA of 3.0.
- Provide three letters of recommendation, preferably from employers and former professors.
- Provide official transcripts of all completed college work.
- Provide a resume, documenting professional experiences and relevant extracurricular activities.
- Submit a completed graduate application form.

Applicants who do not meet all requirements may be admitted on a conditional basis and will be granted regular status upon the completion of three consecutive graduate-level courses with a minimum 3.0 GPA.

For more information, contact Lawrence Tech’s Office of Admissions at 800.CALL.LTU or admissions@ltu.edu. For specific questions about the Master of Science in Industrial Engineering program, contact the Department of Mechanical Engineering at 248.204.2531 or visit ltu.edu/engineering/industrial_engineering.asp.