Industrial Engineering, M.S.I.E., Ph.D.

Degrees Offered

- Masters of Science, Industrial Engineering (M.S.I.E.)
- Doctor of Philosophy, Industrial Engineering (Ph.D.)
- Accelerated Bachelor's/Master's Program in Industrial Engineering

Masters of Science in Industrial Engineering

The M.S.I.E. degree program provides excellent academic training and research opportunities in modern and classical Industrial Engineering methodologies. Students typically complete the M.S.I.E. degree using one of the following three concentrations:

- Decision Sciences: How to use mathematical tools, computer models and information technology to provide managers with the decision tools and strategies to improve business operations. Relevant coursework include optimization, supply chain management, inventory management, machine learning, linear and integer programing, and stochastic processes.
- Ergonomics and System Safety: How to design and arrange the workplace and management strategies to maximize the employees' productivity and safety. Relevant coursework includes industrial ergonomics, human factors system design, human machine interaction, systems safety engineering, and industrial hygiene engineering.
- Manufacturing Systems Engineering: How to improve manufacturing processes with the use of robotics, computer-controlled material handling systems and other automation devices in manufacturing service enterprises. Relevant coursework includes quality and reliability engineering, additive manufacturing, robotics and flexible automation, computer integrated manufacturing, smart manufacturing

Doctor of Philosophy with a Major in Industrial Engineering

The doctoral degree program in industrial engineering is designed to educate students to the highest level of competency in teaching and research. The program helps students develop skills and experience to perform independent research in various applied and theoretical industrial engineering topics. Research work for the doctoral dissertation must show a high degree of originality on the part of the student and must constitute an original contribution to the body of knowledge.

Educational Outcomes

The students of the Industrial Engineering Masters and Doctoral program are expected to meet the following educational outcomes at the time of their graduation.

1. The ability to use, master, and teach modern and classical Industrial Engineering methodologies in their area of concentration.
2. The ability to apply knowledge of math, science, and engineering.
3. The ability to do research, and to design and conduct experiments, analyze and interpret data, develop implementation strategies, and shape recommendations so that results will be achieved and findings will be communicated effectively.
4. The ability to work individually, on teams, and/or on multi-disciplinary teams to identify, formulate, and solve problems using industrial engineering knowledge, skills, and tools.
5. The ability to design and implement or improve integrated systems that include people, materials, information, equipment, and energy using appropriate analytical, computational, and experimental practices.
6. A thorough understanding of professional and ethical responsibility and the broad education and knowledge of contemporary issues necessary to fully evaluate the impact of solutions in a global and societal context.
7. A recognition of the need for and an ability to engage in life-long learning.
8. The professional characteristics expected of a successful Industrial Engineer.

Admissions for 2027-2028

MASTERS ADMISSIONS

To be eligible for admission into the Master of Science in Industrial Engineering degree program, a candidate must fulfill the following requirements:

- Bachelor of science degree from an engineering, physics, chemistry, computer sciences, mathematics, or a similar technical or science program. The applicant must have completed at least two years of calculus or equivalent mathematics in their degree program.
- Earned a GPA of 3.0 or better (out of a possible 4.0). Applicants with a cumulative GPA of less than 3.00 may be considered for admission if they have professional or other relevant experience.
- A statement of purpose.
- Two letters of recommendation.

- Official transcripts of all previous college course work.
- While not required for admission, all applicants are encouraged to submit GRE scores for fellowship and funding options.
- International applicants must meet the WVU requirement of English language proficiency (https://graduateadmissions.wvu.edu/information-for/international-students/).

DOCTORAL ADMISSIONS

To be eligible for admission into the doctoral program, a candidate must fulfill the following requirements:

- A bachelors and masters degree from engineering, physics, chemistry, computer sciences, mathematics, or a similar technical or science program. The applicant must have completed at least two years of calculus or equivalent mathematics in their degree program.
- Earned a GPA of 3.0 or better (out of a possible 4.0) in their undergraduate and graduate coursework. Applicants with a cumulative GPA of less than 3.0/4.0 may be considered for admission if they have professional or other relevant experience.
- A statement of purpose focusing on the research topic, methodology, and its feasibility.
- Two letters of recommendation.
- Official transcripts of all previous college course work.
- All applicants for the doctoral program must submit GRE scores.
- International applicants must meet the WVU requirement of English language proficiency (https://graduateadmissions.wvu.edu/information-for/international-students/).

DIRECT-TRACK BS-PHD ADMISSIONS

The Department of Industrial and Management Systems Engineering offers a direct track option from the bachelor of science (B.S.) to the doctor of philosophy (Ph.D.) degree for prospective qualified students with exceptional academic record and/or professional experience. The qualified students must hold a B.S. degree in engineering, physics, chemistry, computer sciences, mathematics, or a similar technical or science program. In general, a degree in one of the related science programs is required with at least two years of calculus or equivalent mathematics. This is an accelerated track that provides outstanding candidates the option of earning a Ph.D. degree in less than five years after graduating from an undergraduate program by engaging early in their Ph.D. dissertation research. To qualify for the direct- track degree option, all applicants must have:

- Applicants must have earned a GPA of 3.2 or better (out of a possible 4.0) in their undergraduate.
- A statement of purpose.
- Two letters of recommendation.
- Official transcripts of all previous college course work.
- All applicants for the direct-track program must submit GRE scores.
- International applicants must meet the WVU requirement of English language proficiency (https://graduateadmissions.wvu.edu/information-for/international-students/).

MSIE Major Code: 3045
PhD Major Code: 3046

For specific information on the following programs, please see the links to the right:

- Industrial Engineering, M.S.I.E.

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- Industrial Engineering, Ph.D.