INDUSTRIAL ENGINEERING, PHD

for the degree of Doctor of Philosophy in Industrial Engineering

**Department and Contact Information**

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**Overview of Admissions & Requirements:** [https://ise.illinois.edu/graduate/admissions/](https://ise.illinois.edu/graduate/admissions/)

**Overview of Grad College Admissions & Requirements:** [https://grad.illinois.edu/admissions/apply](https://grad.illinois.edu/admissions/apply)

**Department Website:** [https://ise.illinois.edu/](https://ise.illinois.edu/)

**Program Website:** [https://ise.illinois.edu/graduate/degrees-and-programs/phd-degree-guide.html](https://ise.illinois.edu/graduate/degrees-and-programs/phd-degree-guide.html)

**Department Faculty:** [https://ise.illinois.edu/directory/faculty.html](https://ise.illinois.edu/directory/faculty.html)

**College Website:** [https://grainger.illinois.edu/](https://grainger.illinois.edu/)

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The Department of Industrial & Enterprise Systems Engineering offers both a traditional doctoral program and a direct doctoral program. A Master's degree is not required for admission to the direct doctoral program. Students in both programs are required to have a research advisor and applicants are encouraged to contact department faculty ([https://ise.illinois.edu/directory/faculty.html](https://ise.illinois.edu/directory/faculty.html)) in their areas of interest to inquire about possible research and funding opportunities.

**Admission Requirements**

Applicants who have completed degree requirements in an accredited engineering program or its equivalent are eligible to apply for admission. A minimum grade point average of 3.25 (A = 4.00) for the last two years of undergraduate study is required.

Scores on the Graduate Record Examination (GRE) ([http://www.ets.org/](http://www.ets.org/)) general test are required of all applicants. Based upon the previous preparation of the student for either program, prerequisite courses may be specified by the advisor, but the credit may not be applied toward a degree.

All applicants whose native language is not English are required to submit TOEFL ([http://www.toefl.org/](http://www.toefl.org/)) or International English Language Testing System (IELTS) ([http://www.ielts.org/](http://www.ielts.org/)) scores as evidence of English proficiency. Minimum admission requirements ([https://grad.illinois.edu/admissions/instructions/04c/](https://grad.illinois.edu/admissions/instructions/04c/)) are set by the Graduate College.

**Financial Aid**

Qualified students may compete for financial assistance in the form of teaching/graduate/research assistantships, fellowships, grants, and tuition waiver scholarships. Under certain conditions, fellowships may be augmented by part-time assistantships. Starting in Fall 2020, Grainger Engineering PhD students in their first five years of enrollment who meet the minimum eligibility requirements ([https://grainger.illinois.edu/academics/graduate/phd-funding-guarantee/](https://grainger.illinois.edu/academics/graduate/phd-funding-guarantee/)) are guaranteed a funded appointment for fall and spring that includes a full tuition waiver, a partial fee waiver, and a stipend.

All applicants, regardless of US citizenship, whose native language is not English and who wish to be considered for teaching assistantships must demonstrate spoken English language proficiency ([http://grad.illinois.edu/admissions/taengprof.htm](http://grad.illinois.edu/admissions/taengprof.htm)) by achieving a minimum score of 24 on the speaking subsection of the TOEFL iBT or 8 on the speaking subsection of the IELTS. For students who are unable to take the iBT or IELTS, a minimum score of 4CP is required on the English Proficiency Interview ([http://cte.illinois.edu/testing/oral_eng/epi_overview.html](http://cte.illinois.edu/testing/oral_eng/epi_overview.html)) (EPI), offered on campus. All new teaching assistants are required to participate in the Graduate Academy for College Teaching ([https://citi.illinois.edu/citi-101/teaching-learning/grad-academy-for-college-teaching/](https://citi.illinois.edu/citi-101/teaching-learning/grad-academy-for-college-teaching/)) conducted prior to the start of the semester.

**Department Research**

Faculty research by ISE faculty is pursued in the following fields:

- computer-aided design
- nondestructive testing and evaluation
- reliability engineering
- human factors
- data analytics
- system dynamics and simulation
- financial engineering
- supply chain logistics
- optimization
- control
- operations research
- design systems
- robotics
- management science
- manufacturing systems
- real-time decision making
- biomechanics

Members of the ISE Department have access to a wide range of excellent research facilities. These laboratories support a wide range of activity and are described at the department's research laboratories Web site ([https://ise.illinois.edu/research/labs/](https://ise.illinois.edu/research/labs/)).
Graduate Programs in Industrial & Enterprise Systems Engineering

degrees:

Industrial Engineering, MS (http://catalog.illinois.edu/graduate/engineering/industrial-engineering-ms/)

optional concentrations:
Advanced Analytics in Industrial & Enterprise Systems Engineering (http://catalog.illinois.edu/graduate/engineering/concentration/advanced-analytics-industrial-enterprise-systems-engineering/) | Computational Science & Engineering (http://catalog.illinois.edu/graduate/engineering/concentration/computational-science-engineering/)

Industrial Engineering, PhD (p. 1)
Systems & Entrepreneurial Engineering, MS (http://catalog.illinois.edu/graduate/engineering/systems-entrepreneurial-engineering-ms/)

optional concentrations for the PhD:
Computational Science & Engineering (http://catalog.illinois.edu/graduate/engineering/concentration/computational-science-engineering/) | Data Science & Engineering (http://catalog.illinois.edu/graduate/engineering/concentration/data-science-engineering/)

Systems & Entrepreneurial Engineering, PhD (http://catalog.illinois.edu/graduate/engineering/systems-entrepreneurial-engineering-phd/)
Financial Engineering, MS (http://catalog.illinois.edu/graduate/bus_engineering/financial-engineering-ms/) (sponsored jointly with Department of Finance)

optional concentrations:
Advanced Analytics in Industrial & Enterprise Systems Engineering (http://catalog.illinois.edu/graduate/engineering/concentration/advanced-analytics-industrial-enterprise-systems-engineering/) | Data Analytics in Finance (http://catalog.illinois.edu/graduate/bus/concentration/finance/data-analytics-finance/)

Health Technology, MS (http://catalog.illinois.edu/graduate/ahs/health-technology-ms/) (sponsored jointly with the College of Applied Health Sciences)

The Department of Industrial and Enterprise Systems Engineering (ISE) offers graduate programs leading to degrees of Master of Science and Doctor of Philosophy in Industrial Engineering (IE) and Systems and Entrepreneurial Engineering (SEE), as well as (jointly with the Department of Finance) Master of Science in Financial Engineering. The ISE programs offer an approach to industrial engineering and systems engineering, engineering design, and entrepreneurial engineering that crosses disciplinary lines. The IE program is based in advanced studies that focus on operations research, optimization, supply chain management, financial engineering, quality and reliability engineering and production management, with the aim to advance modeling, simulation, analysis and decision making for complex engineering and economic systems. The SEE program is founded on the premise of dual competency in both traditional engineering and systems integration. The SEE program offers flexibility by permitting the student to select from a menu of advanced courses and take a wide range of electives to meet individual career goals. Graduates of these programs are prepared to enter academic and professional engineering positions in universities, industry, government, and private practice.

Information listed in this catalog is current as of 07/2022