

Industrial Engineering, PhD

ESINDENPHD

The industrial engineering program at ASU is consistently ranked among the top 20 graduate programs in the United States. Faculty members in the program are internationally recognized for their innovative research projects funded by both government and industry.

Program description

Degree awarded: PHD Industrial Engineering

The PhD program in industrial engineering engages students in fundamental and applied research. The overall educational objective of graduate study in industrial engineering is to improve each student's ability to identify, define and solve problems and perform original research in order to address the underlying causes of these problems. Industrial engineers develop qualitative and quantitative abilities to guide the design and operation of sustainable organizations and systems.

This doctoral program provides students with a rigorous education and with research and educational experiences. A large number of students are involved in applied research projects that are carried out in the context of government or privately funded research. Students have many opportunities to participate in highly impactful research projects and interact with the leaders in the subfield in which they choose to specialize. Many students graduate with significant accomplishments resulting from the work they performed during the course of their doctoral study.

At a glance

- **College/School:** [Ira A. Fulton Schools of Engineering](#)
- **Location:** [Tempe](#)

Degree requirements

85 credit hours, a written comprehensive exam, an oral comprehensive exam, a prospectus and a dissertation

Required Core (15 credit hours)

IEE 605 Foundations of Information Systems Engineering (3)

IEE 620 Optimization I (3)

IEE 622 Optimization II (3)

IEE 640 Probability and Stochastic Processes (3)

IEE 670 Mathematical Statistics (3)

Electives (42 credit hours)

Research and Internship Required Coursework (16 credit hours)

IEE 594 Conference and Workshop (1)

IEE 700 Research Methods (1)

IEE 784 Teaching Internship (1)

IEE 790 Reading and Conference (1) **or** IEE 584 Internship (1)

IEE 792 Research (12)

Culminating Experience (12 credit hours)

IEE 799 Dissertation (12)

Additional Curriculum Information

Students are required to complete five core courses within the first year of full-time enrollment in the doctoral program. To be allowed to continue in the program after completion of the core courses, each student must successfully pass a qualifying exam on three of the five core courses.

Eligible students can request a master's in passing after successfully completing the qualifying exam and completing 30 credit hours in the doctoral program.

A written and an oral comprehensive examination are required no later than the semester following completion of 57 credit hours of coursework in the plan of study. The student must also successfully defend the dissertation prospectus and the dissertation research.

Admission requirements

Applicants must fulfill the requirements of both the Graduate College and the Ira A. Fulton Schools of Engineering.

Applicants are eligible to apply to the program if they have earned a bachelor's or master's degree in any field from a regionally accredited institution.

Applicants must have a minimum cumulative GPA of 3.50 (scale is 4.00 = "A") in the last 60 hours of their first bachelor's degree program, or applicants must have a minimum cumulative GPA of 3.50 (scale is 4.00 = "A") in an applicable master's degree program.

All applicants must submit:

1. graduate admission application and application fee
2. official transcripts
3. a statement of purpose
4. GRE scores (optional)
5. three letters of recommendation
6. proof of English proficiency

Additional Application Information

An applicant whose native language is not English must provide proof of [English proficiency](#) regardless of their current residency.

ASU does not accept the GRE® General Test at home edition.

At the time of application, all applicants must have successfully completed a minimum of nine credit hours of calculus (Calculus I, II, III) with a grade of "C" or higher (scale is 4.00 = "A").

A student with any deficiency coursework must complete each deficiency with a grade of "B" (3.00) or better within two semesters of admission to the program.

Deficiency courses include:

CSE 110 Principles of Programming

CSE 205 Object-oriented Programming and Data Structures

IEE 376 Operations Research Deterministic Techniques/Applications

IEE 380 Probability and Statistics for Engineering Problem Solving

IEE 470 Stochastic Operations Research

MAT 242 Elementary Linear Algebra

Students should see the program website for application deadlines.

Tuition information

When it comes to paying for higher education, everyone's situation is different. Students can learn about [ASU tuition and financial aid](#) options to find out which will work best for them.

Application deadlines

Fall

Spring

[expand](#)

[expand](#)

Program learning outcomes

Program learning outcomes identify what a student will learn or be able to do upon completion of their program. This program has the following program outcomes:

- Develop advanced modeling to solve problems/issues in the field of Industrial Engineering.
- Produce novel scholarly research that makes a unique contribution to the field of industrial engineering.
- Develop innovative methodology, algorithms, and tools to solve a complex systems problem.

Career opportunities

Graduates of the program are prepared for careers in academia, government and industry. In these fields, graduates are qualified to teach, conduct advanced research, and develop and make use of advanced techniques for the operation of their businesses.

Contact information

[Industrial, Systems & Operations Engineering Prgm](#) | CTRPT 105
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