

Operations Research and Industrial Engineering (MSE)

The program in operations research and industrial engineering is designed to educate engineers who will solve complex industrial-socioeconomic problems by applying fundamental principles from engineering, mathematics, economics, computer science, and systems theory. In support of this end, a wide variety of research and study areas are offered by a faculty whose expertise covers such fields as optimization, simulation, statistics, stochastic processes, decision analysis, and manufacturing systems. The program is rigorous but sufficiently flexible to accommodate the needs and interests of most students.

Once students choose a study area, they work closely with one or more faculty members pursuing research in that area. Because of the interdisciplinary nature of the program, many projects involve teamwork and collaboration with departments in the Cockrell School of Engineering and the McCombs School of Business. Each student's program includes a balanced combination of coursework, seminars, computational analysis, and research. State-of-the-art computer facilities, specialized laboratories, and the latest versions of applications software are available to all graduate students.

Graduate Handbook

Graduate handbook information is updated and maintained by each program. Graduate handbooks are available within each program's office and [online](#). Please contact the program with concerns or questions.

Admission

The Admission Committee uses the following policies in considering applicants for admission. Each application is reviewed on its merits.

1. Applicants must provide a Graduate Record Examinations General Test (GRE) score no more than five years old. The applicant should have a grade point average in upper-division undergraduate coursework of at least 3.0 on a 4-point scale, or the equivalent. Students who feel that their GRE scores and grades do not reflect their ability to do high-quality graduate work should submit a statement explaining this belief.
2. Both the master's and the doctoral degree program are designed for full-time study, but part-time students are accepted. From the time of entry until completion, students are expected to show evidence of commitment to the program and of progress toward the degree.
3. As a general rule, students should enter the program in the fall semester, because of the way basic graduate courses are scheduled.
4. Students who do not have undergraduate degrees in engineering, mathematics, or the sciences may be required to remove deficiencies before beginning graduate coursework.

Total Hours Required: 30

Requirements

To enter the MSE program, a student should have an undergraduate degree in engineering or an equivalent quantitative field such as mathematics, economics, or one of the physical sciences. The graduate advisor may require those with degrees in other fields to take additional

courses. In general, an adequate background includes coursework in probability, statistics, programming, linear algebra, calculus, engineering economics, and optimization. These courses may be taken after enrollment, but they usually will not be counted toward fulfillment of degree requirements.

The operations research component of the program emphasizes the application of mathematics to a variety of economic and operational problems. Students take advanced coursework in optimization, probability and statistics, and stochastic processes. Those interested primarily in industrial engineering may concentrate on forecasting, production planning and control, scheduling, or logistics.

Each student must complete either 24 semester hours of coursework plus a six-hour thesis; 27 semester hours of coursework, plus a three-hour research report; or 30 semester hours of coursework. More coursework may be required, depending on the student's background and goals. All options require at least two courses in a minor area, which usually comprises work in mathematics, business, computer science, or other branches of engineering. The graduate advisor, after consultation with a student's research supervisor, is the final approver of each student's degree plan. All ORI-designated courses must be taken for a letter grade if they are to count towards the degree.

Code	Title	Hours
All students must also follow the following requirements and policies:		
Graduate Engineering Requirements		
Graduate University Requirements		