Industrial and Management Systems Engineering

Grounded in engineering and the social sciences, our graduate program in Industrial and Management Systems Engineering (IMSE) equips students with traditional and contemporary skills to design, manage, and analyze complex human-centered systems. Graduate students pursue advanced technical topics to design, analyze and manage systems that can improve the effectiveness and efficiency of businesses, non-profit organizations, and governments. Since all these systems involve humans and impact the social and physical environment, these systems are most successful when they combine technical solutions with social responsibility, defined as transparent and ethical behavior that contributes to sustainable development, ensures health and welfare of society, incorporates stakeholder expectations, complies with international laws and norms, and is integrated across all systems that impact society and the environment.

Thus, the vision of the program is to integrate technical depth with social awareness from a multidisciplinary (i.e., systems) point of view.

The Master of Science degree in Industrial and Management Systems Engineering degree may be accomplished under the thesis option or professional option. Under either option, a program of study is arranged for each student according to their particular goal.

Admission

The minimum requirement for admission is a Bachelor of Science degree and evidence of an ability to maintain a minimum 3.0 grade point average while pursuing a graduate degree. Applicants without a degree in Industrial Engineering (or similar) are eligible to apply, but may be required to make up subject matter deficiencies upon admission. For complete information, refer to the Admission Policies and Application Requirements sections in the department website. Successful applicants are accepted into both the department and The Graduate School.

Below are the GRE and TOEFL scores the graduate committee uses as guidelines in admissions decisions. The committee will consider lower scores with other excellent qualifications, but these higher scores indicate a better chance of success in this program.

- GRE average scores: GRE-V = 149, GRE-Q = 155, GRE-A = 3.7
- GRE preferred scores: GRE-V = 152, GRE-Q = 156, GRE-A = >3.8
- TOEFL average score: 84
- TOEFL preferred score: 99
- IELTS minimum score: 6.5

Degree Requirements

Students complete the M.S. degree in Industrial and Management Systems Engineering under the thesis option (Plan A) or professional option (Plan B). Plan A requires a research experience culminating in a master’s thesis. Students following Plan B choose additional coursework and a graduate project or internship in lieu of completing a thesis. Plan B students complete the graduate project or internship under the supervision of a professor, culminating in a written report and oral presentation. All candidates for the M.S. degree must pass an oral comprehensive examination near the completion of their graduate program. Specific requirements for each plan are outlined below.

Accelerated M.S. Plan

The Accelerated Master of Science degree program is designed to allow qualified Industrial & Management Systems Engineering (IMSE) students and Financial Engineering (EFIN) students (EFIN students must also complete the Engineering Management Minor) to complete the IMSE Master of Science degree requirements by extending their period of study one additional year past the traditional four-year period of undergraduate study.

The IMSE Accelerated Masters program can be completed by integrating both graduate and undergraduate course requirements in the final two years of the combined period of study. Per the Board of Regents approval, this integration allows up to 12 credits to be reserved towards the M.S. while the student is still an undergraduate and it allows up to six credits of 400-level IMSE courses to satisfy credit requirements of both the B.S. undergraduate degree and the M.S. graduate degree.

The B.S. and B.S. with minor degree requirements must be completed before completion of the M.S. degree. A student who enters the program, but does not complete it in accordance with the simultaneous enrollment policies of the Graduate School will default to the standard M.S. degree program and loses the ability to count EIND 400 level courses taken as an undergraduate towards any future graduate degree at MSU.

Plan A - Thesis Option

Students chose a focus area of Inclusive Design, Management Systems or Data Analytics; and a thesis topic consistent with that focus area. Then, students complete a minimum 31 credits in the chosen focus area (12 credits from core course list + 10 credits of thesis + 9 credits from elective course list).

NOTE: EIND 490, EIND 492, EIND 499, EIND 575, and EIND 598 cannot be used towards Plan A course requirements. The final graduate plan of study must comply with Graduate School Policy (http://www.montana.edu/gradschool/policy/degreq_general.html) including the requirement that the number of 5xx-level course credits must be equal to two-thirds (2/3) of the total graded coursework, including Thesis Research credits (590 (http://catalog.montana.edu/search/?P=EIND+590)).

FOCUS AREA: INCLUSIVE DESIGN

Core Courses:

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## FOCUS AREA: MANAGEMENT SYSTEMS

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## FOCUS AREA: DATA ANALYTICS

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## FOCUS AREA: INCLUSIVE DESIGN

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