INDUSTRIAL & MANAGEMENT SYSTEMS ENGINEERING
COLLEGE OF ENGINEERING | MONTANA STATE UNIVERSITY

WHAT IS INDUSTRIAL & MANAGEMENT SYSTEMS ENGINEERING?

Industrial and Management Systems Engineers (IMSEs) optimize the ways in which organizations deliver goods and services. They apply mathematical models, engineering problem-solving, human factors and managerial concepts to improve efficiency, create safer and more productive workplaces, and optimize the allocation of scarce resources. The knowledge and skills of an IMSE apply broadly across many sectors of society, including manufacturing, finance, transportation, health care, energy, construction, entertainment, and government.

FOCUSED ON BUSINESS

Because IMSEs understand business principles related to the management of people and resources, they bridge the gap between management and the operations team. With their strong understanding of how to design effective management systems, IMSEs often become managers themselves. Many practitioners say that an IMSE education offers the best of both worlds: an education in both engineering and business.

WIDELY APPLICABLE

IMSE knowledge and skills enjoy broad appeal because the problems of making efficient use of resources, increasing health and safety, and improving quality and productivity are problems all organizations face. This gives IMSEs versatility to work in diverse sectors and flexibility in career paths.

INTEGRATE PEOPLE AND SYSTEMS

Organizations are comprised of people, and it’s the people who use equipment, process information, and otherwise carry out the work needed to deliver goods and services to customers. If you choose IMSE, making sure that the work activities, including the equipment and information involved, are suitable for the people doing them will be important aspects of your job.

BY THE NUMBERS

According to a study by the University of Chicago, the occupation “Industrial Engineer” was in the top 10 of those with the happiest people.

The Bureau of Labor Statistics projects a 30% increase in the employment of IMSEs in the health care sector over the next 10 years. IMSE ranks second among MSU’s engineering disciplines for the percentage of female undergraduates.

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CURRICULUM
As an Industrial and Management Systems Engineering (IMSE) student, you’ll take a broad range of courses. The curriculum is continually updated to reflect modern industrial and management systems engineering practice, so it is best to refer to the online catalog at this address: http://catalog.montana.edu/undergraduate/engineering/mechanical-industrial-engineering/industrial-engineering/. From there, you can explore the suggested class schedule for each year as an undergraduate and delve into course descriptions.

- As an IMSE major, you’ll receive a strong grounding in mathematics, science, engineering and computing fundamentals in the first two years.
- In the second two years, you’ll acquire specialized knowledge about improving industrial and management systems. Topics include human factors, work design, operations research, simulation modeling, applied statistics, project management, economic analysis, and facilities design.
- You will customize your IMSE degree by developing a complementary area of specialization through the IMSE cognate.
- You’ll find that the IMSE curriculum emphasizes development of strong oral and written communication skills which are essential for you to build a successful career.
- To help you better understand the larger social context in which you are solving problems, you’ll complete 15 credits of humanities, social science, and fine arts core classes.
- If you’re a typical IMSE student, you’ll complete internships or an undergraduate research experience where you will apply your schooling to real-world problems.

SEAMLESS MASTERS PROGRAM
MSU has a Seamless Masters degree program for qualified IMSE undergraduate students. With this unique program, students may obtain both a BS and MS degree at graduation with only one additional year of study.

LENGTH OF STUDY AND PREP FOR GRAD SCHOOL
The curriculum is designed to be completed in four years. The program prepares students for licensing as professional engineers and is an excellent precursor for graduate studies in industrial engineering and related fields.

FACILITIES
- Computer Aided Design and Drafting Laboratory
- Computer Integrated Manufacturing Laboratory
- Decision Support Systems Laboratory
- Ragsdale Production Systems and Facilities Design Laboratory
- Western Transportation Institute’s Driving Simulator Laboratory
- Human Factors Engineering and Ergonomics Laboratory
- Human Factors Naturalistic Laboratory

An IMSE student uses an eye tracker as part of her human factors research to model eye scanning behaviors while texting and driving.