

# The Masters of Science in Industrial and Systems Engineering

Dept. of Industrial and Manufacturing Systems Engineering

College of Engineering and Computer Science

University of Michigan Dearborn

A Rackham School of Graduate Studies Program

**PH:** 313-593-5361; **FAX:** 313-593-3692; **E-mail:** [imsedep@engin.umd.umich.edu](mailto:imsedep@engin.umd.umich.edu)

[www.engin.umd.umich.edu/IMSE/gradprog](http://www.engin.umd.umich.edu/IMSE/gradprog)

## Program

This 30 credit hours degree program is designed for engineers and other professionals who have responsibility for designing, installing, improving and evaluating large integrated systems. Specializations/courses are available in the areas of:

- Human Factors/Ergonomics
- Operations Research & Management Science
- Quality Systems Design
- Advanced Manufacturing & Automation
- Information Systems Management
- Enterprise Information Systems
- Program Management & Product Development

## Program Prerequisites

- A Bachelor's degree in engineering, a physical science, computer science, or applied mathematics.
- A course in Probability and Statistics (IMSE 510 or equivalent) along with knowledge of computer programming.
- A course in Human Factors and Ergonomics (IMSE 501 or equivalent)
- A course in Operations Research (IMSE 500 or equivalent)

Students who have not fulfilled the requirements of the bachelor degree in Industrial & Systems Engineering should speak to the program advisor regarding the requirements to be met.

## Course Requirements

The program of study must satisfy the following distribution and course requirements:

### 1. Required Core Courses (9 credit hours)

IMSE 511 Design and Analysis of Experiments  
IMSE 554 Management Information Systems  
IMSE 580 Production Management

### 2. A minimum of 12 credit hours from the four concentration areas listed below. All four courses can be taken from one concentration area or any combination of the four concentration areas.

#### A) *Industrial & Systems Engineering Concentration*

##### *Human Factors and Ergonomics*

IMSE 543 Industrial Ergonomics  
IMSE 545 Vehicle Ergonomics I  
IMSE 546 Safety Engineering  
IMSE 548 Human Factors

IMSE 577 User Interface Design and Analysis  
IMSE 593 Vehicle Packaging Engineering  
AE 546 Vehicle Ergonomics II

*Operations Research & Management Science*

IMSE 505 Applied Optimization  
IMSE 514 Multivariate Statistics  
IMSE 5205 Engineering Risk-Benefit Analysis  
IMSE 5215 Program Budget, Cost Estimation & Control  
IMSE 559 System Simulation  
IMSE 605 Advanced Optimization  
IMSE 606 Advanced Stochastic Processes

*B) Integrated Design and Manufacturing Engineering Concentration*

*Quality Systems Design*

IMSE 513 Robust Design  
IMSE 519 Quantitative Methods in Quality Engineering  
IMSE 561 Total Quality Management  
IMSE 567 Reliability Analysis

*Advanced Manufacturing & Automation*

IMSE 502 Computer-Integrated Manufacturing  
IMSE 538 Intelligent Manufacturing  
IMSE 5655 Supply Chain Management

*C) Information Systems Concentration*

*Information Systems Management*

IMSE 553 Software Engineering  
IMSE 556 Database Systems  
IMSE 557 Computing Networks and Communication

*Enterprise Information Systems*

IMSE 555 Decision Support and Expert Systems  
IMSE 5585 Electronic Commerce  
IMSE 564 ABAP/4 Programming  
IMSE 570 Enterprise Information Systems  
IMSE 5715 Modeling of Integrated Information Systems  
IMSE 5725 Object Oriented Systems Design  
IMSE 574 IS Based Production Planning and Control  
IMSE 579 Software Integrated Manufacturing and Logistic Management

*D) Program Management & Product Development Concentration*

EMGT 580 Management of Product and Process Design  
IMSE 515 Fundamentals of Program Management  
IMSE 516 Project Management and Control  
IMSE 517 Managing Global Systems

3. At least two graduate-level cognate courses for a minimum of six credit hours in departments other than IMSE must be elected.
4. The remaining credit hours may be selected with the approval of the graduate advisor.

5. With the approval of their graduate advisor, students may substitute a master's thesis for no more than six credit hours of graduate course work. Students choosing the thesis option are required to elect a minimum of 9 credit hours from the concentration electives, rather than the 12 credit hours stipulated above for the concentration areas. Students must complete 2 of the courses from one of the concentration areas.

For further information please call Joey Woods (Graduate Program Assistant) at 313-593-5361, or e-mail [imsedep@engin.umd.umich.edu](mailto:imsedep@engin.umd.umich.edu).

Application can be obtained on line at [www.engin.umd.umich.edu/IMSE/grad\\_prog/appforms.php](http://www.engin.umd.umich.edu/IMSE/grad_prog/appforms.php) (you will need to print out application and all necessary forms). Dearborn campus does not accept graduate applications on line. Application instructions follow on the next page.

# Application Instructions

## For Domestic Students

We do not have a deadline date, but we strongly recommend that you apply at least one month before the semester start.

Semester	Classes Begin
Fall	September
Winter	January
Summer	May, July

We *recommend* that you apply as early as possible before the semester begins for registration purposes and the best course availability.

***Please follow the instructions below for submitting your application***

**DO NOT SEND APPLICATION TO RACKHAM**

**Please send the following materials directly to the IMSE Department:**

- **All pages of the application** (both copies)
- **\$60 application fee** (This fee is per application, for each department applied.) Payable by check, credit cards are not accepted at this time.
- **2 Letters of Recommendation** (one letter of recommendation must be from someone familiar with your academic background: a Professor or an advisor)
- **Statement of Purpose**
- **1 Official Transcript** -from *each* institution you have attended (transcripts must be sent directly to the IMSE department)

NOTE: The above materials can be mailed separately

**Mail All Application Materials To:**

University of Michigan-Dearborn  
IMSE Department (2340 EC)  
4901 Evergreen Road  
Dearborn, MI 48128-1491

If you have any questions regarding the application process, please call (313) 593-5361, or email [imsedep@engin.umd.umich.edu](mailto:imsedep@engin.umd.umich.edu)

**NOTE:** Application can be obtained on line at [www.engin.umd.umich.edu/IMSE/grad\\_prog/appforms.php](http://www.engin.umd.umich.edu/IMSE/grad_prog/appforms.php) (you will need to print out application and all necessary forms). You will need to print out the application and mail to the Department at the Dearborn Campus. We do not accept on-line graduate applications at this time.

# Application Instructions For International Students

## When to Apply?

Please Apply by the Required Date. If application is not submitted or completed before the deadline, it will be considered for the next term.

Semester	Deadline to Apply	Registration	Classes Begin
<b>Fall</b>	March 25	June	September
<b>Winter</b>	July 25	November	January
<b>Summer</b> (includes Spring-half & Summer-half, Spring/Summer -full)	November 25	April	May, July

*Please follow the instructions below for submitting your application*

**DO NOT SEND APPLICATION TO RACKHAM**

## **Please send the following materials directly to the IMSE Department:**

- **All pages of the application** (both copies)
- **\$75.00 application fee** (your application will not be evaluated unless the fee has been paid). This fee is per application, for each department applied. Payable by check, credit cards are not accepted at this time.
- **2 Official Transcripts** (Official not notarized transcripts in native language and official English translation.)
- **Financial Certification** – original affidavit of support, with original bank statements, showing the minimum amount needed for certification (must include dependent if there are any).
- **TOEFL, ME Lab, or IELTS Score** – an English proficiency score that meets the minimum requirement for admission.
- **2 Letters of Recommendation** (one must be from someone familiar with your academic background: a Professor or an advisor)
- **Statement of Purpose**

**NOTE:** Evaluation can not be done until application fee, application, transcripts, financial certification, and English proficiency score has been received.

## **Mail All Application Materials To:**

University of Michigan-Dearborn  
IMSE Department (2340 EC)  
4901 Evergreen Road  
Dearborn, MI 48128-1491

If you have any questions regarding the application process, please call (313) 593-5361, or email [imsedep@engin.umd.umich.edu](mailto:imsedep@engin.umd.umich.edu)

**NOTE:** Application can be obtained on line at [www.engin.umd.umich.edu/IMSE/grad\\_prog/appforms.php](http://www.engin.umd.umich.edu/IMSE/grad_prog/appforms.php) (you will need to print out application and all necessary forms). You will need to print out the application and mail to the Department at the Dearborn Campus. We do not accept on-line graduate applications at this time.