DUAL DEGREE, MBA/MSE IN INDUSTRIAL AND SYSTEMS ENGINEERING

The MBA/MSE-Industrial Systems Engineering has been carefully developed to meet the increasing need for professionals who have expertise in both engineering and management. It is open to students who have completed a Bachelor of Science degree in engineering, a physical science, computer science, or applied mathematics.

The program is offered jointly by the College of Business and the College of Engineering and Computer Science. It allows students to receive both the MBA and MSE-ISE simultaneously upon completion of the required minimum credit hours.

You may complete the program on campus, on-line, or any combination of the two, and you may enroll on a full- or part-time basis.

Admission is rolling, and you may begin the program in September, January, or May. Students must apply and be admitted to the MBA and the MSE-ISE programs separately. University of Michigan-Dearborn students who have been admitted to the program may take up to 6 graduate business credits during the final semester of their undergraduate program.

Program Goals and Objectives

Master of Business Administration

Goal 1: Students will have an understanding of the core business disciplines and be able to apply this knowledge to global business situations.
Objectives: MBA students will:

1. Demonstrate knowledge of disciplinary concepts, terminology, models, and perspectives.
2. Identify business problems and apply appropriate solutions (problem-finding/problem-solving).
3. Integrate knowledge across disciplinary areas (integrative thinking).
4. Apply knowledge in a global environment.

Goal 2: Students will be effective communicators.

Objectives: MBA students will:

1. Demonstrate an ability to effectively communicate in a manner that is typically required of a business professional.

Goal 3: Students will appreciate the importance of ethical/corporate social responsibility principles.

Objectives: MBA students will:

1. Identify and explain alternative approaches to ethical/corporate social responsibility issues.

Admission Prerequisites

Master of Business Administration

- Mathematics admission prerequisite

MSE in Industrial and Systems Engineering

- Completion of a bachelor of science degree in engineering, a physical science, computer science, or applied mathematics

MBA/MSE Curriculum

Code	Title	Credit Hours
MBA Foundation Knowledge		
All of the following are required:		18
ACC 505	Devel & Interp Financial Info	
BE 530	Econ Analysis: Firm & Consumer	
FIN 531	Fin Fundament & Value Creation	
ISM 525	Fundamentals of Information Systems	
MKT 515	Marketing Management	
OB 510	Organization Behavior	
MBA Transformative Knowledge		
Future Ready - all of the following are required:		9
BA 510	Introduction to Business Analytics	
BA 520	AI Fundamentals for Business	
BPS 516	Stakeholder-Centric Management	
Global - Select one course from the following:		3
BE 583	Global Econ: Crisis & Growth	
FIN 655	International Financial Mgt	
MKT 622	Global Marketing	
OB 610	Global Management and Cross-Cultural Strategies	
Decision Making - select one course from the following:		3
BA 605	Managerial Decision Making	
BA 607	Business Disruption in the Digital Age: Machine Learning, Platforms, and the Crowd	
BA 611	Organizational Dysfunction and Wealth Effects	
BA 616	Firm Value and Market Reactions	
MBA Personalized Pathway Electives		
Select a minimum of any three graduate elective courses (9 credits). Up to three elective courses can be from COB or CECS. If more than 3 elective courses (9 credits) are required, these additional electives must be from COB.		9
MBA Capstone		
Capstone is to be taken during the last 1/3rd of the MBA program.		
BPS 535	Advanced Strategy in Action	3
ISE Core		
Select three courses from the following:		9
IMSE 500	Models of Oper Research	
IMSE 501	Human Factors & Ergonomics	
IMSE 580	Prod & Oper Engineering I	
IMSE 586	Big Data Aanal & Visuliztn	
ISE Specialization Options/Courses		
Students must complete four courses from one or more of the ISE Specialization Options below.		12
Human Factors and Ergonomics Specialization		
HCDE 510	Foundation of HCDE	3
HCDE 520	Research Methods in HCDE	3
IMSE 501	Human Factors & Ergonomics	3
IMSE 511	Design and Analysis of Exp	3

IMSE 545	Vehicle Ergonomics I	3
IMSE 548	Res.Meth.Human Fctrs/Ergonomic	3
IMSE 577	Human-Computer Interaction	3
Operations Research and Management Science Specialization		
IMSE 500	Models of Oper Research	3
IMSE 505	Optimization	3
IMSE 515	Fundamentals of Program Mgt	3
IMSE 520	Managerial Decision Analysis	3
IMSE 5205	Eng Risk-Benefit Analysis	3
IMSE 5215	Program Budget, Cost Est & Con	3
IMSE 580	Prod & Oper Engineering I	3
Quality Engineering and Smart Manufacturing Specialization		
IMSE 519	Quan Meth in Quality Engin	3
IMSE 561	Tot Qual Mgmt and Six Sigma	3
IMSE 567	Reliability Analysis	3
IMSE 568	AI for Smart Manufacturing	3
IMSE 580	Prod & Oper Engineering I	3
ME 595	Digital Manufacturing	3
Supply Chain and Logistics Specialization		
IMSE 516	Project Management and Control	3
IMSE 517	Managing Global Programs	3
IMSE 564	Applied Data Analytics and Modeling for Enterprise Systems	3
IMSE 5655	Supply Chain Management	3
IMSE 570	Enterprise Information Systems	3
IMSE 5725	Object Oriented System Design	3
IMSE 5755	Bus Proc Int using Entrpr Tech	3
IMSE 580	Prod & Oper Engineering I	3
Data Science and Analytics Specialization		
HCDE 518	Human-Centered AI and Human-AI Teaming	3
IMSE 514	Multivariate Statistics	3
IMSE 556	Database Systems	3
IMSE 564	Applied Data Analytics and Modeling for Enterprise Systems	3
IMSE 5755	Bus Proc Int using Entrpr Tech	3
IMSE 586	Big Data Aanal & Visuliztn	3
Business Engineering Management Specialization		
EMGT 500	Management for Engineers	3
EMGT 505	Systems Engineering	3
EMGT 580	Mgt of Prod and Proc Design	3
EMGT 525	Tot Qua Mgmt and Six Sigma	3
IMSE 516	Project Management and Control	3
See below for Cognate Requirements and Electives Requirement information		
Total Credit Hours		**Check with academic advisor.**

Cognate Requirements (6 credits):

At least two graduate-level cognate courses for a minimum of six (6) credit hours total in departments other than IMSE must be elected.

The following courses **CANNOT** be used as cognate courses:

- Any IMSE, EMGT, HCDE course
- DS 520 Applied Statistical Modeling
- DS 570 Management Science
- DS 631 Decision Analysis
- ISM 525 Computer and Info Systems
- OM 521 Operation Management
- OM 663 Lean & Six Sigma

Electives (3 credits):

The remaining 3 credit hours may be selected from the approved electives listed below:

Code	Title	Credit Hours
Approved MSE-ISE-Electives		
Select one course from the following:		3
Any 500-level courses from CECS (except HCDE 501 and EMGT 520) and the following approved ekectives:		
ACC 505	Devel & Interp Financial Info	
FIN 531	Fin Fundament & Value Creation	
MKT 515	Marketing Management	
OB 510	Organization Behavior	
OM 660	Supply Chain Analytics	
OM 661	Supply Chain Logis Mgmt	
OM 664	Strategic Sourcing	
STAT 530	Applied Regression Analysis	
STAT 550	Multivariate Stat Analysis	
STAT 560	Time Series Analysis	

Courses may not be taken off campus except by prior permission of the Academic Standards Committee. Permission is granted only in the case of unusual, extenuating circumstances.

Program Details

No single course may be counted toward more than one requirement or specialization in the dual degree program.

MSE ISE requires at least 21 credits of engineering (IMSE) coursework.

Course Waivers and Transfer Credit

Students may waive **ACC 505**, **BE 530**, **BPS 516**, **FIN 531**, **ISM 525**, **MKT 515**, and **OB 510** if they have equivalent courses in an AACSB business program completed within the previous 10 years and have earned at least a 3.2 post-60 GPA (that is, your GPA in courses taken after your first 60 undergraduate credit hours). Students who do not meet these criteria may request to have their courses evaluated for waiver credit at the time of admission. Students must have earned a B or better in equivalent courses as a part of a degree program completed within the previous 10 years.

Regardless of waiver and exemption credits granted, students must earn at least 57 credits in the dual-degree program.

In addition, up to 9 transfer credits for previous equivalent graduate coursework can be applied to the degree if those credits have not been counted toward a degree.

Waivers and transfer credit are granted at the discretion of the program faculty.

BA 605 Managerial Decision Making 3 Credit Hours
This course covers the findings of research on behavioral decision making as they apply to managerial decision making. You will learn how the human mind works, what it is particularly good at and not so good at, and what the implications of this are for managerial decision making. The course will help you make better decisions and understand the potential shortcomings of the decisions made by your colleagues, competitors, collaborators, and customers. Topics include human cognition, overconfidence, heuristics and biases in decision making, bounded awareness, framing, preference reversal, motivational and emotional influences on decision making, escalation of commitment, expertise in decision making, and fairness and ethics in decision making. We will apply the research on behavioral decision making to a wide variety of problems in various domains of business, study how applications of information systems can mitigate limitations of the human mind, and apply our knowledge of the way the human mind works to develop an understanding of ways to improve managerial decision making. Students interested in careers in a wide variety of business professions will find the knowledge and skills gained in this course to be useful in their professional endeavors.
Restriction(s):
Can enroll if Class is Graduate

BA 690 Graduate Research 1 to 3 Credit Hours
To provide masters candidates with the opportunity to undertake a research project under the supervision of a faculty member. The research topic is chosen by the student, in consultation with a faculty member in the appropriate discipline. Written approval must be obtained at least two weeks prior to registration on a form available in the Graduate Office. The request must include a comprehensive description of the proposed research project, as well as a time line for the project's completion.
Restriction(s):
Can enroll if Class is Graduate
Can enroll if College is Business

BA 691 Graduate Seminar 1 to 3 Credit Hours
Topics Course. To provide masters candidates with an opportunity for study of selected advanced topics in particular fields. Topics vary. See Schedule of Classes for current offerings. May be elected more than once if topics differ.
Prerequisite(s): (MIS 525 or MIS 502) and (MKT 515 or MKT 610)
Restriction(s):
Can enroll if Class is Graduate

BA 691A Graduate Seminar 3 Credit Hours
Topic: The Internal Revenue Service. This course introduces the student to the structure, organization, practices and procedures of the Internal Revenue Service. The course is intended to give students an understanding of the organizational makeup of the Internal Revenue Service and the authority of its various employees. The different approaches to resolving tax controversies will be explored through the study of assigned readings and in-depth class discussions. The course will be conducted in a seminar-like fashion with each student expected to make significant contributions to class discussions. Attentiveness to news items affecting the area of federal tax procedures is expected, as well as conveyance to class of these newsworthy developments. This course is appropriate for MSA? Tax Concentration students.

*An asterisk denotes that a course may be taken concurrently.

Frequency of Offering

The following abbreviations are used to denote the frequency of offering: (F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally