

# 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 57-66 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
- A course in Probability and Statistics equivalent to IMSE 510
- A course in Operations Research equivalent to IMSE 500

## MBA/MSE Curriculum

Code	Title	Credit Hours
<b>MBA Core Courses</b>		
ACC 505	Devel & Interp Financial Info	3
BE 530	Econ Analysis: Firm & Consumer	3
BPS 516	Corporate Social Responsibility	3
FIN 531	Fin Fundament & Value Creation	3
ISM 525	Computer and Info Systems	3
MKT 515	Marketing Management	3
OB 510	Organization Behavior	3
<b>MBA Applied Integrated Management (AIM)</b>		
International AIM Course:		
Select one course from:		3
BE 583	Global Econ: Crisis & Growth	
FIN 655	International Financial Mgt	
MKT 622	Global Marketing	
OB 610	Intrnatl Dimensions of Managmt	
AIM Capstone:		
BPS 535	Strategic Planning and Decision Making	3
General AIM Courses:		
Select two courses from:		6
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	
BPS 585	Managing Strat Innov & Change	
<b>MBA Electives or Optional Concentration</b>		<b>9</b>
Complete 9 credits from at least one of the available concentrations (Accounting, Business Analytics, Finance, Healthcare Management, Human Resources Management, International Business, Information Systems Management, Marketing, Supply Chain, Management), <b>or</b> choose at least three elective courses (9 credits).		
<b>ISE Core</b>		
IMSE 501	Human Factors & Ergonomics	3
IMSE 511	Design and Analysis of Exp	3
IMSE 580	Prod & Oper Engineering I	3
<b>ISE Track Options/Courses</b>		
Students must complete four courses from one or more of the ISE Track Options below.		12
<b>Industrial and Systems Engineering</b>		
<b>Human Factors and Ergonomics Track</b>		
AENG 546	Vehicle Ergonomics II	3
IMSE 534	Human Performance Engin in Mfg	3
IMSE 545	Vehicle Ergonomics I	3
IMSE 546	Safety Engineering	3

IMSE 548	Res.Meth.Human Fctrs/Ergonomic	3
IMSE 577	Human-Computer Interaction	3
IMSE 593	Vehicle Package Engineering	3
<b>Operations Research and Management Science Track</b>		
IMSE 500	Models of Oper Research	3
IMSE 505	Optimization	3
IMSE 514	Multivariate Statistics	3
IMSE 5205	Eng Risk-Benefit Analysis	3
IMSE 5215	Program Budget, Cost Est & Con	3
IMSE 559	System Simulation	3
IMSE 586	Big Data Aanal & Visuliztn	3
IMSE 605	Advanced Optimization	3
IMSE 606	Advanced Stochastic Processes	3
<b>Integrated Design and Manufacturing Engineering</b>		
<b>Quality Systems Design Track</b>		
IMSE 513	Robust Design	3
IMSE 519	Quan Meth in Quality Engin	3
IMSE 561	Tot Qual Mgmt and Six Sigma	3
IMSE 567	Reliability Analysis	3
<b>Advanced Manufacturing and Automation Track</b>		
IMSE 504	Metal Forming Processes	3
IMSE 538	Intelligent Manufacturing	3
IMSE 5655	Supply Chain Management	3
IMSE 581	Prod & Oper Engineering II	3
IMSE 5825	Industrial Controls	3
<b>Information Systems</b>		
<b>Information Systems Management Track</b>		
CIS 527	Computer Networks	3
IMSE 553	Software Engineering	3
IMSE 556	Database Systems	3
<b>Enterprise Information Systems Track</b>		
IMSE 555	Decision Support/Expert Sys	3
IMSE 564	Applied Data Analytics and Modeling for Enterprise Systems	3
IMSE 570	Enterprise Information Systems	3
IMSE 5715	Modeling of Int Info Syst	3
IMSE 5725	Object Oriented System Design	3
IMSE 5755	Bus Proc Int using Entrpr Tech	3
<b>Program Management and Product Development</b>		
EMGT 580	Mgt of Prod and Proc Design	3
IMSE 515	Fundamentals of Program Mgt	3
IMSE 516	Project Management and Control	3
IMSE 517	Managing Global Programs	3
<b>Total Credit Hours</b>		<b>57-66</b>

<sup>1</sup> Up to three graduate credits may be elected from units other than the College of Business. Elective courses must be approved by the Graduate Program Advisor in advance of course election.

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

### Breadth Requirements

- Complete AIM courses in at least 3 different disciplines.
- Complete no more than four AIM, MBA Concentration, and MBA Elective Courses (12 credits) in any single discipline. This does not apply to courses associated with the MSE in ISE portion of the dual-degree program.
- Complete graduate business courses in at least 5 different disciplines.

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

### 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 6 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.

## MBA Concentrations

Concentrations are optional, and students may earn more than one. Some concentrations are available online; others require campus enrollment. Concentrations are awarded at the time of graduation.

## Accounting

Available on campus

Choose any three graduate ACC courses beyond ACC 505.

## Business Analytics

Available only on campus

Code	Title	Credit Hours
DS 570	Management Science	3
Choose two from the following:		6
DS 630	Applied Forecasting	
DS 631	Decision Analysis	
DS 632	System Simulation	
DS 633	Data Mining for Business Appl	

**Total Credit Hours**

**9**

## Finance

Available online and on campus

Code	Title	Credit Hours
Select one course from:		3
FIN 581	Topics in Corporate Finance	
FIN 651	Invstmnt Proc, Analysis & Mgmt	
Select two courses from:		6
BE 583	Global Econ: Crisis & Growth	
FIN 581	Topics in Corporate Finance	
FIN 650	Corporate Valuation & Strategy	
FIN 651	Invstmnt Proc, Analysis & Mgmt	
FIN 652	Derivatives & Risk Management	
FIN 653	Topics/Investments & Cap Mkts	
FIN 654	Banking, Insurance, and Fintech	
FIN 655	International Financial Mgt	
FIN 656	Fixed Income Securities	
FIN 657	Investment Fund Management	
<b>Total Credit Hours</b>		<b>9</b>

## Human Resource Management

Available only on campus

Code	Title	Credit Hours
Required:		3
HRM 561	Human Resource Management	
Choose two of the following:		6
HRM 580	Compensation and HR Analytics	
HRM 613	Legal Issues in Managing People	
OB 610	Intrnatl Dimensions of Managmt	
<b>Total Credit Hours</b>		<b>9</b>

## International Business

Available online and on campus

Code	Title	Credit Hours
Select three courses from:		9
BE 583	Global Econ: Crisis & Growth	
FIN 655	International Financial Mgt	
MKT 622	Global Marketing	
OB 610	Intrnatl Dimensions of Managmt	
OM 571	Supply Chain Management	
<b>Total Credit Hours</b>		<b>9</b>

## Information Systems Management

Available on Campus

Choose any three ISM graduate courses other than ISM 525.

## Marketing

Available on campus

Code	Title	Credit Hours
Required:		
MKT 565	Advanced Marketing Management	
Select two courses from:		6
MKT 534	Sales Management and Personal Selling	
MKT 564	Graduate Marketing Research	
MKT 620	Understanding Customers	
MKT 621	Advertising and Promotion	
MKT 622	Global Marketing	
BA 691	Graduate Seminar (In order for BA 691 to be an option, it must be a marketing topic. )	

**Total Credit Hours 6**

## Supply Chain Management

Available on campus

Code	Title	Credit Hours
Required:		
OM 571	Supply Chain Management	3
Select two courses from:		6
OM 660	Supply Chain Analytics	
OM 661	Supply Chain Logis Mgmt	
OM 662	Product Dvlpmnt & Tech Mgmt	
OM 663	Lean & Six Sigma	
OM 664	Strategic Sourcing	
OM 665	ERP in SCM	

**Total Credit Hours 9**

### 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.

**Prerequisite(s):** BE 530 and (MIS 525 or ISM 525) and OB 510 and (DS 520 or IMSE 510 or IMSE 514)

**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