ENGINEERING MANAGEMENT

The program may be completed entirely on campus, entirely online, or through a combination of on-campus and online courses.

Admission

Undergraduate Degree Requirement

Admission to the program requires a BS degree in engineering, ***OR*** a degree in math, computer science, or a physical science earned from an accredited program with an average of *B* or better coupled with extensive experience in engineering.

Students who do not meet BS degree requirements of the program should speak to the program advisor regarding the additional requirements to be met.

Course Prerequisite

- Course in probability and statistics (IMSE 510, Probability and Statistical Models or equivalent)

The IMSE 510 requirements can be completed after admission into the program and will count as an elective toward the 35-credit degree requirement.

Advanced Standing

Up to six graduate credit hours (grade of *B* or better) may be transferred from another accredited institution.

Students may transfer up to one-half (1/2) the minimum number of credit hours required for their master's or professional degree from another University of Michigan program.

Graduate Academic Policies can be found below:

http://catalog.umd.umich.edu/academic-policies-graduate/

Learning Goals

1. Provide an understanding of core management areas vital for a technical manager, e.g., marketing, accounting, organizational behavior, AI applications in engineering, business ethics/law, finance.
2. Provide knowledge of topics inherent and common to all engineering disciplines, e.g., systems engineering, total quality management, production management, applied data science, management of product/process design.
3. Provide the requisite knowledge and skills to manage the engineering function at both lower and upper levels of management.
4. Provide experience in integrating technical and management aspects in “real life” engineering project or problem.

Degree Requirements

The Master of Science in Engineering Management requires a minimum of 35 graduate credit hours.

Minimum Grade Requirement in addition to maintaining a minimum cumulative GPA of 3.0 or higher every semester.

- Courses in which grades of C- or below are earned cannot be used to fulfill degree requirements.
- A minimum of a 3.0 cumulative GPA or higher is required at the time of graduation.

Degree Requirements

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

Engineering Management core courses, 12 credit hours

Code	Title	Credit Hours
EMGT 500	Management for Engineers	3
EMGT 505	Systems Engineering	3
EMGT 520	Prod & Oper Engineering I	3
EMGT 580	Mgt of Prod and Proc Design	3
Total Credit Hours		**12**

Business requirements, 6 credit hours

Code	Title	Credit Hours
ACC 505	Devel & Interp Financial Info	3
MKT 515	Marketing Management	3
Total Credit Hours		**6**

Capstone Project, 2 credit hours

Code	Title	Credit Hours
EMGT 591	Capstone Project in EMGT	2
Total Credit Hours		**2**

Electives, 15 credit hours

Code	Title	Credit Hours
Engineering Electives (6 credits)		
Select two courses from the following:		6
AENG 563	Introduction to Autonomous Vehicles	
ECE 505	Intro to Embedded Systems	
ECE 528	Cloud Computing	
ECE 544	Mobile Robots	
ECE 554	Embedded Systems	
EMGT 525	Tot Qua Mgmt and Six Sigma	
EMGT 570	Enterprise Information Systems	
ESE 505	Ecosystem Engineering and Management	
ESE 510	Sustainability Science and Engineering	
HCDE 530	Information Visualization	
IMSE 501	Human Factors & Ergonomics	
IMSE 505	Optimization	
IMSE 510	Probability & Statistical Mod	
IMSE 511	Design and Analysis of Exp	
IMSE 514	Multivariate Statistics	
IMSE 515	Fundamentals of Program Mgt	
IMSE 516	Project Management and Control	
IMSE 517	Managing Global Programs	
IMSE 519	Quan Meth in Quality Engin	
IMSE 5205	Eng Risk-Benefit Analysis	

IMSE 5215	Program Budget, Cost Est & Con	
IMSE 538	Intelligent Manufacturing	
IMSE 545	Vehicle Ergonomics I	
IMSE 577	Human-Computer Interaction	
IMSE 5655	Supply Chain Management	
IMSE 564	Applied Data Analytics and Modeling for Enterprise Systems	
IMSE 567	Reliability Analysis	
IMSE 568	AI for Smart Manufacturing	
IMSE 5755	Bus Proc Int using Entrpr Tech	
IMSE 581	Prod & Oper Engineering II	
IMSE 588	Bldg High Perf Learning Org	
IMSE 586	Big Data Aanal & Visuliztn	
IMSE 593	Vehicle Package Engineering	
Business Electives (9 credits)		
Select three courses from the following:		9
BE 530	Econ Analysis: Firm & Consumer	
BPS 535	Advanced Strategy in Action	
ENT 626	Intro to Entrepreneurship	
ENT 627	Manag the Entrepreneurial Firm	
FIN 531	Fin Fundament & Value Creation	
HRM 561	Human Resource Management	
IMSE 515	Fundamentals of Program Mgt	
IMSE 516	Project Management and Control	
IMSE 517	Managing Global Programs	
IMSE 5205	Eng Risk-Benefit Analysis	
IMSE 5215	Program Budget, Cost Est & Con	
OB 510	Organization Behavior	
Additional electives from units in UM-Dearborn could also be considered with advisors approval. The thesis option is available for students by dropping a 3-credit elective course and the 2-credit Capstone course.		
Total Credit Hours		**15**

1. Work Experience requirement—minimum of two years in an engineering job function for students with an undergraduate degree in a field other than engineering.
2. Thesis or Research Essay—students, with the approval of their graduate advisor, may elect a master's thesis for no more than five credit hours.

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