

**The Masters of Science in Program and Project Management**  
**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**

The Master of Science in Program and Project Management (MS in PPM) is **30 semester hours** graduate degree offered by the Department of Industrial and Manufacturing Systems Engineering (IMSE) in the College of Engineering and Computer Science (CECS) at the University of Michigan-Dearborn (UM-D). **This program is also offered online.**

### **The Goals**

The MS in PPM is designed to provide a comprehensive and practical knowledge of the foundation of program and project management. While principles and theories are explained, the emphasis of the program is on how to apply them in order to swiftly and efficiently plan and organize resources so that programs are completed on schedule, on-budget, and result in a high-quality outcome. This program is thus ideal for professionals who want to enhance their ability to integrate complex projects, motivate people, and achieve cost—effective results.

The degree aims to achieve simultaneously the following educational goals:

1. Provide a comprehensive, theoretical, and practical knowledge of the foundation of program and project management.
2. Provide access to advances in the program management field.
3. Provide concepts, theories, methodologies, analytical techniques and skills necessary for successful leadership of programs within complex organizations.
4. Understand the global issues in managing programs and projects.

The degree is offered through the Rackham School of Graduate Studies. The course offerings for the MS in PPM is in late afternoon and evening hours to enable students to earn the degree through part-time study.

### **Admission Requirements**

The students entering the program should have an accredited undergraduate degree in engineering, business, economics, math, computer science or other physical sciences and at least two years of practical work experience. The prerequisite for the program is the course work in probability and statistics that can be satisfied by completing IMSE 510 as part of approved electives within the first two semesters of the admission into the program. Three letters of recommendation, with at least one from a person familiar with the candidate's academic performance, are also required.

The undergraduate cumulative GPA required is B (3.0/4.0) or better to be accepted as a regular graduate student to the program. An applicant with a lower GPA may be granted conditional/probationary admission consistent with Rackham guidelines.

## The Courses

The MS in PPM program consists of 30 graduate-level semester credit hours and includes the following course requirements:

### A. Core courses (21 credits)

IMSE 515:	Fundamentals of Program Management (3)
IMSE 516:	Project Management and Control (3)
IMSE 517:	Managing Global Programs (3)
IMSE 5215:	Program Budget, Cost Estimation and Control (3)
IMSE 5205:	Engineering Risk-Benefit Analysis (3)
OB 510:	Organization Behavior (3)
EMGT 590:	Capstone Project (3)

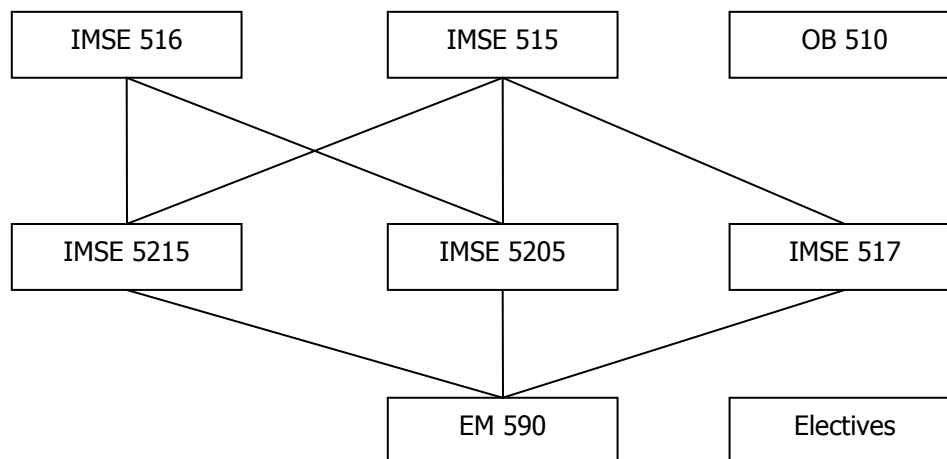
### B. Approved Electives (9 credit hours)

IMSE 510:	Probability and Statistical Models (3)
EMGT 525:	Total Quality Management and Six Sigma (3)
EMGT 541:	Accounting Fundamentals for Decision Making (3)
EMGT 520:	Production Management (3)
EMGT 580:	Product and Process Design (3)
EMGT 530:	Information Systems for Engineering Management
IMSE 5655:	Supply Chain Management (3)
HRM 561:	Human Resource Management (3)
OM 571:	Global Operations Management (3)
OB 612:	Organization Change and Management (3)
CIS 575:	Software Engineering Management

Additional elective courses from other units in UM-D could also be considered with advisor's approval.

Thesis option may be elected with the approval of the graduate advisor which will count for six (6) credit hours of graduate coursework replacing capstone project (EM 590) and three (3) credit hours of elective coursework. Students electing a thesis option must elect at least one more graduate level cognate course in the place of EM 590 for a minimum of three credit hours from departments other than IMSE to satisfy Rackham cognate requirements for graduation.

### MS in Program and Project Management Flowchart



### Sample Program for Part-Time Students

Fall (Year I)	IMSE 515 Fundamentals of Program Management IMSE 5215 Program Budget, Cost Estimation and Control	3 3
Winter (Year I)	IMSE 516 Project Management and Control IMSE 517 Managing Global Programs	3 3
Summer I (Year I)	IMSE 5205 Engineering Risk-Benefit Analysis	3
Summer II (Year I)	Approved Elective	3
Fall (Year II)	OB 510 Organization Behavior Approved Elective	3 3
Winter (Year II)	Approved Elective EMGT 590 Capstone Project	3 3

### Sample Program for Full-Time Students

Fall	IMSE 515 Fundamentals of Program Management IMSE 5215 Program Budget, Cost Estimation and Control OB 510 Organization Behavior	3 3 3
Winter	IMSE 516 Project Management and Control IMSE 517 Managing Global Programs Approved Elective	3 3 3
Summer I	IMSE 5205 Engineering Risk-Benefit Analysis Approved Elective	3 3
Summer II	Approved Elective EMGT 590 Capstone Project	3 3

For further information please call Dr. A. Zakarian at (313) 593-5361.

#### The course numbers, titles and brief descriptions of required and approved elective courses are given below

##### **IMSE 510: Probability and Statistical Models (3)**

Review of basic concepts in probability and statistics. Multivariate distributions. Estimation and order statistics. General hypothesis testing, and non-parametric tests. Linear, multiple-linear, and nonlinear regression models. Analysis of variance. Introduction to the design of experiments.

**IMSE 515: Fundamentals of Program Management (3)** Prerequisites: IMSE 510 or equivalent  
An overview of the project/program management framework and knowledge areas including plan development and execution, scope management, time management, cost management, quality management, human resource management, communications management, risk management, and procurement management. Typical program phases and life cycles observed in defense, construction, automobile, and software industries. Program organizational structures, program management processes, and international project management are covered. Role of software tools for program management and product development are discussed. Applications of lean product development

techniques are considered. Cutting waste and lead time in program management are covered. Case studies are used extensively throughout the course.

**IMSE 516: Project Management and Control (3)** Prerequisites: IMSE 510 or equivalent

Project planning, scheduling, and controlling functions are discussed in detail including work breakdown structure, CPM and PERT methods, resource allocation and leveling techniques, cost control and minimization, trade-off analysis, learning curves, overlapping relationships and concurrent engineering, multiple project execution and optimization. Applications of lean techniques in program management are discussed as well as the role of IT in accelerating the product development and reducing the program time. The importance of integrating the supply chain in the product development is also considered. Case studies and project management software are used throughout the course.

**IMSE 517: Managing Global Programs (3)** Prerequisite: IMSE 515

This course focuses on some of the central strategic and organizational problems that arise in managing global programs, including cultural conflicts, developing and managing international managers, global and local brands, and organizing to resolve global-local conflicts. Skills and tools necessary to implement and maintain a diverse work environment which values change; assessing the current extent of diversity in the workplace, analyzing the effect of perceptions, attitudes, biases, and organization culture on diversity, dealing with barriers, change management strategy will also be covered. The course uses a combination of case studies, problems, lectures and discussion, over a wide variety of companies and countries.

**IMSE 5215: Program Budget, Cost Estimation and Control (3)** Prerequisite: IMSE 510 or equivalent

This course focuses on cost estimation and control for program managers and engineers. The course introduces a systematic approach for applying engineering economy techniques in cost estimating, resource planning, cost planning, cost management and control, and the study of life cycle cost elements. An introduction to decisions under risk and uncertainty as well as an introduction to project crashing are also presented.

**IMSE 5205: Engineering Risk-Benefit Analysis (3)** Prerequisites: IMSE 510 or equivalent

Analysis risk assessment, decision and cost-benefit analysis, and fault-tree methods for describing and making decisions about societal risks associated with large engineering projects. Balancing risks and benefits in situations involving human safety, environmental risks, and financial uncertainties. Presentations of major risk assessment and the public decision processes associated with them.

**OB 510: Organization Behavior (3)**

To provide a basic understanding of individual, inter-personal and group behavior in organizations and how this understanding can be used in the practice of management. Topics for discussion include: motivation, communication and influence, group dynamics, structure design and inter-group relations, planning, control and reward systems, leadership, and organizational development.

**EM 590: Capstone Project (3)**

Students will receive the opportunity and training to integrate and apply both the technical and program management aspects acquired in various courses to an engineering project or problem.

**IMSE 699 Master's Thesis Project (6)**

Graduate students electing this course, while working under the general supervision of a member of the department faculty, are expected to plan and conduct the work themselves, to submit a thesis for review and approval, and to present an oral defense of the thesis.

**HRM 561: Human Resource Management (3)**

This course provides managers from different business functions with the principles, knowledge, and techniques for managing employees. Incidents and cases are used to diagnose human resource problems, and design and implement solutions. Topics include: employment law, job design and analysis,

performance evaluation, human resource planning, recruiting, selection and assessment, training, managerial development, compensation and incentives, reductions-in-force, collective bargaining and labor relations, and human resource management for international operations. The course stresses the evaluation of human resource programs, and the need for human resource practices to be compatible with one another and to be supportive of the firm's strategy.

### **EMGT 520 - Production Management (3)**

Forecasting, inventory, and scheduling activities in production systems are studied. Topics in forecasting include the regression method, exponential smoothing techniques, Winters' seasonal model, and adaptive control models. Continuous and periodic review inventory models, deterministic and probabilistic cases are also included. Dynamic and static job shop and flow shop scheduling problems are investigated using heuristic and mathematical models. Planning and scheduling for large-scale projects is studied. material requirements and resources planning (MRP I and II), and Aggregate planning techniques are evaluated. Students are asked to select problems of interest and to present final project reports.

### **EMGT 525 - Total Quality Management (3)**

The concepts of total quality control (TQC) for planning in production and service are introduced within a framework of quality, cost, and delivery (QCD). Various interpretations and practices of TQC are discussed. Quality function deployment (QFD) is treated as a system tool for quality development, maintenance, and improvement over the life cycle of a product. The roles and functions of statistical quality control (SQC) and QC Circles are defined and studied. A graduate-level research paper is required.

### **EM 541: Accounting Fundamentals for Decision Making (3)**

This course introduces fundamental accounting concepts and applications that are useful in the evaluation of financial information and decision tools relevant to project planning. Students will achieve an understanding of basic accounting and cost management tools that are essential to decision making. Emphasis will be placed on assessing financial statement information through an understanding of accounting practice, the relationship between business activities and an organization's cash flows.

### **IMSE 5655 - Supply Chain Management**

This course will be a review of theory, concepts, models, methodologies and techniques for managing a supply chain. Students will be introduced to a variety of models and their applications that, a) create appropriate structure and install proper controls in the enterprise, and b) implement optimization principles utilizing value engineering, methods engineering, and behavior prediction techniques to synchronize the supply chain. Examples of supply chain of prominent industries will be described to enhance understanding of this emerging, yet highly relevant concept of our interdependent global economy.

### **OB 612 - Organization Change & Development (3)**

To introduce theories, methods, and practice of organizational change and development; to provide a conceptual framework for examples of planned organizational change. Topics include: sub-processes in organizational change, intervention methods, sequencing and integration of change processes, change roles and role relations, change objectives and criteria.

### **CIS 575 - Software Engineering Management (3)**

Quantitative models of the software lifecycle; cost-effectiveness; uncertainty and risk analysis; planning and modeling a software project; software cost estimation (COCOMO, Function points); software engineering metrics; software project documentation. Special emphasis on emerging software process standards such as the Capability Maturity Model of the Software Engineering Institute, and other international ones.

# 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.
- **3 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.
- **3 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.