

# MEM - Master of Engineering Management

## Admission

To be admitted to the MEM program, applicants must:

1. Possess an undergraduate degree in engineering, science, business or other related discipline;
2. Have satisfactorily completed: ( MATH 144 or MATH 242) and ( IME 255 or FIN 340);
3. Have a minimum GPA of 3.000 on a 4.000 scale. (Students with a lower GPA may be considered only for probationary or nondegree admission.);
4. Applicants whose native language is not English must submit official, acceptable scores for either the TOEFL, the Academic Module of the IELTS examination, or the PTE-Academic. Please visit the Graduate School website to check English proficiency requirements (<https://www.wichita.edu/GradEnglishProficiency/>); and
5. Department prefers and strongly encourages the submission of GRE scores.

## Program Requirements

Please note that:

- Some of the IME courses may require programming skills as a prerequisite.
- Some of the IME courses may require Linear Algebra or Calculus III as a prerequisite.
- Some of the other program courses may require additional prerequisites.
- Course distribution (at least 33 credit hours with no more than 9 credit hours at 500-600 levels and at least 15 credit hours from the ISME department).

Course	Title	Hours
<b>Core Courses (An individual course cannot be used to satisfy more than one area: i.e. engineering/computing, management, concentration and electives)</b>		
IME 777	IME Colloquium (one semester)	
<i>Engineering/Computing Courses (select a minimum of 6 credit hours; excluding independent study courses)</i>		6
Any IME course at 500+ level (Excludes courses restricted for undergraduate students including IME 590 and IME 690)		
Any AE course at 700+ level		
Any BME course at 700+ level		
Any CS course at 700+ level		
Any ECE course at 700+ level		
Any ME course at 700+ level		
<i>Management Courses (select a minimum of 6 credit hours; excluding independent study courses)</i>		6
Any ACCT course at 700+ level		
Any BLAW course at 700+ level		
Any DS course at 700+ level		
Any ECON course at 700+ level		
Any FIN course at 700+ level		
Any HRM course at 700+ level		
Any IB course at 700+ level		
Any MGMT course at 700+ level		
Any MBA course at 700+ level		
Any MKT course at 700+ level		

*Concentration Courses (select a minimum of 6 credit hours; excluding independent study courses; see the table below for available concentrations)* 6

**Electives** 15

Any IME course at 500+ level

Other courses at 700+ level from the College of Engineering and/or business school programs with the written preapproval of the chair or graduate coordinator of ISME department

### Additional Requirements

ISME department courses Must have a minimum of 15 credit hours of IME courses at 500+ level

Applied Learning See applied learning requirements below

IME 872; or

At least one of the following courses: IME 734, IME 767, IME 764 or IME 664; or

1 credit hour of cooperative education (or 0 credit hour cooperative education for students working full time).

**Total Credit Hours** 33

- A plan of study should be submitted during the first year of enrollment and at least 21 credit hours in a plan of study must be 700 or higher level WSU courses;
- The professional and scholarly integrity training requirement must be completed, preferably during the first semester of the program.

## Concentrations

Students must select one of the following concentrations and complete at least 6 credit hours in that concentration:

Course	Title	Hours
<b>Data Analytics</b>		
IME 734	Introduction to Data Mining and Analytics	
IME 780AN	Big Data Analytics in Engineering	
IME 780AP	Neural Networks and Machine Learning	
IME 794	Applied Quantum Computation	
IME 869	Bayesian Statistics and Uncertainty Quantification	
IME 880Y	Forecasting and Analytics	
BSAN 775	Introduction to Business Analytics	
BSAN 875	Prescriptive Analytics with Python	
CS 770	Machine Learning	
CS 746	Perspectives on Data Science	
CS 771	Artificial Intelligence	
CS 898BE	Advanced Topics in Machine Learning	
CS 898BD	Deep Learning	
<b>Operations Research and Systems Engineering</b>		
IME 550	Operations Research I	
IME 650	Operations Research II	
IME 851	Stochastic Modeling and Analysis	
IME 664	Engineering Management	
IME 764	Systems Engineering and Analysis	
IME 765	Modeling and Analysis of Manufacturing Systems	

IME 780AL	Energy Analytics & Management
<b>Production and Supply Chain Analytics</b>	
IME 553	Production Systems
IME 563	Facilities Planning and Design
IME 783	Supply Chain Management
IME 767	Lean Manufacturing
IME 880K	Advanced Facilities Planning and Material Handling
IME 883	Supply Chain Analytics
<b>Quality and Reliability</b>	
IME 754	Reliability and Maintainability Engineering
IME 755	Design of Experiments
IME 854	Quality Engineering
IME 960F	Statistical Process Control
<b>Manufacturing Engineering and Automation</b>	
IME 561	Applied Control Systems
IME 558	Manufacturing Methods and Materials II
IME 676	Aircraft Manufacturing and Assembly
IME 758	Analysis of Manufacturing Processes
IME 761	Robot Programming and Applications
IME 762	Smart Manufacturing
IME 775	Computer Integrated Manufacturing
IME 780AM	Advanced Cyber-Physical Systems
IME 788	Rapid Prototyping and 3D Printing
<b>Human Systems Engineering</b>	
IME 549	Industrial Ergonomics
IME 749	Ergonomic Assessment Methods
IME 759	Ergonomic Interventions
BME 752	Applied Human Biomechanics
BME 757	Clinical Biomechanics Instrumentation
ME 709	Injury Biomechanics
PHS 808	Managerial Epidemiology
PHS 816	Environmental Health

### **Credit for Prior Learning**

Industry recognized external certifications are valued by our department and may be used to satisfy up to 6 credit hours of the curriculum requirements. These credits will follow the Credit for Prior Learning (CPL) policy described in the Graduate Catalog (<http://catalog.wichita.edu/graduate/academic-information/degree-certificate-completion/credit-prior-learning/>). The details of such credits are as follows:

- Preapproved external certifications (with active certification status):
  - ASQ Certified Quality Engineer (CQE): as IME 960F;
  - ASQ Six Sigma Black Belt (CSSBB) or higher level: as IME 767;
  - ASQ Certified Manager of Quality/Organizational Excellence (CMQ/OE): as IME 854;
  - SME Lean Certification at Silver or Gold level: as IME 767;

- AEE Certified Energy Auditor (CEA) or Certified Energy Manager (CEM): as IME 780AL;
- APICS Certified Supply Chain Professional (CSCP): as IME 783;
- PMI Project Management Professional (PMP): as IME 664; and
- INCOSE Certified Systems Engineering Professional (CSEP) or Expert Systems Engineering Professional (ESEP): as IME 764.
- If a certification is equivalent to a specific course, the student cannot repeat that course and receive additional course credits towards the degree.
- CPL credits may be earned through certificates awarded until completion of no more than 75 percent of the curriculum. This includes certificates awarded before joining the program.
- CPL credits defined here will only count towards their degree for students within this program.
- CPL credits are included in the total transfer credits allowed toward a degree.

### **MBA to MEM Program**

Graduates of the WSU Master of Business Administration (MBA) program may be allowed to use up to 12 credit hours from the WSU MBA courses as technical electives if they enroll in the MEM program.

### **MEM to MBA Program**

Graduates of the WSU MEM program may be allowed to use up to 12 credit hours from the technical electives taken from the WSU MBA courses if they enroll in the MBA program.

### **Applied Learning**

Students in the Master of Engineering Management program are required to complete an applied learning or research experience to graduate from this program. The requirement can be met by completing one of the following options:

1. IME 872; or
2. At least one of the following courses: IME 664, IME 734, IME 764, IME 767 or IME 780AL; or
3. 1 credit hour of cooperative education (or 0 credit hour cooperative education for students working full time).