

M.S. in Industrial Engineering

Admission Requirements

Students should consult the College of Engineering section in the Graduate Catalog for information on general admission requirements. Applicants are expected to have a Bachelor of Science degree in Industrial and Systems Engineering or a related field from an ABET accredited institution in the United States, or proof of equivalent education from an international institution.

Students apply through the Graduate School, submitting an application form and the following supporting materials:

- Official transcripts of all previous academic work.
- Applicants from countries where English is not the first language are required to demonstrate English proficiency. Please consult the graduate school (<http://catalog.utep.edu/admissions/graduate/graduate-student/>) website for required scores.
- Personal Statement of Purpose
- Two letters of Recommendation

General Degree Requirements

Both thesis and non-thesis options are available under this degree program. All students follow a 30 credit hour program that is composed of (15) credit hours of core coursework and (6) credit hours of approved graduate level coursework in areas outside the Industrial, Manufacturing and Systems Engineering Department. For students following the Thesis option, there is a requirement to take six (6) credit hours of thesis and (3) credit hours from the Industrial, Manufacturing and Systems Engineering department. For students following the Non-Thesis option, there is a requirement to take (9) additional credit hours of coursework from the Industrial, Manufacturing and Systems Engineering department.

No more than six (6) semester hours of approved upper-level undergraduate coursework can be used to satisfy the degree requirements in the Industrial and Manufacturing Engineering programs. All coursework must be approved by the student's academic advisor and by the Graduate School. Specific requirements for each master's program are available from the Industrial Engineering Program.

Degree Requirements Summary

	Thesis Option (in credit-hours)	Non Thesis Option (in credit-hours)
Core IE coursework	15	15
Graduate IMSE Electives*	3	9
Graduate Electives**	6	6
Thesis	6 (IE 5398 and IE 5399)	0
Total	30	30

*At most, six (6) credit hours of approved senior-level undergraduate coursework, and, at most, three (3) credit hours of Individual Studies can be included in the degree plan.

**At most six (6) hours of approved graduate level coursework in areas outside the Industrial, Manufacturing and Systems Engineering Department can be included in the degree plan. IMSE Department courses can be used to satisfy the Graduate Electives requirement.

All coursework must be approved by the department's graduate program director. All courses listed in the degree plan require a grade of C or better for successful completion. A minimum GPA of 3.0 is required for graduation.

Degree Plan

Required Credits: 30

Non-Thesis Option (No Concentration)

Code	Title	Hours
MS in Industrial Engineering (All courses require a grade of C or better)		
Non-Thesis Option		
Core IE Coursework:		
Select fifteen hours of the following:		15
IE 5195	Graduate Seminar	
IE 5341	Adv Production/Inven Control	
IE 5351	Linear and Combin Optimiz Meth	
IE 5352	Design/Analysis Indust Exprmnt	
IE 5357	Computer Simulation Appli	
IE 5358	Industrial Data Analytics	
IE 5385	Advanced Quality Control	
IE 5390	Special Topics Industrial Engr	
IE 5391	Individual Studies	
Non-Thesis Graduate IMSE Electives		
Select nine additional hours of graduate IE, MFG or SE courses		9
IE 5195	Graduate Seminar	
IE 5341	Adv Production/Inven Control	
IE 5351	Linear and Combin Optimiz Meth	
IE 5352	Design/Analysis Indust Exprmnt	
IE 5357	Computer Simulation Appli	
IE 5358	Industrial Data Analytics	
IE 5385	Advanced Quality Control	
IE 5390	Special Topics Industrial Engr	
IE 5391	Individual Studies	
MFG 5311	Design for Manufacturability	
MFG 5312	Strategic Design-Mfg Processes	
MFG 5314	Robotics & Flexible Automation	
MFG 5315	Analysis-Mat'l Handling System	
MFG 5321	Modeling/Analysis-Mfg Process	
MFG 5350	Reliability & Maintainability	
MFG 5359	Computer-Aided Manufacturing	
MFG 5389	Green Energy Manufacturing	
MFG 5390	Special Topics	
MFG 5391	Individual Studies	
MFG 5394	Graduate Research	
SE 5341	Systems Engr Fundamentals	
SE 5342	Systems Engr Management	
SE 5343	Systems Requirements Analysis	
SE 5344	Sys Intgrtn, Verfctn, & Valdtn	
SE 5346	Systems Architecture & Design	
SE 5347	Systems Engr Processes	
SE 5348	Systems Modeling & Simulation	

Non-thesis Graduate Electives:

Select six additional hours of graduate courses from the College of Engineering, Science or Business	6
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Total Hours	30
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Thesis Option (No Concentration)

Code	Title	Hours
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Thesis Option

MS in Industrial Engineering (All courses require a grade of C or better)

Core IE Coursework:

Select fifteen hours of the following:	15
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IE 5195	Graduate Seminar
IE 5341	Adv Production/Inven Control
IE 5351	Linear and Combin Optimiz Meth
IE 5352	Design/Analysis Indust Exprmnt
IE 5357	Computer Simulation Appli
IE 5358	Industrial Data Analytics
IE 5385	Advanced Quality Control
IE 5390	Special Topics Industrial Engr
IE 5391	Individual Studies

Required Courses:

IE 5398	Thesis	3
IE 5399	Thesis	3

Graduate IMSE Electives:

Select three additional hours of graduate IE, MFG or SE courses	3
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IE 5341	Adv Production/Inven Control
IE 5351	Linear and Combin Optimiz Meth
IE 5352	Design/Analysis Indust Exprmnt
IE 5357	Computer Simulation Appli
IE 5358	Industrial Data Analytics
IE 5385	Advanced Quality Control
IE 5390	Special Topics Industrial Engr
MFG 5311	Design for Manufacturability
MFG 5312	Strategic Design-Mfg Processes
MFG 5314	Robotics & Flexible Automation
MFG 5315	Analysis-Mat'l Handling System
MFG 5321	Modeling/Analysis-Mfg Process
MFG 5350	Reliability & Maintainability
MFG 5359	Computer-Aided Manufacturing
MFG 5389	Green Energy Manufacturing
MFG 5390	Special Topics
MFG 5391	Individual Studies
MFG 5394	Graduate Research
SE 5341	Systems Engr Fundamentals
SE 5343	Systems Requirements Analysis
SE 5344	Sys Intgrtn, Verfctn, & Valdtn
SE 5346	Systems Architecture & Design
SE 5347	Systems Engr Processes
SE 5348	Systems Modeling & Simulation

Thesis Graduate Electives:

Select six additional hours of graduate courses from the College of Engineering, Science or Business	6
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Total Hours	30
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Degree Plan (With Concentrations)

Required Credits: 30

Non-Thesis Option with Concentration in Systems Modeling and Simulation (SMS)

Code	Title	Hours
MS in Industrial Engineering (All courses require a grade of C or better)		
Non-Thesis Option (with Concentration)		
Core IE Coursework:		
Select 15 hours of the following:		15
IE 5195	Graduate Seminar	
IE 5341	Adv Production/Inven Control	
IE 5351	Linear and Combin Optimiz Meth	
IE 5352	Design/Analysis Indust Exprmnt	
IE 5357	Computer Simulation Appli	
IE 5385	Advanced Quality Control	
IE 5390	Special Topics Industrial Engr	
IE 5391	Individual Studies	
Prescribed Elective Courses		
Select nine hours of the following:		9
IE 5357	Computer Simulation Appli	
IE 5390	Special Topics Industrial Engr (Industrial Data Analytics)	
IE 5390	Special Topics Industrial Engr (AR/VR Based Simulation)	
DS 5474 or STAT 5474	Introduction to Data Mining Statistical Machine Learning I	
If any students take the IE 5357 (Computer Simulation Application) courses from the required course he/she needs to complete the 30 SCH by taking a replacement course from the free elective course list.		
Non-Thesis Graduate IMSE Electives		
Select six hours of the following:		6
MFG 5350	Reliability & Maintainability	
IE 5387	Quality Engineering	
IE 5390	Special Topics Industrial Engr (Reliability & Maintainability)	
IE 5390	Special Topics Industrial Engr (Data Visualization for Decision Making)	
IE 5390	Special Topics Industrial Engr (Sustainability Engineering and LCA)	
IE 5390 or MFG 5390	Special Topics Industrial Engr (Green Energy Engineering) Special Topics	
IE 5390	Special Topics Industrial Engr (Renewable Energy Systems)	
SE 5342	Systems Engr Management	
Total Hours		30

Thesis Option with Concentration in Systems Modeling and Simulation (SMS)

Code	Title	Hours
Thesis Option with Concentration		
MS in Industrial Engineering (All courses require a grade of C or better)		
Core IE Coursework:		
Select 15 hours of the following:		15
IE 5195	Graduate Seminar	
IE 5341	Adv Production/Inven Control	
IE 5351	Linear and Combin Optimiz Meth	
IE 5352	Design/Analysis Indust Exprmnt	
IE 5357	Computer Simulation Appli	
IE 5385	Advanced Quality Control	
IE 5390	Special Topics Industrial Engr	

IE 5391	Individual Studies	
Prescribed Elective Courses		
Select nine hours of the following:		9
IE 5357	Computer Simulation Appli	
IE 5390	Special Topics Industrial Engr (Industrial Data Analytics)	
IE 5390	Special Topics Industrial Engr (AR/VR Based Simulation)	
DS 5474	Introduction to Data Mining	
or STAT 5474	Statistical Machine Learning I	
If any students take the IE 5357 (Computer Simulation Application) courses from the required course he/she needs to complete the 30 SCH by taking a replacement course from the free elective course list		
Required Courses		
IE 5398	Thesis	3
IE 5399	Thesis	3
Total Hours		30