

# M.S. in Industrial Engineering

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## Degree Requirements

Students who do not have a bachelor of science degree in industrial engineering may be admitted and required to complete the bridge program. Bridge courses do not count toward degree requirements.

A minimum of 30 credits beyond a baccalaureate degree is required. A master's thesis or independent research is optional. Students select an area of specialization and individually design their programs in consultation with the graduate advisor. The MS degree students opting for the project or thesis option must make an arrangement with a faculty member for supervision and obtain the departmental approval in order to receive permits to register for the proper section. Students opting for a project must register for the M.S. project (IE 700B) for 3 credits. Students opting for a thesis must register for the M.S. thesis (IE 701B) or the combination of M.S. project (IE 700B) and thesis (IE 701B) for 6 credits and successfully defend the thesis before graduation. For the project-thesis combination, they must receive a satisfactory (S) grade in 700B before 701B MS Thesis registration in the immediate following semester with the same advisor (the MS thesis topic should be continuation of the work done in 700B). Thesis option is required of all students who receive departmental or research-based awards.

*Seminar:* In addition to the minimum 30 degree credits required, all students who receive departmental or research-based awards must enroll each semester in IE 791 Graduate Seminar.

## M.S. in Industrial Engineering (courses only)

Code	Title	Credits
<b>Bridge Courses</b>		
EM 502	Engineering Cost Analysis	3
EM 602	Management Science	3
IE 501	Fundamentals of Industrial Engineering	3
<b>Total Credits</b>		<b>9</b>

Code	Title	Credits
<b>Core Courses</b>		
IE 604	Advanced Engineering Statistics	3
IE 618	Engineering Cost and Production Economics	3
IE 621	Systems Analysis and Simulation	3
IE 650	Advanced Topics in Operations Research	3
<b>Areas of Specialization</b>		
Select three of the following: <sup>1</sup>		9
<b>Quality Systems Engineering</b>		
IE 672	Industrial Quality Control	
IE 673	Total Quality Management	
MNE 654	Design for Manufacturability	
<b>Operations Research</b>		
IE 704	Sequencing and Scheduling	
IE 650	Advanced Topics in Operations Research	
CS 636	Data Analytics with R Program	
<b>Supply Chain &amp; Logistics</b>		
IE 659	Supply Chain Engineering	
EM 640	Distribution Logistics	
EM 636	Project Management	
<b>Service Systems Engineering</b>		
IE 651	Industrial Simulation	
MIS 648	Decision Support Systems for Managers	
EM 691	Cost Estimating for Capital Projects	

**Total Credits**

**21**

<sup>1</sup> Students may choose to specialize in any one of the following areas. Completion of all three courses in a specialization will qualify the student for a specialization certificate to be issued by the department. This will be awarded in conjunction with successful completion of the MS degree.

## M.S. in Industrial Engineering (project option)

Code	Title	Credits
<b>Bridge Courses</b>		
EM 502	Engineering Cost Analysis	3
EM 602	Management Science	3
IE 501	Fundamentals of Industrial Engineering	3
<b>Total Credits</b>		<b>9</b>

Code	Title	Credits
<b>Core Courses</b>		
IE 604	Advanced Engineering Statistics	3
IE 618	Engineering Cost and Production Economics	3
IE 621	Systems Analysis and Simulation	3
IE 650	Advanced Topics in Operations Research	3
<b>Project Course</b>		
IE 700B	Master's Project	3
<b>Areas of Specialization</b>		
Select three of the following: <sup>1</sup>		9
<b>Quality Systems Engineering</b>		
IE 672	Industrial Quality Control	
IE 673	Total Quality Management	
MNE 654	Design for Manufacturability	
<b>Operations Research</b>		
IE 704	Sequencing and Scheduling	
IE 650	Advanced Topics in Operations Research	
CS 636	Data Analytics with R Program	
<b>Supply Chain &amp; Logistics</b>		
EM 640	Distribution Logistics	
IE 659	Supply Chain Engineering	
EM 636	Project Management	
<b>Service Systems Engineering</b>		
IE 651	Industrial Simulation	
MIS 648	Decision Support Systems for Managers	
EM 691	Cost Estimating for Capital Projects	
<b>Total Credits</b>		<b>24</b>

<sup>1</sup> Students may choose to specialize in any one of the following areas. Completion of all three courses in a specialization will qualify the student for a specialization certificate to be issued by the department. This will be awarded in conjunction with successful completion of the MS degree.

## M.S. in Industrial Engineering (thesis option)

Code	Title	Credits
<b>Bridge Courses</b>		
EM 502	Engineering Cost Analysis	3
EM 602	Management Science	3
IE 501	Fundamentals of Industrial Engineering	3
<b>Total Credits</b>		<b>9</b>

Code	Title	Credits
<b>Core Courses</b>		
IE 604	Advanced Engineering Statistics	3
IE 618	Engineering Cost and Production Economics	3
IE 621	Systems Analysis and Simulation	3
IE 650	Advanced Topics in Operations Research	3
<b>Thesis</b>		
IE 700B & IE 701B	Master's Project and Master's Thesis	3
IE 701B & 701B or IE 701C	Master's Thesis and Master's Thesis Master's Thesis	6
<b>Areas of Specialization</b>		
Select three of the following: <sup>1</sup>		9
<b>Quality Systems Engineering</b>		
IE 672	Industrial Quality Control	
IE 673	Total Quality Management	
MNE 654	Design for Manufacturability	
<b>Operations Research</b>		
IE 704	Sequencing and Scheduling	
IE 650	Advanced Topics in Operations Research	
CS 636	Data Analytics with R Program	
<b>Supply Chain &amp; Logistics</b>		
EM 640	Distribution Logistics	
IE 659	Supply Chain Engineering	
EM 636	Project Management	
<b>Service Systems Engineering</b>		
IE 651	Industrial Simulation	
MIS 648	Decision Support Systems for Managers	
EM 691	Cost Estimating for Capital Projects	
<b>Total Credits</b>		<b>30</b>

<sup>1</sup> Students may choose to specialize in any one of the following areas. Completion of all three courses in a specialization will qualify the student for a specialization certificate to be issued by the department. This will be awarded in conjunction with successful completion of the MS degree.