# Industrial Engineering (MR)

## Master of Industrial Engineering Degree Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
<th>Counts towards</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Required Course</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ISE 601</td>
<td>Seminar</td>
<td>1</td>
<td></td>
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<tr>
<td></td>
<td>Breadth Requirement Courses</td>
<td>15</td>
<td></td>
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<tr>
<td></td>
<td>Technical Elective Courses</td>
<td>9</td>
<td></td>
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<tr>
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<td>Additional Technical Elective Courses</td>
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<td></td>
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<tr>
<td></td>
<td>Total Hours</td>
<td>31</td>
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</tbody>
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1. At least 24 of the 31 credit hours must be at the 500-level or higher and at least 21 credits must be ISE courses
2. Students should have one 700-level ISE course approved in conjunction with the academic committee

## Breadth Requirement Courses

Select a minimum of one course from at least four of the following breadth requirement groups:

### Group A: Economic & Decision Analysis
- ISE 510: Applied Engineering Economy
- ISE 519: Database Applications in Industrial and Systems Engineering
- ISE 535: Python Programming for Industrial & Systems Engineers
- MA 547: Stochastic Calculus for Finance

### Group B: Human Factors and Ergonomics
- ISE 540: Human Factors In Systems Design
- ISE 541: Occupational Safety Engrg
- ISE 544: Occupational Biomechanics
- ISE 741: Systems Safety Engineering
- ISE 744: Human Information Processing

### Group C: Manufacturing Systems
- ISE 515: Manufacturing Process Engineering
- ISE 517: Fundamentals of Additive Manufacturing
- ISE 545: Digital Manufacturing
- ISE 714: Product Manufacturing Engineering for the Medical Device Industry
- ISE 716: Automated Systems Engineering
- ISE 718: Micro/ Nano-Scale Fabrication and Manufacturing

### Group D: Supply Chain and Logistics
- ISE 552: Design and Control of Production and Service Systems
- ISE 553: Modeling and Analysis of Supply Chains
- ISE 748: Quality Engineering
- ISE 754: Logistics Engineering

### Group E: Systems Analytics and Optimization
- ISE/OR 501: Introduction to Operations Research
Accelerated Bachelor's/Master's Degree Requirements

The Accelerated Bachelor's/Master's (ABM) degree program allows exceptional undergraduate students at NC State an opportunity to complete the requirements for both the Bachelor's and Master's degrees at an accelerated pace. These undergraduate students may double count up to 12 credits and obtain a non-thesis Master's degree in the same field within 12 months of completing the Bachelor's degree, or obtain a thesis-based Master's degree in the same field within 18 months of completing the Bachelor's degree.

This degree program also provides an opportunity for the Directors of Graduate Programs (DGPs) at NC State to recruit rising juniors in their major to their graduate programs. However, permission to pursue an ABM degree program does not guarantee admission to the Graduate School. Admission is contingent on meeting eligibility requirements at the time of entering the graduate program.

Faculty

Full Professors

Jingyan Dong
Shu-Cherng Fang
Yahya Fathi
Ola Lars Anders Harrysson
Julie Simmons Ivy
Russell E. King
Yuan-Shin Lee
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Chan S. Nam
Rohan Ajit Shirwaiker
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Associate Professors

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Michael G. Kay
Yunan Liu
Osman Yalin Ozaltin
Hong Wan
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Xiaolei Fang
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Seyedmohammadhossein Hosseinian
Jordan Kern
Benjamin A. Rachunok
Sara Shashaani
Renran Tian
Zhuoting Yu
Practice/Research/Teaching Professors
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Semra Sebnem Ahiska King
Fred Livingston
Brandon Mark McConnell
Nur Ozaltin
Kanton Tyrone Reynolds
Christopher Rock
Michael Spano
Harvey A. West II

Adjunct Professor
Amy Diane Wilson

Emeritus Faculty
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Paul Cohen
Charles Thomas Culbreth Jr.
Thom Joel Hodgson
Henry Nuttle
Richard G. Pearson
Stephen Dean Roberts
Ezat Sanli
Clarence Smith Jr.
James Reed Wilson
Richard Wysk
Robert E. Young