## 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>ISE 601</td>
<td>Seminar</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

### Breadth Requirement Courses

See "Breadth Requirement Courses" listed below

### Technical Elective Courses

“Technical Elective Courses” will be determined in conjunction with the academic committee

### Additional Technical Elective Courses

“Additional Technical Elective Courses” are approved in conjunction with the academic committee

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
<th>Counts towards</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISE 744</td>
<td>Human Information Processing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ISE 745</td>
<td>Human Performance Modeling</td>
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<td></td>
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</tbody>
</table>

### Group C: Manufacturing Systems Category

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
<th>Counts towards</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISE 715</td>
<td>Manufacturing Process Engineering</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ISE 714</td>
<td>Product Manufacturing Engineering for the Medical Device Industry</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ISE 716</td>
<td>Automated Systems Engineering</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ISE 519</td>
<td>Database Applications in Industrial and Systems Engineering</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Group D: Production Systems Category

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
<th>Counts towards</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISE 552</td>
<td>Design and Control of Production and Service Systems</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ISE 723</td>
<td>Production Planning, Scheduling and Inventory Control</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ISE 726</td>
<td>Theory of Activity Networks</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ISE 748</td>
<td>Quality Engineering</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ISE 754</td>
<td>Logistics Engineering</td>
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</tbody>
</table>

### Group E: Systems Analytics and Optimization Category

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
<th>Counts towards</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISE 501</td>
<td>Introduction to Operations Research</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OR 504</td>
<td>Introduction to Mathematical Programming</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ISE 505</td>
<td>Linear Programming</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ISE 560</td>
<td>Stochastic Models in Industrial Engineering</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ISE 562</td>
<td>Simulation Modeling</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ISE 709</td>
<td>Dynamic Programming</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Total Hours

31

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**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 711: Capital Investment Economic Analysis
- ISE 712: Bayesian Decision Analysis For Engineers and Managers
- ISE 731: Multi-Attribute Decision Analysis

**Group B: Human Factors and Ergonomics Category**

- ISE 540: Human Factors In Systems Design
- ISE 541: Occupational Safety Engrg
- ISE 544: Occupational Biomechanics

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**Group E: Systems Analytics and Optimization Category**

- ISE 501: Introduction to Operations Research
- OR 504: Introduction to Mathematical Programming
- ISE 505: Linear Programming
- ISE 560: Stochastic Models in Industrial Engineering
- ISE 562: Simulation Modeling
- ISE 709: Dynamic Programming
Select one course from the following:  

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSC 513</td>
<td>Electronic Commerce Technology</td>
</tr>
<tr>
<td>CSC 520</td>
<td>Artificial Intelligence I</td>
</tr>
<tr>
<td>CSC 570</td>
<td>Computer Networks</td>
</tr>
<tr>
<td>CSC 742</td>
<td>Advanced Topics in Database Management Systems</td>
</tr>
<tr>
<td>MA 520</td>
<td>Linear Algebra</td>
</tr>
<tr>
<td>MA 580</td>
<td></td>
</tr>
<tr>
<td>ST 516</td>
<td>Experimental Statistics For Engineers II</td>
</tr>
<tr>
<td>ST 711</td>
<td>Design Of Experiments</td>
</tr>
</tbody>
</table>

Total Hours 15

Accelerated Bachelor's/Master's Degree Requirements

The Accelerated Bachelors/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
Maria Esther Mayorga
Chan S. Nam
Rohan Ajit Shirwaiker
Julie Swann
Reha Uzsoy

Associate professors

Adolfo Escobedo
Michael G. Kay
Yunan Liu
Osman Yalin Ozaltin
Hong Wan
Xu Xu

Assistant Professors

Karen Boru Chen
Xiaolei Fang
Leila Hajibabai Dizaji
Jordan Kern
Benjamin A. Rachunok
Sara Shashaani
Zhuoting Yu

Practice/Research/Teaching Professors

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
Mahmoud A. Ayoub
Richard Harold Bernhard
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