MASTER OF SCIENCE IN INDUSTRIAL ENGINEERING

The School of Industrial and Systems Engineering (ISYE) offers eight master’s degrees:

- Master of Science in Industrial Engineering (MS IE);
- Master of Science in Operations Research (MS OR);
- Master of Science in Supply Chain Engineering (MS SCE);
- Master of Science in Statistics (MS STAT);
- Master of Science in Health Systems (MS HS);
- Master of Science in Quantitative and Computational Finance (MS QCF);
- Master of Science in International Logistics (MS IL) that is part of the executive program; and
- Master of Science in Computational Science and Engineering (MS CSE).

Three of these programs are interdisciplinary:

- MS QCF (joint with School of Mathematics, College of Business),
- MS STAT (joint with School of Mathematics) and
- MS SCE (joint with College of Computing, School of Mathematics).

All proposed master’s degree programs require thirty semester credit hours with the exception of MS IL and MS QCF (thirty-six credit hours) and MS HS (thirty-three credit hours). None of these MS programs contains a thesis option.

A student seeking a master’s degree must have a bachelor’s degree and typically one earned in engineering, science, mathematics, or some other field that provides an adequate background for the successful completion of one of ISyE’s programs. Students having backgrounds from unaccredited degree programs or in programs that are found lacking in relative substance can expect to first take preliminary coursework in order to elevate their preparation to the level required. The prerequisite coursework for the various master’s degrees includes strong performance in probability, statistics, linear algebra, and calculus.

Every MS curriculum is based on core classes offered from the School of ISyE, as well as electives offered by ISyE and other Georgia Tech schools in engineering and science. The MS SCE, MS QCF, and MS IL are professional degree programs with separate curriculums from the other regular MS degrees.

MS Human-Integrated Systems

Program Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
<td>Core</td>
<td></td>
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<tr>
<td>ISYE 6201</td>
<td>Manufacturing Systems</td>
<td>3</td>
</tr>
<tr>
<td>ISYE 6202</td>
<td>Warehousing Systems</td>
<td>3</td>
</tr>
<tr>
<td>ISYE 6203</td>
<td>Transportation and Supply Chain Systems</td>
<td>3</td>
</tr>
<tr>
<td>Breadth (Choose 3):</td>
<td></td>
<td></td>
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<tr>
<td>ISYE 6225</td>
<td>Advanced Engineering Economy</td>
<td>3</td>
</tr>
<tr>
<td>or ISYE 6227</td>
<td>Introduction to Financial Engineering</td>
<td></td>
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<tr>
<td>ISYE 6414</td>
<td>Statistical Modeling and Regression Analysis</td>
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Technical Electives (Choose 2)  6

- ISYE 6225 Advanced Engineering Economy
- ISYE 6230 Economic Decision Analysis
- ISYE 6307 Scheduling Theory
- ISYE 6320 Public Impact Applications of Operations Research and Management Science
- ISYE 6402 Time Series Analysis
- ISYE 6404 Nonparametric Data Analysis
- ISYE 6405 Statistical Methods for Manufacturing Design and Improvement
- ISYE 6413 Design and Analysis of Experiments
- ISYE 6414 Statistical Modeling and Regression Analysis
- ISYE 6416 Computational Statistics
- ISYE 6420 Introduction to Theory and Practice of Bayesian Statistics
- ISYE 6421 Biostatistics
- ISYE 6650 Probabilistic Models and Their Applications
- ISYE 6661 Linear Optimization
- ISYE 6662 Discrete Optimization
- ISYE 6663 Nonlinear Optimization
- ISYE 6664 Stochastic Optimization
- ISYE 6669 Deterministic Optimization
- ISYE 6679 Computational Methods in Optimization
- ISYE 6701 Energy Technology and Policy
- ISYE 6740 Computational Data Analysis: Learning, Mining, and Computation
- ISYE 6761 Stochastic Processes I
- ISYE 6762 Stochastic Processes II
- ISYE 6805 Reliability Engineering
- ISYE 6810 Systems Monitoring and Prognostics
- ISYE 6832 Simulation Theory and Methods
- ISYE 7406 Data Mining and Statistical Learning

Free Electives (Choose 2)  6

6000-level or higher courses

Total Credit Hours  30

Up to six (6) credits of 4000-level courses may be used towards the degree, subject to the approval of the ISyE Director of Master’s Programs.

Practicum Track Requirements

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Free Electives (Choose 2)  6

6000-level or higher courses

Total Credit Hours  30

Up to six (6) credits of 4000-level courses may be used towards the degree, subject to the approval of the ISyE Director of Master’s Programs.

1 ISYE 6739 is not allowed to count toward Free Electives
Master of Science in Industrial Engineering

**Technical Electives (Choose 2)**

- ISYE 6225 Advanced Engineering Economy
- ISYE 6307 Scheduling Theory
- ISYE 6320 Public Impact Applications of Operations Research and Management Science
- ISYE 6402 Time Series Analysis
- ISYE 6404 Nonparametric Data Analysis
- ISYE 6405 Statistical Methods for Manufacturing Design and Improvement
- ISYE 6413 Design and Analysis of Experiments
- ISYE 6414 Statistical Modeling and Regression Analysis
- ISYE 6416 Computational Statistics
- ISYE 6420 Introduction to Theory and Practice of Bayesian Statistics
- ISYE 6421 Biostatistics
- ISYE 6644 Simulation
- ISYE 6650 Probabilistic Models and Their Applications
- ISYE 6661 Linear Optimization
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- ISYE 6762 Stochastic Processes II
- ISYE 6805 Reliability Engineering
- ISYE 6810 Systems Monitoring and Prognostics
- ISYE 6832 Simulation Theory and Methods
- ISYE 7406 Data Mining and Statistical Learning

**Free Electives (Choose 1)**

- 6000-level or higher courses
- ISYE 6320 Public Impact Applications of Operations Research and Management Science
- ISYE 6644 Simulation
- ISYE 6701 Energy Technology and Policy

**Internship Preparation Elective**

- ISYE 6320 Public Impact Applications of Operations Research and Management Science
- ISYE 6644 Simulation
- ISYE 6701 Energy Technology and Policy

**Practicum**

- COOP/INTN/ISYE Practicum

**Total Credit Hours**

Up to six (6) credits of 4000-level courses may be used towards the degree, subject to approval of the ISyE Director of Master's Programs.

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1. ISYE 6739 is not allowed to count as a Free Elective
2. ISYE Special Topics courses, as appropriate

**BS/MS Option**

The BSMS Option allows eligible students to double count a maximum of 6 credit hours toward undergraduate and graduate requirements while still completing all other program requirements to earn both degrees.

BS in Industrial Engineering students with a GPA of 3.5 or higher who have taken ISYE 3133 and ISYE 3232 are eligible to apply to utilize the BSMS Option. BSIE students must also graduate with a GPA of 3.5 or higher in order to utilize the BSMS Option.

It is typical for students to use 6 hours from the BSIE concentration electives to count as Core Courses or Technical Electives for the MSIE degree. Students will need to consult with an advisor to indicate which courses are sharing with the graduate degree in DegreeWorks.