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

Code	Title	Credit Hours
Core		
ISYE 6201	Manufacturing Systems	3
ISYE 6202	Warehousing Systems	3
ISYE 6203	Transportation and Supply Chain Systems	3
Breadth (Choose 3):		**9**
ISYE 6225	Advanced Engineering Economy	
	or ISYE 6 Introduction to Financial Engineering	
ISYE 6414	Statistical Modeling and Regression Analysis	

Code	Title	Credit Hours
ISYE 6644	Simulation	
ISYE 6650	Probabilistic Models and Their Applications	
ISYE 6669	Deterministic Optimization	
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 [1]		
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

Practicum Track Requirements

Code	Title	Credit Hours
Core		
ISYE 6201	Manufacturing Systems	3
ISYE 6202	Warehousing Systems	3
ISYE 6203	Transportation and Supply Chain Systems	3
Breadth (Choose 3):		**9**
ISYE 6225	Advanced Engineering Economy	
	or ISYE 6 Introduction to Financial Engineering	

ISYE 6414	Statistical Modeling and Regression Analysis	
ISYE 6650	Probabilistic Models and Their Applications	
ISYE 6669	Deterministic Optimization	
Technical Electives (Choose 2)		**6**
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	
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 1)		**3**
6000-level or higher courses [1]		
Internship Preparation Elective [2]		**3**
ISYE 6320	Public Impact Applications of Operations Research and Management Science	
or ISYE 6644	Simulation	
ISYE 6701	Energy Technology and Policy	
Practicum		
COOP/INTN/ISYE Practicum		
Total Credit Hours		**30**

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.

[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.