

Industrial Engineering (MS)

Master of Science Degree Requirements

Code	Title	Hours
Required Course		4
ISE 601	Seminar	
or ISE 801	Seminar	
ISE 695	Master's Thesis Research	
Breadth Requirement Courses		12
See "Breadth Requirement Courses" listed below		
Electives		12
"Elective Courses" will be determined in conjunction with the academic committee		
Additional Electives		3
Additional Elective course or ISE 695		
Total Hours ^{1,2}		31

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 Requirements

Code	Title	Hours
Select a minimum of one course from at least three of the following groups:		9
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	
ISE 711	Capital Investment Economic Analysis	
Group B: Human Factors and Ergonomics		
ISE 540	Human Factors In Systems Design	
ISE 541	Occupational Safety Engineering	
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: Production Systems		

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
OR 504	Introduction to Mathematical Programming
ISE/OR 505	Linear Programming
ISE 560	Stochastic Models in Industrial Engineering
ISE/OR 562	Simulation Modeling
Select one course from the following:	
Group F: Computer Science, Mathematics, and Statistics	
Other graduate level CSC, Math, or Statistics courses may be substituted with approval	
CSC 513	Electronic Commerce Technology
CSC 520	Artificial Intelligence I
CSC 570	Computer Networks
CSC 742	Advanced Topics in Database Management Systems
MA 520	Linear Algebra
MA 580	Numerical Analysis I
ST 515	Experimental Statistics for Engineers I
ST 516	Experimental Statistics For Engineers II
ST 531	Experimental Design

Total Hours **12**

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

Osman Yalin Ozaltin

Hong Wan

Xu Xu

Assistant Professors

Karen Boru Chen

Xiaolei Fang

Leila Hajibabai Dizaji

Syedmohammadhossein Hosseinian

Jordan Kern

Benjamin A. Rachunok

Sara Shashaani

Renran Tian

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

Adjunct Associate Professor

Yunan Liu

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