Doctor of Philosophy with a Major in Industrial Engineering - System Informatics & Control Track

Domain Core
ISYE 6810 Systems Monitoring and Prognostics 3
ISYE 7201 Production and Service Systems Engineering 3
ISYE 7204 Informatics in Production & Service Systems 3

Methods Core
Select three of the following: 9
- ISYE 6661 Optimization I: Linear Programming
- ISYE 6761 Stochastic Processes I
- ISYE 7406 Data Mining and Statistical Learning
- ECE 6550 Linear Systems and Controls

Methods Breadth
Select at least three courses from at least two of the areas: 9

Stochastics and Simulation
- ISYE 6644 Simulation
- ISYE 6831 Advanced Simulation
- ISYE 6656 Queuing Theory
- ISYE 6762 Stochastic Processes II

Statistics
- ISYE 6402 Time Series Analysis
- ISYE 6405 Statistical Methods for Manufacturing Design and Improvement
- ISYE 6412 Theoretical Statistics
- ISYE 6413 Design and Analysis of Experiments
- ISYE 6420 Introduction to Theory and Practice of Bayesian Statistics
- ISYE 7401 Advanced Statistical Modeling
- ISYE 7405 Multivariate Data Analysis
- ECE 6555 Optimal Estimation

Computing and Algorithms
- ISYE 6679 Computational Methods in Optimization
- ISYE 6416 Computational Statistics
- CS 6650

Dynamics and Control
- ECE 6559 Advanced Linear Systems
- ECE 6552 Nonlinear Systems and Control
- ECE 6553 Optimal Control and Optimization
- ECE 6554 Adaptive Control
- ECE 6551 Digital Control
- ECE 6556 Intelligent Control
- ECE 6120 Automata Theory
- ME 6401 Linear Control Systems
- ME 6402 Nonlinear Control Systems
- ME 6443 Variational Methods in Engineering

Optimization
- ISYE 6664 Stochastic Optimization
- ISYE 6652 Optimization II: Network Flows and Discrete Optimization
- ISYE 6663 Optimization III: Nonlinear Programming

Elective

Approved Methodology Course

Seminar
ISYE 8014 Contemporary Topics in System Informatics and Control 1

Applications
Select at least one of the following: 3
- ISYE 6201 Manufacturing Systems
- ISYE 6202 Warehousing Systems
- ISYE 6203 Transportation and Supply Chain Systems
- ECE 6557 Manufacturing Systems Design
- ME 6222 Manufacturing Processes and Systems
- ME 6223 Automated Manufacturing Process Planning
- ME 6225 Metrology and Measurement Systems
- ME 6754 Engineering Data Base Management Systems

Total Credit Hours 31

It is recommended that students complete the domain and methods core courses before they sit for the comprehensive examination.

A student is not admitted to candidacy until all of the stated course requirements in the Program of Study have been completed.