DOCTOR OF PHILOSOPHY
WITH A MAJOR IN
INDUSTRIAL ENGINEERING

Doctor of Philosophy with a Major in Industrial Engineering - Applied Statistics Track

The emphasis in this track is on the use of statistics as a science that is employed in a technological environment. Within this context, a student takes fundamental coursework in mathematics, probability and statistics suitable to conduct advanced work and research in a variety of application domains. Among these are quality systems, manufacturing, production, and simulation.

Doctor of Philosophy with a Major in Industrial Engineering - Supply Chain Engineering Track

This program focuses on the design and analysis of manufacturing, distribution, and transportation systems. Students take fundamental coursework in optimization, stochastics, and statistics in order to build a firm base from which to deal with the myriad of issues that arise in settings involving modern supply chain systems modeling and analysis: production and inventory systems, vehicle routing and scheduling, warehousing, and logistics.

Doctor of Philosophy with a Major in Industrial Engineering - Economic Decision Analysis Track

Engineering economic decision analysis is a broad-based area of study that concentrates on both theoretical approaches and the applied methodologies in various decision-making domains within an economic environment. Typical settings that attract students to this program include multicriteria decision-making, capital budgeting, auctions, portfolio analysis and selection, economic forecasting, utility theory, and quantitative finance.

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
- Computing and Algorithms
  - ISYE 6679 Computational Methods in Optimization
  - CS 6505 Computability, Algorithms, and Complexity
  - ISYE 6416 Computational Statistics
- Computing & Algorithms
  - ISYE 6679 Computational Methods in Optimization
  - CS 6505 Computability, Algorithms, and Complexity
  - ISYE 6416 Computational Statistics

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.