## DOCTOR OF PHILOSOPHY WITH A MAJOR IN INDUSTRIAL ENGINEERING - SYSTEM INFORMATICS & CONTROL TRACK

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
<td>ISYE 6810</td>
<td>Systems Monitoring and Prognostics</td>
<td>3</td>
</tr>
<tr>
<td>ISYE 7201</td>
<td>Production and Service Systems Engineering</td>
<td>3</td>
</tr>
<tr>
<td>ISYE 7204</td>
<td>Informatics in Production &amp; Service Systems</td>
<td>3</td>
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### 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 Queueing 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

**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

### Seminar
- ISYE 8014 Contemporary Topics in System Informatics and Control 1

### Elective
- Approved Methodology Course

### 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.