ISyE 7201 Production and Service Systems Engineering

Catalog description

Advanced models in operations planning, scheduling and control of supply chain, production and service systems, intended for PhD students.

Sample References

- *Inventory Management and Production Planning and Scheduling*, by Silver, Pyke and Peterson, John Wiley and Sons.
- *Foundations of Stochastic Inventory Theory*, by Evan Porteus, Stanford Business Books.
- *Introduction to Discrete Event Systems*, by Christos Gassandras and Sephane Lafortune, Kluwer.
- *Stochastic Models for Manufacturing Systems*, by Buzacott and Shanthikumar, Prentice Hall.
- *Manufacturing Systems Engineering*, by Stanley Gershwin, Prentice Hall.
- Selected papers

Prerequisites

- ISyE 6761: Stochastic Processes I,
- ISyE 6669: Deterministic Optimization, and
- One course on domain knowledge, either at undergraduate or graduate level.

Topics Covered

1. Advanced Models for the Analysis and Control of Single-Stage and Multi-Echelon Inventory Systems
2. Formal Models for Supply Chain Coordination
3. Formal frameworks for the modeling of the workflow dynamics and the scheduling of Manufacturing and Service Systems
4. Supervisory Control of Complex Workflows