

American University of Beirut
Faculty of Engineering and Architecture
Department of Industrial Engineering and Management

INDE 431: Production Planning and Inventory Planning

Fall 2016, 10:00 AM-10:50 AM

Instructor:

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Office Hours: MWF: 11:00 AM-12:00 PM or by appointment

Course Description:

Methods of production and inventory planning. Replenishment systems for individual items. Inventory management for special classes of items. Multiple item and multiple location inventories. Introduction to supply chain management and multi-echelon inventories. Production planning and scheduling: aggregate production planning, MRP, JIT, OPT, and short-range production scheduling. Prerequisite: INDE 302 and 303.

Course Objectives:

- Be able to use basic tools and methods for forecasting the different types of demand.
- Be able to formulate and solve aggregate planning problems.
- Acquire the skills needed to implement basic inventory control
- Be able to understand and formulate supply chain problems, with a focus on transportation problems.
- Be able to differentiate between the role of several production control systems (MRP and JIT).
- Be able to apply basic tools and algorithms required for scheduling operations and activities in a project.
- Acquire a basic understanding of the use of reliability models to determine failure rates.

Text: Production and Operation Analysis, Steven Nahmias, Sixth Edition.

Tentative schedule:

- Week 1: Forecasting
- Week 2: Forecasting
- Week 3: Aggregate Planning
- Week 4: Aggregate Planning
- Week 5: Inventory management subject to known demand.
- Week 6: Inventory management subject to known demand.
- Week 7: Review for Midterm, **Midterm I**
- Week 8: Inventory management subject to unknown demand.
- Week 9: Transportation models.
- Week 10: Push and Pull Production control systems
- Week 11: Operations scheduling
- Week 12: Operations scheduling
- Week 13: Project Management models
- Week 14: Reliability and Maintainability.
- **Final Exam: Comprehensive**

Homework:

Homework problems will be assigned and graded frequently. Students are encouraged to solve the homework problems and to discuss their solution with each other and the instructor. However, each student must independently write and submit one assignment.

Grading:

Midterm exam	40%
Final exam	40%
Attendance, Homework, Pop Quizzes	20%

University Rules and Regulations:

Students are advised to review all relevant university rules and regulations including those related to attendance, cheating, plagiarism, misconduct, and academic integrity, among many others. It shall be expected that strict enforcement of these rules and regulations will be exercised.