



**IE 472**  
**Operations of Manufacturing Systems**  
**Spring 2011**



**Instructor:**

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**Purpose:**

This course deals with the study of recent developments in manufacturing, Japanese manufacturing techniques, hybrid manufacturing management system, supply chain management, total quality management, design for manufacturing and assembly. Objective is to provide an opportunity to the student to gain in-depth knowledge of ERP, Just in time, Push – Pull and hybrid production systems, total quality manufacturing, and Supply chain management. In fact, it leads one towards lean manufacturing that meets high throughput or service demands with little inventory.

**Textbooks:**

- 1) Factory Physics by Wallace J. Hopp and Mark L. Spearman, McGraw-Hill, 2001.
- 2) Manufacturing Planning and Control by Vollmann, Barry and Whybark, 1997, McGraw-Hill.

**Grades:**

Course will be determined by the following weights:

Attendance	5%
Weekly Examination	15%
Mid-term Examination	25%
Lecturer	15%
Final Exam	40%

**Course Outline:**

1. Introduction to Operations and advancement of/in manufacturing system (Book Chapter 1)
2. Inventory Models Material requirements planning, manufacturing resource planning, enterprise resource planning (Book Chapters 1 and 2)
3. Just in time: History of JIT system, Why JIT, Classic Kanban system, Kanban Cards, Lessons from JIT (Book Chapter 4)
4. Science of Manufacturing, Basic Factory Dynamics, Operations and manufacturing variability (Book Chapters 6, 7 and 8)
5. Push (MRP), Pull (Kanban) and Hybrid (CONWIP) production systems (Book Chapter 10)
6. Supply chain management: managing raw materials, managing WIP, managing finished goods inventory, multi-echelon supply chains