**IE 472- Operations of Manufacturing Systems**

**Instructor:**

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**Teaching Assistance:**

**Pre requisite: IE 428 and IE 410**

**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:**

Factory Physics by Wallace J. Hopp and Mark L. Spearman, McGraw-Hill, 2001.

**Grades:**

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| Participation | 5% | Mid-term Examination | 20% |
| Weekly Examination | 10% | Lecturer | 15% |
| Final Exam | | 50% | |

**Course Outline**:

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| Sr. No | Topics | # classes | Book Chapter |
| 1. | Introduction to Operations and advancement of/in manufacturing system | 3 classes | Chapter 1 |
| 2. | Inventory Models: Dynamic of lot sizing and WW algorithm. Material requirements planning I and MRP-II, ERP | 10 classes | Chapters 2 and 3 |
| 3. | Science of manufacturing system, It’s Dynamics and variability concepts | 14 classes | Chapters 5, 6 and 7 |
| 4. | Just in time: What is JIT, Toyota JIT system, Kanban system for deterministic and variable demand. Push (MRP), Pull (Kanban) and Hybrid (CONWIP) production systems | 10 classes | Chapters 4 and 10 |
| 5. | Supply chain management: concepts, managing spare parts | 3 classes | Chapter |