

# Operations Management

**1.1 Course Number:** MT5802

**1.2 Contact Hours:** 40 Hours, **Credits:** 8

**1.3 Semester-offered:** 8<sup>th</sup> Semester

**1.4 Prerequisite:** Operations Research, Statistics

**1.5 Syllabus Committee Member:** Dr. Debashish Jena & Dr. Susham Biswas

## 2 Objective:

- Understand the fundamental, practical science of Operations Management
- Understanding the operations discipline and its role to gain competitive advantage in firms
- Examine how these principles operations management can be employed in both tactical and strategic decision making in firms
- Develop ability to analyze and address problem related to the design, planning, control, and improvements of manufacturing and service operations
- To provide a set of foundational skills useful for more advanced courses in Operations

## 3 Course Content:

Unit-wise distribution of content and number of lectures

Unit	Topics	Sub-topic	Lectures
1	Basic Concepts of Operations Management	Historical Evolution, Operations as a source of competitive Advantage, Operations Management Definition, Interface with other management functions Link Between Operations and Finance, Productivity and Productivity Measures	01
2	Operations Strategy	Operations Strategy, NPD, Strategic Capacity Management, Project Management	02
3	Process Analysis and Facility Layout	Process selection, Product-process matrix, Process mapping, Throughput Time, Cycle time Little's Law, Process Simulation, Basic Layouts and their designing	04
4	Capacity Analysis and Capacity Strategy	Capacity Analysis, Overall Equipment Effectiveness, Bottleneck analysis	03
5	Waiting Line Management	Waiting Lines and Queuing Theory	03
6	Quality Management & Six Sigma	Quality Management, Evolution of Quality Management and Contribution of quality Gurus, Six Sigma, SQC, SPC, Systematic Problem-Solving Methodology	04

7	Project Management	Project planning, scheduling, pricing, estimating	02
8	Inventory Management	Single period, Multi-period models, EOQ, Quantity Discounts	03
9	Aggregate Sales and Operations Planning	Sales & Operations Planning Process, Aggregate Planning, CRP, MRP, ERP, Scheduling, TOC	04
10	Operations Scheduling and Lean Operations	Scheduling and Lean operations	04
11	Project Work	A group of students will be allocated a project relevant to the course, where they can apply their understanding. Project will be a part of course evaluation.	10
		<b>Total</b>	<b>40</b>

## 4 Readings

### 4.1 Text Books:

- Chase, R.B., Ravi Shankar & Jacobs, F.R. (2018), Operations & Supply Management. 15th Edition, McGraw Hill.

### 4.2 Reference Books:

- Ravi Anupindi, Sunil Chopra et al (2013) Managing Business Process Flows: Principles of Operations Management, Pearson.
- Edward Pound, Jeffrey Bell, Mark Spearman(2014) Factory Physics for Managers\_ How Leaders Improve Performance in a Post-Lean Six Sigma World-McGraw-Hill Education.
- Russell & Taylor, Operations Management along Supply Chain, Wiley.
- Slack N, Chambers S, Johnston R (2010) Operations management 6th ed\_ Prentice Hall.
- Krajewski, Lee J and Ritzman, Larry P., Operations Management: Processes and Value Chains, Pearson.
- Boyer et al. (2011) Operations Management: Strategy, Global Supply Chain and Service Operations 1st Edition, Cengage Learning.
- Gerard. C and Christian. T, (2018), Matching Supply with Demand: An Introduction to Operations Management, McGraw Hill.
- Goldratt and Cox (1992). The Goal, North River Press, USA.

## 5 Outcome of the Course:

- At the conclusion of the course, students will be able to appreciate Operations Management Processes and address the questions that an organization faces in its choice of products, manufacturing technology, utilization of capacity, management of quality, costing, sourcing etc.
- Aside from analytical rigour, Intuitive understanding of various principles of Operation Management
- This course lays the foundation for a career in designing and managing business processes besides developing insights about strategic and tactical aspects of operations.
- Along the way, students will become familiar with spreadsheets, optimization solvers, and discrete event simulation tools.