

ME291: Production and Operations Management

Teaching Scheme			Credits	Marks Distribution				Total Marks
L	T	P	C	Theory Marks		Practical Marks		
				ESE	CE	ESE	CE	
3	0	0	3	70	30	0	0	100

Course Content:

Sr. No.	Topics	Teaching Hrs.
1	<u>Introduction:</u> Definition, scope and objectives, Relationship of production with other management functions.	02
2	<u>Forecasting:</u> Long and short term demands, Demand behavior, Forecasting methods: moving average, weighted moving average, exponential smoothing, adjusted exponential smoothing, linear trend line, Linear and multiple regression analysis, Measuring and monitoring forecast error.	06
3	<u>Inventory management:</u> Functions of Inventory, Inventory costs, Continuous and periodic inventory systems, Deterministic inventory models: Purchase model, Production model, Quantity discounts, Safety stock and shortages, Inventory models with probabilistic demand, ABC, VED and HML analysis.	06
4	<u>Network Techniques in Project Management:</u> Gantt chart, Necessity of Project Management, Network modeling, CPM and PERT, Project crashing and Time-Cost tradeoff, Resource Leveling.	06
5	<u>Production Planning and Control:</u> Objectives, phases and functions of PPC, Aggregate planning.	04

6 **Materials Requirement Planning:** 05

Basic MRP Concepts, Factors affecting the computation of MRP, Objectives of MRP System, Inputs to MRP, MRP Outputs, MRP implementation, Manufacturing Resource Planning (MRP II), Enterprise Resource Planning (ERP).

7 **Just-in-Time and Lean Production:** 03

The Concept, advantages and characteristics of JIT Systems, Comparison of Push and Pull type systems, Basic elements of lean production.

8 **Scheduling:** 04

Purpose of scheduling, Techniques of scheduling, Loading, Sequencing, Solution of sequencing problems: n jobs and two machines, n jobs on three machines, n jobs on m machines, 2 jobs on m machines.

9 **Supply Chain Management:** 04

Definition, need, supply chain activities, Logistics, Purchasing, Supplier management.

Total Hrs. 40

Reference Books:

1. Adam Everette E and Ebert Ronald J, “*Production and Operation Management*”, 5th edition, Prentice Hall India.
2. Buffa Sarin, “*Modern Production/Operations Management*”, 8th edition, Willey, New Delhi.
3. Chary S. N., “*Production and Operations Management*”, 4th edition, Tata McGraw Hill.
4. Russell and Taylor, “*Operations Management*”, 6th edition, Wiley India Pvt. Ltd.
5. Sushil Gupta and Martin Starr, “*Production and Operations Management Systems*”, CRC Press.
6. Rama Murthy P., “*Production and Operations Management*”, 1st Edition, New Age Publishers.