

**IV B.TECH - I SEMESTER  
PRODUCTION PLANNING AND CONTROL**

**Course Code: ME7T2**

**Lecture: 3 periods/week**

**Tutorial: 1 period/week**

**Credits: 3**

**Internal assessment: 30 marks**

**Semester end examination: 70 marks**

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**COURSE OBJECTIVES:**

- To understand the problems and opportunities faced by the operations manager in manufacturing and service organizations.
- To develop an ability to apply PPC concepts in a various areas like marketing, accounting, finance, engineering, personnel management, logistics, etc.
- To integrate operations concepts with other functional areas of business
- To understand the PPC function in both manufacturing and service organizations.
- To examine several classic Operations Management planning topics including production planning and inventory control.
- To learn several important contemporary topics relevant to business managers of all functional disciplines, including quality management, lean concepts, and sustainability.

**COURSE OUTCOMES:**

Upon completion of this course the student will be able to:

1. Recognize the objectives, functions, applications of PPC and forecasting techniques.
2. Explain different Inventory control techniques.
3. Solve routing and scheduling problems
4. Summarize various aggregate production planning techniques.
5. Describe way of integrating different departments to execute PPC functions

**Pre-Requisites: Industrial Engineering and Management**

**UNIT I**

**INTRODUCTION:**

Definition – Objectives of production Planning and Control – Functions of production planning and control – Elements of production control – Types of production – Organization of production planning and control department – Internal organization of department.

**FORECASTING**

Importance of forecasting –Types of forecasting, their uses –General principles of Forecasting –Forecasting techniques– qualitative methods- Jury/Expert Method , Survey of Expert opinion method , Sales force composite method, Survey of buyers intention method and quantitative methods-Simple average, moving average, smoothing coefficient, Least Square method.

**UNIT II**

**INVENTORY MANAGEMENT**

Functions of inventories – relevant inventory costs – ABC analysis – VED analysis – EOQ model – Inventory control systems – P–Systems and Q-Systems  
Introduction to MRP-I, MRP-II & ERP, JIT inventory, Kanban system

### **UNIT III**

#### **ROUTING**

Definition – Routing procedure –Route sheets – Bill of material – Factors affecting routing procedure.

#### **SCHEDULING**

Definition – Activities-Difference with loading, Scheduling types: Forward, Backward scheduling, Job shop scheduling methods – Arrival pattern, processing pattern, number of workers available, machine varieties available, Priority rules for job sequencing FIFO, SPT, SOT, EDD, STR, CR, LISO, Random Orders. Scheduling Techniques Gantt Charts, LOB, Johnson's job sequencing rules- n jobs on 2machines, n jobs on 3 machines, n jobs on m machines.

### **UNIT IV**

#### **LINE BALANCING:**

Introduction, objectives, terms related to line balancing, procedures, simple problems

#### **AGGREGATE PLANNING:**

Introduction, Inputs to aggregate planning, strategies- Line strategy, chase strategy, capacity options, demand options.

### **UNIT V**

#### **DISPATCHING**

Centralized and Decentralized Dispatching- Activities of dispatcher – Dispatching procedure – follow-up – definition – Reason for existence of functions – types of follow up, applications of computer in production planning and control.

### **Learning Resources**

#### **Text Books:**

1. Samuel Eilon, "Elements of Production Planning and Control", Universal Publishing Corporation.
2. Baffa & Rakesh Sarin , "Modern Production & Operations management", 8th edition, John Wiley,.

#### **References Books:**

1. S.N. Chary, "Production & Operations Management", (4<sup>th</sup> Edition), TMH.
2. Martin K. Starr and David W. Miller , "Inventory Control Theory and Practice", Prentice Hall.
3. Dr. C. Nadha Muni Reddy and Dr. K. Vijaya KumarReddy "Reliability Engineering & Quality Engineering", Galgotia Publications, Pvt., Limited.
4. S.k Sharma, savita Sharma, "A Course in Industrial Engineering and Operations Management", Tata McGraw Hill publications.