Course Title: Production and Operations Management

Course Code	:	17BA2T4	External Marks	:	60
Core / Elective	:	Core	Internal Marks	:	40
Credits	:	3	Contact Periods	:	3
Year/Semester	:	I year/II semester	Tutorial Periods	:	2

Course Objectives

The aim of this course is:

1. To provide an introduction to the functional area of production and operations management as practiced in manufacturing industries and the services sector.
2. To ensure an understanding of the translation of product and service requirements into facilities, procedures, and operating organizations.
3. To provide an emphasis on decision making in operational areas such as: facility requirements and utilization, control and coordination of resource inputs and outputs, types of transformation/conversion processes, and performance measurements.

Course Outcomes

Upon completion of this course, students will be able:

1. To list an overall view of the decision-making process as it relates to the major areas of Production/Operations Management.
2. To explain production planning as a pre-production activity that involves arranging and designing the production system, with the use of effective techniques.
3. To develop the concept of product planning and quality control measures to maximize both customer satisfaction and company profits.
4. To identify the evolution of principles that makes it possible to design facilities, processes, and control systems with a degree of predictability in their performance.
5. To make use of the programmes that help optimize inventory control, which is critical in achieving business success and to develop a degree of competency in controlling the operations systems.

Unit 1- **Introduction**: Overview & Definition of Production and Operations Management- Nature and Scope of Production and Operations Management- Historical Evolution –Role & responsibilities of the production manager - Types of Manufacturing Processes and Product Design, CAD/CAM.

Unit 2- **Production Planning and Control**: Stages in PPC – Gantt -PERT & CPM – PPC in Mass, Batch, and Job Order Manufacturing- Aggregate planning and Master Scheduling, MRP, CRP. Maintenance management & Industrial Safety. Plant Location & Layout Planning- Factors influencing location - types of layouts. Capacity Planning – Optimal Production Strategies: Scheduling and Sequencing of Operations. Work Design: Method Study and Work Measurement - Work Sampling.

Unit 3- **Managing of Work Environment**: – Automation --Technology Management - Waste Management. Quality Assurance and Quality Circles – Statistical Quality Control –Control Charts for Variables- Control charts for Attributes. Acceptance Sampling Plans.

Unit 4- **Quality Improvement**: Basic concepts of quality, dimensions of quality, Juran's quality trilogy, Deming's 14 principles, Quality improvement and cost reduction, ISO 9000-2000 clauses & coverage. Six Sigma, Productivity–factors affecting productivity, measurement & improvements in productivity -Total Productive Maintenance (TPM).

Unit 5- **Purchase and Stores Management**: Purchase functions and Procedure - Objectives of Stores Management – Requirements for efficient. Management of Stores – safety stock- Inventory Control - Different Systems of Inventory Control & Types of Inventory – ABC, VED and FNSD analyses. Value Analysis.

Case Study: Compulsory. Relevant cases have to be discussed in each unit.

Reference Books

1. PannerSelvem: "Production and Operation Management", Prentice Hall of India, NewDelhi, 2012.
2. K. Aswathappa, K. Shridhara: "Production & Operation Management", Himalaya Publishing House, New Delhi, 2012.
3. Ajay K Garg: "Production and Operation Management", TMH, New Delhi, 2012.
4. Deepak Kumar Battacharya: "Production & Operation Management", University Press, New Delhi, 2012.
5. Alan Muhlemann, John Oakland, JastiKatyayani: "Production and Operation Management", Pearson, New Delhi, 2013.