MARRI LAXMAN REDDY
INSTITUTE OF TECHNOLOGY AND MANAGEMENT
(AN AUTONOMOUS INSTITUTION)
(Approved by AICTE, New Delhi & Affiliated to JNTUH, Hyderabad)
Accredited by NAAC with 'A' Grade & Recognized Under Section 2(f) & 12(B) of the UGC act,1956

COURSE CONTENT

PRODUCTION AND OPERATIONS MANAGEMENT								
III SEMESTER								
Course Code	**Category**	**Hours/Week**			**Credits**	**Maximum Marks**		
		L	**T**	**P**	**C**	**CIE**	**SEE**	**Total**
20MBA018	**CORE**	4	0	0	4	40	60	100
Contact Classes:45	**Tutorial Classes:** Nil	**Practical Classes:** Nil				**Total Classes:** 45		
Prerequisite: -Basic Concepts of Marketing Management								

COURSE OVERVIEW: - It focuses on the design, planning, execution, and control of production processes and business operations. It aims to efficiently transform inputs such as materials, labor, and technology into finished goods and services while ensuring quality, cost-effectiveness, and customer satisfaction. The course provides a comprehensive understanding of how organizations manage their production systems and operational activities in both manufacturing and service sectors. It emphasizes the strategic role of operations in achieving organizational competitiveness.

COURSE OBJECTIVES:

- To understand the fundamentals of operations management, including production systems, strategic operations, and productivity concepts.
- To analyze product design and development processes, process planning, capacity planning, and value engineering techniques.
- To evaluate factors influencing plant location and layout decisions, including analytical models and layout design procedures.
- To apply scheduling techniques and quality control concepts in different production and job shop environments.
- To examine materials management practices, including inventory control models, purchasing systems, and classification techniques for efficient resource utilization.

COURSE OUTCOMES: Students will be able to

1. Explain operations management, production systems, productivity, strategic management and GDP's impact.
2. Explain the principles of various layouts, types, designs and procedures with necessary rules in dispatching
3. Formulate project management principles and implement projects across various sectors using systems approach.
4. Analyze project planning frameworks, appraisal methods that influence technical and risk related factors.

5. Assess project planning, controlling techniques, scheduling approaches in project management.

Unit - I: - Introduction to Operations Management.

Functional Subsystems of Organization, Definition, Systems Concept of Production, Types of Production Systems — Flow, Job Shop, Batch Manufacturing and Project, Strategic Operations Management – Corporate Strategic, Generic competitive Strategies, Functional Strategies, Productivity, World Class Manufacturing

Unit–II :- Product Design And Analysis

New product development -its concepts, Steps of Product Design, Process Planning and Design-Selection of Process, Responsibilities of Process Planning Engineer, Steps in Process Planning. Process Design - Process Research, Pilot Plant Development, Capacity Planning and Enhanced Capacity using Optimization. Value Analysis/Value Engineering –Value Analysis application, Value Engineering Procedure, Advantages and Application Areas. Ergonomic considerations in Product Design. Standardization: Standardization Procedure, Advantages of Standardization, Application of Standardization.

Unit–III:- Plant Location & Plant Layout

Factors influencing Plant Location, Break Even Analysis. Single Facility location problem, Multi Facility location problems-Model for multi facility location problem, Model to determine X-Coordinates of New facilities, Model to determine Y Coordinates, Plant layout-Plant layout introduction, Classification of Layout, Advantages and limitation of Productlayout,Advantages and limitations of Group Technology Layout, Layout design procedures

Unit–IV: -Scheduling

Introduction, Johnson ‘s Algorithm, Extension of Johnson ‘s rule. Job Shop Scheduling: Introduction, Types of Schedules, Schedule Generation, heuristic Procedures, Priority Dispatching Rules. Two Jobs and m Machines Scheduling. Quality control concepts.

Unit–V: - Materials Management

Integrated Materials Management, Components of Integrated Materials Management- Materials Planning, Inventory Control, Purchase Management, Stores Management, EOQ, Models of Inventory, Operation of Inventory Systems, Quantity Discount, Implementation of Purchase Inventory Model– Incoming Materials Control, Obsolete Surplus and Scrap Management, ABC Analysis, XYZ Analysis,VED Analysis, FSN Analysis, SDE Analysis. Latest Amendments in Production

TEXT BOOKS: -

1. B. Mahadevan, Operations Management: Theory and Practice, Second Edition, Pearson, 2010.
2. Danny Samson ―Operations Management: Integrated Approach‖ Cambridge, 2012.
3. Panneerselvam, Production and Operations Management, PHI, 2012.

REFERENCE BOOKS:

- K.Ashwathappa, Sridhar Bhatt, Production and Operations Management, Himalaya Publishing House, 2012
- Jay Heizer, Barry Render, Operations Management, 11e, 2016.
- K. Boyer, Rohit Verma, Operations Management: Cengage Learning, 2011

ELECTRONIC RESOURCES:

1. http://web.itu.edu.tr/topcuil/ya/OR.pdf
2. http://textofvideo.nptel.iitm.ac.in/112106134/lec1.pdf
3. https://www.goodreads.com/shelf/show/operations-research
   https://books.google.co.in/books/about/Operations_Research.html?id=P9h42uyE72YC

MATERIALS ONLINE:

1. Course template
2. Tutorial question bank
3. Tech talk and Concept Video topics
4. Open-ended experiments
5. Definitions and terminology
6. Assignments
7. Model question paper – I
8. Model question paper – II
9. Lecture notes
10. PowerPoint presentation
11. Drishya Siksha Sangrah (DSS) Videos