

Devi Ahilya University, Indore, India				IV Year B.E. (Mechanical Engg.)				
Institute of Engineering & Technology				(Full Time)				
Subject Code & Name		Instructions Hours per Week			Credits			
8MERC1		L	T	P	L	T	P	Total
PRODUCTION & OPERATIONS MANAGEMENT		3	1	0	3	1	-	4
Duration of Theory Paper:								
3 Hours								

Course Objectives:

1. The objective of the subject is to provide students with an understanding of the theory underlying operations management
2. To enable students to contribute to improved operating decisions.
3. This course has gradually incorporated an increasing amount of quantitative methodology because quantitative techniques improved decision making.

Pre requisite(s): Industrial Engineering & Management, Materials Management, Operations Research.

COURSE CONTENTS

UNIT- I

PRODUCTION MANAGEMENT: Definition: Production Management operation function in organizations, Systems view of operations, defining, managing the operations subsystems. Framework for managing operations. Forecasting in operations. Methods of Forecasting, selection of the Forecasting models.

UNIT- II

OPERATIONS CAPACITY AND LAYOUT DECISIONS: Need for facility location planning, factors affecting plant location decisions.

Decision tree analysis, Layout concepts, developing the process layout models & behavior, developing the product layout models (Assembly line models & behavior), manufacturing cellular layouts.

UNIT- III

SCHEDULING SYSTEMS AND AGGREGATE PLANNING: Operations planning and scheduling systems, aggregate planning process, strategies for developing aggregate planning, master production schedule. Loading: various approaches of loading, Sequencing: priorities sequencing rules, detailed scheduling, Expediting.

UNIT- IV

MRP&CAPACITY PLANNING: MRP: Objectives, advantages, limitations, preparation of material requirement plan, closed loop MRP, MRP- II, Capacity planning and environment. Strategies to modify the capacity in the short run & long run.

Introduction to ERP.

UNIT- V

MATERIAL, MAINTENANCE & ECONOMIC ANALYSIS: Maintenance: objectives, Importance and types of Maintenance systems Preventive and breakdown maintenance. Economic Analysis: Time Value of Money concept, Capital investment evaluation techniques- Pay back, NPV, IRR etc.

Course Outcomes:

Upon completing the course student will be able to:

- CO1. Understand the fundamentals of Production & Operations Management.
- CO2. Apply techniques of demand forecasting in practical situations.
- CO3. Take decisions related to plant locations and plant layout.
- CO4. Understand the basics of aggregate planning and scheduling systems.
- CO5. Know the techniques related to materials requirement, maintenance of production system.

BOOKS RECOMMENDED:

- [1] Monks Joseph, *Operation management*, McGraw Hill international, 3e, 1987.
- [2] Everett E. Adam, et al, *Production & Operations Management*, Prentice – Hall of India, 5e, 2004.
- [3] Chase Richard B., et al, *Operations Management*, Tata MacGraw Hill, 11e, 2006
- [4] Buffa E., *Production and Operation Management*, McGraw Hill, T/e
- [5] Martand Telsung, *Industrial Engineering & Production Management*, S.Chand & Co. Ltd, 2004.

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Course Outcome:

Students earned credits will develop ability to

CO. No.	CO	PO
CO1	Understand the fundamentals of Production & Operations Management.	PO1, PO2, PO9, PO10
CO2	Apply techniques of demand forecasting in practical situations.	PO1, PO4, PO5
CO3	Take decisions related to plant locations and plant layout.	PO1, PO3, PO7, PO11
CO4	Understand the basics of aggregate planning and scheduling systems.	PO2, PO3, PO9
CO5	Know the techniques related to materials requirement, maintenance of production system.	PO2, PO3, PO9

CO-PO Relationship

CO	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12
CO1	3	3							3	3		
CO2	3			3	3							
CO3	3		3				2				3	
CO4		3	3						3			
CO5		3	3						3			

* CO (rows) mention nil/very small/insignificant contribution to the PO(column)
 1 → relevant and small significance 2 → medium or moderate and 3 → strong