

OPERATIONS MANAGEMENT

Course Code	23ME2702D	Year	IV	Semester	I
Course Category	Open Elective-IV	Branch	MECHANICAL ENGINEERING	Course Type	Theory
Credits	3	L-T-P	3-0-0	Prerequisites	Nil
Continuous Internal Evaluation	30	Semester End Evaluation	70	Total Marks	100

Course Outcomes					Level	Units
Upon successful completion of the course, the student will be able to						
CO1	Apply forecasting and aggregate planning techniques to select appropriate production systems.				L3	1
CO2	Construct scheduling plans and apply inventory classification methods like ABC and VED analysis.				L3	2
CO3	Illustrate inventory decisions using EOQ and implement MRP logic and Lean concepts.				L3	3
CO4	Use tools like control charts and sampling to manage quality and understand TQM and Six Sigma principles.				L3	4
CO5	Solve real-world problems using LPP, transportation, assignment, and travelling salesman models.				L3	5

Contribution of Course Outcomes towards achievement of Program Outcomes & Strength of correlations (3:High, 2: Medium, 1:Low)

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2
CO1	3		2	3						3		3	2
CO2	3		2	3						3		3	2
CO3	3		2	3						3		3	2
CO4	3		2	2						3		3	2
CO5	3	3	2	3	3					3		3	2

Syllabus

Unit No.	Syllabus	Mapped CO's
1	FORECASTING: Introduction, types of forecasting and their uses, General principles of forecasting, forecasting techniques: qualitative and quantitative methods of Forecasting. PRODUCTION SYSTEMS: Types of production systems: job, batch, mass and flow type production. AGGREGATE PLANNING: Introduction, aggregate planning strategies, aggregate planning methods, problems	CO1
2	SCHEDULING: Introduction, difference with loading, scheduling policies, techniques, standard scheduling methods. MATERIALS MANAGEMENT: Introduction, functions of materials management, inventory, inventory management, types of inventories, Selective inventory control techniques: ABC analysis, VED analysis.	CO2
3	INVENTORY CONTROL: P and Q Systems, Basic Economic Order Quantity model, Price break model, assumptions and problems MATERIAL REQUIREMENT PLANNING: Introduction, Inputs, outputs and MRP	CO3

	logic. CONTEMPORARY MANAGEMENT TECHNIQUES: Introduction to Lean, JIT, ERP and Supply chain Management.	
4	QUALITY MANAGEMENT: Quality engineering, Taguchi Principles, SQC – X bar, p and c charts, problems, Juran’s principles Introduction to quality acceptance sampling. Deming’s Philosophy, Introduction to Total quality management, Quality Function Deployment, Introduction to six sigma and ISO 9000 2015 standards.	CO4
5	OPTIMIZATION: Linear Programming – Graphical and simplex method – problems, Demonstration of Transportation and Assignment Models, Travelling Salesman problem.	CO5

Learning Resources

TEXT BOOKS:

1. Modern Production/ operations managements / Baffa& Rakesh Sarin
2. Operations Management – an Integrated Approach, International student Version, R. Dan Reid and Nada R. Sanders, John Wiley & Sons
3. Production and Operations management by K. C. Jain, Wiley
4. Operations Management by William J. Stevenson, McGraw-Hill Companies 2015
5. Operations Management by Jay Heizer , Barry Render, Chuck Munson , Amit Sachan Twelfth Edition, Pearson, 2017

REFERENCES:

1. Maynard’s Industrial Engineering Handbook, Kjell B. Zandin, Fifth Edition 2001, The McGraw-Hill Companies, Inc.
2. Operations Management S.N. Chary.
3. Inventory Control Theory and Practice / Martin K. Starr and David W. Miller.