

SEMESTER – IV: OPERATIONS & SUPPLY CHAIN

Elective Course 1: Operations Applications & Cases

Course Type:	PS: Program Specialisation	Course Credits:	2
Course Code:	O4PE534	Course Duration:	30 Hours

Course Objective:

- To introduce students to practical applications and real-world cases in operations management.
- To equip students with analytical skills for identifying, diagnosing, and solving operational issues.
- To develop capabilities to apply operational frameworks and tools to case-based scenarios.
- To foster understanding of cross-functional integration and operational decision-making processes.
- To cultivate strategic insights into best practices and effective problem-solving techniques in operations management.

Pre-requisites:

- Basic knowledge of operations management and supply chain concepts

Course Outcomes:

- CO1: Recall key concepts of Operations Management, including resource planning and process analysis
- CO2: Understand Manufacturing Resource Planning (MRP-I & II) and inventory management techniques using excel
- CO3: Apply workforce planning, aggregate planning, and scheduling techniques to optimize resource utilization
- CO4: Analyse investment decisions, plant operations, maintenance, and asset replacement strategies through financial modeling on Excel
- CO5: Evaluate cost estimation models for tendering, bidding, and financial feasibility in procurement and project management
- CO6: Design and create operations management frameworks for service industries (insurance, BPO/KPO, entertainment) to enhance efficiency and reduce costs

Unit/ Module	Content	CO Mapping	Hours Assigned
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1	Operations Management in Complex Situations - Understanding Operations in VUCA contexts - Resource Planning & Allocation - Workforce Planning and Optimization - Case: Workforce Planning in Manufacturing & Services	CO1, CO2, CO3, CO4	6
2	Aggregate Planning: - Aggregate Planning: Level & Chase Strategies - Production smoothing, Backordering - MRP I & II concepts and Excel Application - Demand Forecasting, Lead Time Calculation - Retail Inventory & SKU Optimization	CO3, CO4	4
3	Sustainable & Resilient Supply Chains: - Demand-driven and Circular Supply Chains - Reuse, Recycling, and Remanufacturing - Carbon Footprint Measurement & ESG compliance - Sustainable Logistics & Reverse Logistics	CO3, CO4, CO5, CO6	4
4	Quality Management & Breakdown Analysis: - Risk Identification in various sectors - Cloud-based QMS implementation - Failure Trend Analysis & Breakdown Cost Analysis	CO2, CO3, CO4	4
5	Plant Operations & Tendering: - Investment Planning & Asset Replacement - Maintenance & Robotic Process Automation (RPA) - Cost-Benefit Analysis (Excel model) - Tendering Process & E-Tendering Case	CO2, CO3, CO4, CO5	4
6	Bidding, Contract Management & Negotiation: - Bidding process & Bid evaluation criteria - Case: Bid preparation using Excel - Contract Lifecycle & Performance Metrics - Negotiation Techniques for win-win procurement	CO2, CO3, CO4, CO5, CO6	4

7	Risk Management & Digital Transformation in Operations - Supplier & Contract Risk Management - Contingency Planning for Supply Failures - Operations in Services: Insurance, BPO/KPO, Entertainment - AI, IoT, RPA, and Digital Twin in Smart Operations	CO3, CO4, CO5	4
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Textbooks:

1. Operations Management" by Nigel Slack, Alistair Brandon-Jones, and Robert Johnston
2. Operations Management: Processes and Supply Chains" by Lee J. Krajewski, Manoj K. Malhotra, and Larry P. Edition: 12th (Pearson)
3. Operations and Supply Chain Management" by F. Robert Jacobs and Richard B. Chase Edition: 15th (McGraw Hill)

Reference Books:

1. Production and Operations Analysis" by Steven Nahmias and Tava Lennon Olsen
2. Supply Chain Management: Strategy, Planning, and Operation" by Sunil Chopra and Peter Meindl
3. Service Operations Management: Improving Service Delivery" by Robert Johnston and Graham Clark

