SEMESTER – III: OPERATIONS & SUPPLY CHAIN

Mandatory Course 1: Supply Chain Management

Course Type:	PG: Program General	Course Credits:	4
Course Code:	O3PM507	Course Duration:	60 Hours

Course Objective:

- To introduce core principles and strategic significance of supply chain management.
- To equip students with practical knowledge of supply chain processes, including procurement, logistics, and inventory management.
- To develop analytical skills for optimizing supply chain, efficiency, responsiveness, and sustainability.
- To familiarize students with technological solutions and innovations enhancing supply chain operations.
- To foster critical understanding of global supply chain challenges, risk management, and regulatory compliance.

Course Outcomes:

- CO1: Recall basic concepts of supply chain management for business improvement
- CO2: Associate the concepts of supply chain management and connect with business scenarios.
- CO3: Apply basic principles of supply chain management for streamlining business processes
- CO4: Analyse the performance of supply chain for all the stakeholders of the business
- CO5: Evaluate supply chain networks and optimize solutions to have competitive edge in management
- CO6: Design supply chain network for creating business value

Unit / Module	Content	CO Mapping	Hours Assigned
1	**Introduction to the Supply chain:** Decision phases in a supply chain. Supply Chain Models: Continuous Flow, Fast Chain, Efficient Chain, Responsive Supply chain and Agile Models. Supply Chain and Demand chain, Value creation, Evolution of SCM, SCM integration, Linkages and Decisions in SCM, Difference of Supply Chains in Product (Mfg.) Industry and Service-based Industry. Delivery and Value addition through supply chain. Process view of a supply chain. The importance of supply chain flows. Achieving strategic fit.	CO1, CO2	6
2	**Logistics and Shipping:** A concept, Logistics and Shipping, functions. Objectives, Goals, Decisions. Reverse Logistics. Inbound and Outbound Logistics, 1st Party, 2nd Party, 3rd Party, 4th Party Logistics, Introduction to Shipping Line Companies and Freight Forwarders, Introduction to shipping documents, Ports and customs	CO1, CO2	6
3	**Warehousing and Distribution:** Role of warehouse, Warehousing functions, Types of Warehouses, Warehouse site selection, Layout design, Warehouse automation,Hub and Spoke Model, WMS Distribution, Role, Importance,Levels, Channels, Structure, Functions. Channel partners,functions. Importance of Smart Transportation Distribution Center. Concept, Modern DC's , Robotics Usage for pick and pack Factors influencing distribution network design.	CO2, CO3	6

4	**Order Processing and Logistics** Information system, Order Preparation, Transmittal, Order entry, Order filling, Order status reporting, Industrial order processing and Retail order processing. Web based order processing. Processing priorities, Understanding Tenders and Bidding	CO3, CO4	6
5	**Performance Measurement and Controls in Supply Chain** Management Pre- transaction, Transaction, Post transaction elements, Service attributes, Objective, Levels, Parameters of performance measures- Cycle time, Fill Rate. Inventory Turnover, On-time Shipping and Delivery, Perfect Order, Stock out. Transportation measurements, Customer perception measure, Audit. Gap Analysis, Best Practices SCOR and DCOR	CO4, CO5, CO6	6
6	**Transportation** Infrastructure, road, rail, air water, pipeline. Freight Management, Freight cost. Transportation Network Rout planning, Containerization, Packing. Effective /Cost Optimizing strategies-Direct shipment, Cross-docking, Milk run, transshipment.	CO2, CO3	6
7	**Supply Chain Integration** Design option for a distribution network. Distribution network in practice. The value of Information Bullwhip effect. Effective forecasts. Information for the coordination of systems. Collaborative Planning Forecasting Replenishment (CPRF) concept. Inventory Management and Risk pooling, Logistics Information system, Strategic Alliances, Retailer supplier partnership. Types ofRSP, Requirements of RSP Inventory ownership in RSP, Outsourcing and related	CO5, CO6	6

	decisions		
8	**Designing Global Supply Chain** Networks, Global market / Technological/ Cost/ Political and Economic Forces. Risks and advantages of international supply chain. International versus Regional products. Local autonomy versus central control. Regional differences in Logistics- Cultural differences/ infrastructure/ performance expectation and evaluation Information systems availability, human resources. Global business logistics.	CO5, CO6	6
9	**Ethical issues in SCM Supply chain vulnerability.** Conformance to applicable laws such as Contract and commercial laws, Trade regulation, government procurement regulations, patents Copyrights, trademark laws, transportation and logistics laws and regulations Environmental laws. International practices. Confidentiality and proprietary information.	CO1, CO2	6
10	**Trends and Technology in Supply Chain:** Block Chain Technology, AI in Supply Chain, Machine Learning and IOT based Supply Chain, RFID Applications in Supply Chain, Goldratt Supply Chains, Sustainable Supply Chain, Resilient supply chains Green Supply chain, Lean supply chain.	CO1, CO2	6

Textbooks:

1. Supply Chain Management - Strategy, Planning and Operation Sunil Chopra, Peter Meindl, D V Kalra
2. Designing and Managing Supply Chain David Simchi Levi, Phillip Kaminsky

Reference Books:

1. Logistics and Supply Chain Management Martin Christopher

2. Supply Chain Management Vinod Sople
3. Supply Chain Logistics Management Donald J Bowersox, David j Closs, M Bixby Cooper
4. Supply Chain Analytics T.A.S Vijayraghavan
5. Strategic Supply Chain Management, Shoshanah Cohen and Joseph Roussel