Elective Course 2: Purchase and Material Management

Course Type:	PS: Program Specialisation	Course Credits:	2
Course Code:	O3SE510	Course Duration:	30 Hours

Course Objective:

- To provide foundational knowledge of procurement processes, sourcing strategies, and materials management.
- To equip students with practical skills in supplier evaluation, negotiation, and relationship management.
- To foster analytical capabilities for inventory optimization, cost reduction, and quality management.
- To develop strategic insights into risk assessment and sustainability considerations in procurement.
- To enable effective use of technology solutions in managing purchasing and materials operations.

Pre-requisites: Operations Management, Operations Research

Course Outcomes:

- CO1: Remember important aspects of materials management.
- CO2: Understanding the importance and worth of Materials Management with respect to business operations
- CO3: Apply concepts of materials management in business operations
- CO4: Analyze data for tenders, vendor selection, material purchase and cost analysis
- CO5: Evaluation of suppliers, materials, vendors and business proposals
- CO6: Create an optimized procurement and inventory management system to enhance efficiency and sustainability

Unit/ Module	Content	CO Mapping	Hours Assigned

1	Introduction to Purchase & Materials Management Definition, Scope & Importance Objectives & Functions of Material Management, Role in Business & Industry	CO1	3
2	Purchasing Management, Purchasing Cycle & Methods, Vendor Selection & Negotiation Legal Aspects of Procurement	CO2, CO3	3
3	**Inventor Management** Types of Inventory Inventory Control Techniques (ABC, VED, FSN) Economic Order Quantity (EOQ) Model, Just-in-Time (JIT)	CO1 CO3 CO6	3
4	Warehouse & Storage Management Functions of Warehousing, Warehouse Layout & Design Material Handling Systems Safety & Security Measures	CO1, CO2	3
5	**Supply Chain Management (SCM)** Overview of SCM, Logistics & Distribution in SCM, Supplier Relationship Management Performance Metrics in SCM	CO4, CO5	3
6	**Materials Requirement Planning (MRP) & ERP** MRP Process & Elements Bill of Materials (BOM) MRP vs. ERP, Capacity Planning	CO2, CO3 CO6	3
7	**Vendor Management & Development** Vendor Rating & Performance Evaluation Supplier Development StrategiesE-Procurement & Digitalization Global Sourcing	CO4, CO5	3
8	**Cost & Value Analysis** Cost Reduction	CO3,	3

	Strategies Value Engineering & Value Analysis Make or Buy Decisions Total Cost of Ownership (TCO)	CO4, CO5 CO6	
9	**Sustainable & Green Procurement** Environmental & Social Impact Circular Economy in Supply Chain Ethical Sourcing & Corporate Social Responsibility (CSR) Green Logistics	CO4, CO5 CO6	3
10	Industry 4.0 & Smart Procurement AI & Blockchain in Supply Chain Digital Procurement Systems, Future Trends in Procurement	CO2, CO3 CO6	3

Textbooks:

1. Chopra, S., & Meindl, P. (2021). Supply chain management: Strategy, planning, and operation (8th ed.). Pearson.
2. Gopalakrishnan, P., & Sundaresan, M. (2015). Introduction to materials management (7th ed.). Pearson Education.
3. Monczka, R. M., Handfield, R. B., Giunipero, L. C., & Patterson, J. L. (2020). Purchasing and supply chain management (7th ed.). Cengage Learning.
4. Schnellbächer, W., & Weise, D. (2022). Digital procurement transformation: Rethinking buying in the digital age. Springer

Reference Books:

1. Datta, A. K. (2009). Materials management: Procedures, text and cases (2nd ed.). PHI Learning.
2. Sharma, S. C. (2018). Materials management and materials handling (1st ed.). Khanna Book Publishing