Type of course: Core

Prerequisite: Technology Trends in IT

Rationale: The course aims to impart basic skills of supply chain management.

Teaching and Examination Scheme:

Teaching Scheme			Credits	Examination Marks				Total Marks
				Theory Marks		Practical Marks		
L	T	P	C	ESE(E)	PA (M)	ESE (V)	PA (I)	
3	0	0	3	50	0	0	0	50

L- Lectures; T- Tutorial/Teacher Guided Student Activity; P- Practical; C- Credit; ESE- End SemesterExamination; PA- Progressive Assessment

Content:

Sr. No.	Content	Teaching Hrs.	Module % Weightage
1.	**Introduction to Supply Chain Management and IT** Understanding Supply Chain Components: Definition and Scope of Supply Chain, Key Components: Suppliers, Manufacturers, Distributors, Retailers, Customers, Interactions and Relationships among Supply Chain Entities Evolution of IT in Supply Chain: Historical Development of Information Technology in Supply Chain, Role of IT in Transforming Supply Chain Processes.	6	15
2.	**Inventory Management Systems** RFID Technology and its Applications: Principles of Radio Frequency Identification (RFID), RFID in Inventory Tracking and Management, Advantages and Challenges of RFID Implementation. Barcoding Systems for Inventory Control: Basics of Barcoding in Supply Chain, Implementation of Barcoding in Warehouse Operations, Practical Exercise: Simulated Implementation of Barcoding.	6	15
3.	**Warehouse Management Systems (WMS)** Core Functions of WMS: Features and Capabilities of Warehouse Management Systems, Streamlining Operations with WMS, Implementing WMS in Different Business Environments, Customization of WMS to Industry-specific Requirements, Challenges and Best Practices in WMS Implementation.	6	10

4.	**Internet of Things (IoT) for Supply Chain** Introduction to IoT in Logistics: Overview of IoT Sensors and Devices ,Enhancing Visibility and Tracking with IoT	6	15
5	**Automation and Robotics in Supply Chain (including RPA)** Overview of Automation in Logistics: Robotic Process Automation (RPA) in Supply Chain , Autonomous Vehicles and Drones in Logistics. Warehouse Robotics and Automation: Role of Robotics in Warehousing Operations, Collaborative Robots (Robots) in Supply Chain	6	15
6	**Blockchain in Supply Chain** Fundamentals of Blockchain Technology: Basics of Decentralized Ledger and Smart Contracts, Security and Trust in Blockchain	6	15
7	**Future Trends and Innovation in Supply Chain** Exploring Industry 4.0 in Supply Chain: Overview of Cyber-Physical Systems in Logistics, Integration of Big Data and AI in Future Supply Chains, Guest Lectures: Thought Leaders on Emerging Trends Innovative Technologies Shaping the Future: 3D Printing in Supply Chain, Sustainable Practices and Green Logistics.	6	15
	Total	42	100

Reference Books:

1. Introduction to Operations and Supply Chain Management by Cecil B. Bozarth and Robert B. Handfield.
2. Warehouse Management: A Complete Guide to Improving Efficiency and Minimizing Costs in the Modern Warehouse" by Gwynne Richards.
3. Building the Internet of Things: Implement New Business Models, Disrupt Competitors, Transform Your Industry by Maciej Kran.
4. The Fourth Industrial Revolution by Klaus Schwab.
5. Supply Chain Management, Chopra, Pearson

Suggested Specification Table with Marks (Theory): (For BVOC only)

Distribution of Theory Marks					
R Level	U Level	A Level	N Level	E Level	C Level
10	20	20	0	0	0

Legends: R: Remembrance; U: Understanding; A: Application, N: Analyze and E: Evaluate
C:Create and above Levels (Revised Bloom's Taxonomy)

Course Outcomes:

Sr. No.	CO Statement	Marks % Weightage
CO-1	Understand the basic concepts of IT in supply chain management, Inventory management system & WMS.	40
CO-2	To Understand the application of IOT in SCM.	15
CO-3	To Apply the RPA in supply chain management.	15
CO-4	To Apply the knowledge of blockchain in SCM.	15
CO-5	To Understand the future trends & Innovation in SCM.	15

List of Suggested Activities:

- Case Studies: Real-world Examples of IT Impact in Supply Chain
- Case Studies: Successful RFID Applications in Inventory Management
- Site Visit: Observing WMS in Action at a Local Warehouse
- Case Studies: Successful IoT Implementations in Supply Chain
- Site Visit: Exploring a Warehouse with Robotic Automation
- Group Project: Developing a Blockchain Use Case for Supply Chain
- Student Symposium: Presenting Innovative Supply Chain Concepts
- Group Project: Designing a WMS for a Fictitious Warehouse
- Practical Exercise: Programming a Simple RPA Task