

**DR. A.P.J. ABDUL KALAM TECHNICAL UNIVERSITY
LUCKNOW**



Teaching and Evaluation Scheme

For

MBA

(LOGISTICS AND SUPPLY CHAIN MANAGEMENT)

II Year

AS PER AICTE MODEL CURRICULUM & NEP 2020

(Effective from the Session: 2025-26)

GUIDELINES FOR SUMMER TRAINING (III SEMESTER) AND RESEARCH PROJECT REPORT (RPR) (IV SEMESTER)

Summer Training Project Report (STPR)

Objective:

The internship module aims to provide the student with:

- A practice-oriented and ‘hands-on’ working experience in the real world or industry, and
- To enhance the student’s learning experience.
- An opportunity to develop a right work attitude, self-confidence, interpersonal skills and
- Ability to work as a team in a real organisational setting.
- An opportunity to further develop and enhance operational, customer service and other
- Life-long knowledge and skills in a real-world work environment.
- Pre-employment training opportunities and an opportunity for the company or
- Organisation to assess the performance of the student and to offer the student an employment
- Opportunity after his/her graduation, if it deems fit.

Outcomes:

At the end of the course, a student will be able to:

CO – 1: Understand the application of knowledge and skill sets acquired from the course and workplace in the assigned job function/s.

CO – 2: Apply real life challenges in the workplace by analyzing work environment and conditions, and selecting appropriate skill sets acquired from the course.

CO – 3: Create critical thinking and problem-solving skills by analyzing underlying issue/s.

CO – 4: Develop the ability to harness resources by analyzing challenges and considering opportunities.

CO – 5: Understand appreciation and respect for diverse groups of professionals by engaging harmoniously with different company stakeholders.

Guidelines For Summer Internship Project Report

1. At the end of the second semester examination, it is mandatory for every student of MBA to undergo on-the-job practical training in any manufacturing, service or trading organization. The training will be of 6 to 8 weeks duration. The college/institute will facilitate this compulsory training for students.
2. During the training, the student is expected to learn about the organization and analyze and suggest solutions to a live problem. The objective is to equip the students with the knowledge of actual functioning of an organization and problems faced by them for exploring feasible solutions.
3. During the course of training, the organization (where the student is undergoing training) will assign a problem/project to the student.
4. The student, after the completion of training will submit a report to the College/Institute which will form part of the third semester examination. However, the report must be submitted by the end of September 30.
5. The report (based on training and the problem/project studied) prepared by the student

will be known as Summer Training Project Report. The report should reflect in depth study of a micro problem, ordinarily assigned by the organization where the student undergoes training. Relevant tables and bibliography should support it. One comprehensive chapter must be included about the organization where the student has undergone training. This should deal with brief history of the organization, its structure, performance products/services and problem faced. The average size of report ordinarily will be of minimum 100 pages in standard font size (12) and double spacing. Two neatly typed (one sided only) and soft bound copies of the report will be submitted to the College/Institute. The report will be typed on A-4 size paper.

6. The report will have two certificates, one from the Faculty guide and another from reporting officer of the organization where the student has undergone training. These certificates should be attached in the beginning of the report.
7. The Summer Training Project Report will carry Total 100 marks and out of which 70 marks will be evaluated by two examiners (one external and one internal). The external examiner will be appointed by University. The evaluation will consist of (1) Summer Training Project Report evaluation (2) Project Presentation and Viva Voce. The average of the marks awarded by the 2 examiners will be taken into account for the results.
8. The Project Report evaluation will comprise of 30 sessional marks and would be evaluated by internal project guide.
9. Only such person will be appointed as an external examiner for the evaluation of the project report who has minimum three years of experience of teaching MBA classes in a College/University. Experience of teaching MBA classes as guest faculty shall not be counted.
10. It is mandatory that the student will make presentation in the presence of teachers and students. The student is expected to answer to the queries and questions raised in such a meeting.
11. The suggestive parameters on which external evaluation would be carried out are as under:

Project Report Evaluation:

Evaluation Criteria	Marks
Understanding of Objectives with topic	20
Understanding of Relevance of topic	20

Interpretation & Analysis	10
Presentation	10
Query handling	10

Research Project Report (RPR)

In fourth semester, the candidates will have to submit a Research Project Report on a problem/topic (from the specialization areas) to be assigned by the MBA department under the supervision of a core faculty member of the department. The Research Project Report will carry 300 marks. The evaluation of the project report will be done by two examiners (external & internal). The evaluation will consist of (1) Evaluation of Project Report (2) Presentation and Viva Voce.

The evaluation of Project Report will comprise of 100 marks and would be evaluated by the internal guide. The evaluation of Viva Voce of Project would comprise of 200 marks and would be evaluated by an external examiner appointed by University and one internal examiner appointed by institute. The average of the marks awarded by the 2 examiners will be taken into account for the results. In case the difference in the marks given by the examiners is 30 or more, the project report will be referred to a third examiner. In such cases the average of two closer awards (given by three examiners) will be taken into account for the results. The report will contain the objectives and scope of the study. Research Methodology, use and importance of the study, analysis of data collected, conclusions and recommendations. It will contain relevant charts, diagrams and bibliography. A certificate of the supervisor and the Head of the MBA program certifying the authenticity of the report shall be attached therewith. The student will submit two copies of the report to the Head of MBA program. The number of pages in the report will be minimum 75 or more. The report should be typed in A-4 size paper. The suggestive parameter on which evaluation would be carried

1. Understanding & relevance of the topic
2. Relevance & Analysis of the data
3. Ability to present
4. Ability to handle query

MBA (Logistics and Supply Chain Management) II Year Teaching and Evaluation Scheme
W.E.F. Academic Session 2025-26
(In Accordance with AICTE Model Curriculum & National Education Policy)

Semester III

S.No	Subject Codes	SUBJECTS	PERIODS			INTERNAL EVALUATION SCHEME				END SEMESTER EVALUATION		TOTAL	CREDIT
			L	T	P	CT	TA	PS	TOTAL	TE	PE		
1	BMLS 301	Strategic Management	3	0	0	20	10	0	30	70	0	100	3
2	BMLS 302	Supply Chain Planning	3	0	0	20	10	0	30	70	0	100	3
3	BMLS 303	Procurement & Vendor Management	3	0	0	20	10	0	30	70	0	100	3
4	BMLS 304	Inventory and Warehouse Management	3	0	0	20	10	0	30	70	0	100	3
5	BMLS 305	International and Maritime Logistics	3	0	0	20	10	0	30	70	0	100	3
6	BMLS 306	Supply Chain Analytics	2	0	2	10	10	10	30	70	0	100	3
7	BMLS 307	Multimodal Logistics	3	0	0	20	10	0	30	70	0	100	3
8	BMLS 308	Summer Internship Project Report & Viva Voce	0	0	0	0	30	0	30	0	70	100	4
TOTAL			20	0	2	130	100	10	240	490	70	800	25

Semester IV

SNo	Subject Codes	SUBJECT	PERIODS			INTERNAL EVALUATION SCHEME				END SEMESTER EVALUATION		TOTAL	CREDIT
			L	T	P	CT	TA	PS	TOTAL	TE	PE		
1	KVE 401	Universal Human Values and Professional Ethics	3	0	0	20	10	0	30	70	0	100	3
2	BMLS 402	Risks Management in Supply Chain and Logistics	3	0	0	20	10	0	30	70	0	100	3
3	BMLS 403	E- Business & Digital Marketing	2	0	2	10	10	10	30	70	0	100	3
4	BMLS 404	Warehouse Automation and Advance Logistics	3	0	0	20	10	0	30	70	0	100	3
5	BMLS 405	Regulatory Compliance in Supply Chain & Logistics	3	0	0	20	10	0	30	70	0	100	3
6	BMLS 406	Research Project Report and Viva Voce	0	0	0	0	100	0	100	0	200	300	10
TOTAL			14	0	2	90	150	10	250	350	200	800	25

Course Objectives

This course aims to:

1. Understand and analyse strategic management principles and their relevance to supply chain and logistics-driven business environments.
2. Apply strategic tools and frameworks to analyse internal capabilities and evaluate external business environments.
3. Understand and explain the processes of strategy formulation and implementation in supply chain management contexts.
4. Develop and strengthen critical, strategic and systems thinking for evaluating complex supply chain decisions.
5. Identify strategic challenges in global and digital supply chains and create appropriate action plans and recommendations for effective resolution

Unit 1 (6 Hours)

Introduction: Meaning Nature, Scope, and Importance of Strategy and Strategic Management, Introduction to Business Policy, Strategic Decision-Making, Process of Strategic Management and Levels at Which Strategy Operates, Strategic Intent: Vision, Mission, Business definition, Goals and Objectives. **Case Studies and Latest Updates.**

Unit 2 (8 hours)

Environmental Scanning: Factors considered, approaches, External environment analysis: PESTEL Analysis, EFE matrix (External Factor Evaluation): Porter's Five Forces Model methods and techniques used , Internal Appraisal – The internal environment, Organizational Capability Factors, organizational appraisal- factors affecting, approaches, methods & techniques Resource Based View (RBW) Analysis, VRIO Framework, Value Chain Analysis, IFE matrix (Internal Factor Evaluation). **Case Studies and Latest Updates.**

Unit 3 (8 hours)

Strategy Formulation: Corporate, Business, Functional strategy, Concentration Strategies, Integration Strategies: Horizontal & Vertical, Diversification: Related & Unrelated, Internationalization, Porters Model of competitive advantage of nations, Cooperative: Mergers & Acquisitions Strategies, Demerger, Joint Venture, Strategic Alliance, Digitalization Strategies. **Case Studies and Latest Updates.**

Unit 4 (9 hours)

Strategy Analysis: Process, Analyzing Strategic alternative, Evaluating and choosing among Strategic Alternative, Tools & Techniques of strategic Analysis, Strategic Choice. BCG Matrix, Ansoff Grid, GE Nine Cell Planning Grid, McKinsey's 7'S framework.

Strategy implementation: Resource allocation, Projects and Procedural issues.

Organization structure and systems in strategy implementation. Leadership and corporate culture, Values, Ethics and Social responsibility. Operational and derived functional plans to implement strategy. Integration of functional plans. **Case Studies and Latest Updates**

Unit 5 (5 hours)

Strategy Evaluation & Control: Nature, Importance, Organizational systems and Techniques of strategic evaluation & control. **Case Studies and Latest Updates.**

Students are expected to analyse various cases and reports of SCM and Logistics with reference to strategic management.

Course Outcomes

CO Code	Course Outcome Statement	Bloom's Taxonomy Level
CO1	Formulate organisational vision, mission, goals, and objectives aligned with SCM strategy.	Applying (K3)
CO2	Design business-level and supply chain strategies to achieve long-term competitive advantage.	Creating (K6)
CO3	Assess risks, challenges, and strategic options in SCM contexts for sound managerial decisions.	Analysing (K4)
CO4	Evaluate and modify strategic plans and implementation processes for improved SCM effectiveness.	Evaluating (K5)
CO5	Analyse the ethical, environmental, and social implications of strategic decisions in logistics and supply chains.	Analysing (K4)

Suggested Readings:

1. Henry, A: Understanding Strategic Management, OUP
2. Stewart Clegg, Chris Carter, Martin Kornberger & Jochen Schweitzer : Strategy - Theory and Practice (Sage Publication, South Asia Edition)
3. Kazmi, Azhar; Business Policy and Strategic Management; McGraw-Hill Education. Fourth edition.
4. David, Fred; Strategic Management: Concepts and Cases; PHI Learning. Fifteenth edition.
5. Thomson, Arthur A. and Strickland, A. J.; Strategic Management: Concept and Cases; McGraw Hill Education, Eleventh edition.
6. Jauch, L.F., and Glueck, W.F.; Business Policy and Strategic Management; McGraw-Hill Education, Fifth edition.
7. Wheelen, L. Thomas and Hunger, David J.; Strategic Management and Business Policy, Crafting and Executing Strategy; Pearson Education, Thirteenth edition.
8. Chopra, S., & Meindl, P. (2019). *Supply Chain Management: Strategy, Planning, and Operation* (7th ed.). Pearson Education.

SUPPLY CHAIN PLANNING

BMLS 302

Course Credit 3

Teaching Hours 40

Course Objectives:

This course aims to:

1. Understand the foundational concepts and processes involved in Supply Chain Management .
2. Explain the strategic role of supply chain and logistics planning in enhancing business performance.
3. Apply forecasting models and techniques to analyze and interpret demand planning scenarios.
4. Evaluate lean and agile supply chain concepts to improve responsiveness and adaptability.
5. Analyze key practices & foundational concepts and processes involved in Supply Chain Management .

Unit 1 Fundamentals of Supply Chain Planning (7 hours)

Management Components of Supply Chain Planning, Latest Trends in Supply Chain Management, Planning for Logistics and Total Cost Management, Key Performance Attributes and Process Drivers for SCM; Supply Chain Structures and Supply Chain Strategies for Different Industries. Application of Supply Chain Operations Reference Model (SCOR), **Case Studies and Latest Updates**

Unit 2 : Supply Chain Strategies (8 Hours)

Crafting the Supply Chain Strategy, Stages of Supply Chain Strategy, Supply Chain Strategy Performance Attributes, Process Drivers of Supply Chain Performance, Supply Chain Strategy Matrix, Supply Chain Strategy & Performance Metrics, Supply Chain Strategy and Risk Management (SCRM). SCRM Maturity Model, **Case Studies and Latest Updates.**

Unit 3: The Agility and Lean Thinking in Supply Chain (6 Hours)

The Concept of Agility in Supply Chain. Agile Drivers and Practices in Supply Chain- Joint Decision, End Customer First, Shared Goal. Inter firm Planning and Control for Supply Chain. Application of Lean Thinking to Business Processes and Supply Chain. **Case Studies and Latest Updates**

Unit 4 Demand Management in SCM (8 Hours)

Components of Demand Management, Formulating Demand Strategies, Demand Planning, Developing the Demand Forecast, , Balancing the Demand and Supply Plans of Production, Implementing Sales and Operations Planning (S&OP) Grid in SCM., Omnichannel Logistics- Concepts and Components; **Case Studies and Latest Updates.**

Unit 5 Integrating the Supply Chain (7 Hours)

Internal Integration- Function to Function. Intercompany Integration, Electronic Integration, Efficient Customer Response (ECR) in Supply Chain. Collaborative Planning, Forecasting and Replenishment, Overview of JIT and Quick Response. Enabling Sustainability in Supply Chain Strategy. **Case Studies and Latest Updates.**

COURSE OUTCOMES

CO Code	Course Outcome Statement	Bloom's K-Level
CO1	Identify key components and processes involved in supply chain planning.	K1 – Remembering
CO2	Explain strategies used in supply chain and logistics operations.	K2 – Understanding
CO3	Apply forecasting techniques to support demand and supply planning.	K3 – Applying
CO4	Analyse demand planning and inventory control using lean and agile thinking.	K4 – Analysing
CO5	Evaluate supply chain integration strategies such as JIT etc.	K5 – Evaluating

Suggested Readings

1. David Frederick Ross, Distribution Planning and Control- Managing in the Era of Supply Chain Management (Springer)
2. Supply Chain Planning and Control Product Documentation, SAP Business By Design
3. Edward Frazelle, Supply Chain Strategy- The Logistics of Supply Chain Management(TM)
4. Sunil Chopra and Peter Meindl, Supply chain management (Pearson)
5. D. Simchi-Levi, P. Kaminsky, E. Simchi-Levi, and Ravi Shankar, Designing and Managing the Supply Chain concepts, Strategies and Case studies, Third Edition, Tata McGraw Hill, New Delhi
6. Alan Harrison and Remko van Hoek, Logistics Management and Strategy (Pearson)

PROCUREMENT AND VENDORS MANAGEMENT BMLS 303

Course Credit 3

Teaching Hours 40

Course Objectives:

This course aims to:

1. Understand advanced concepts and principles related to Procurement Management and Sourcing.
2. Explain the key processes involved in Effective Procurements & Sourcing.
3. Apply conceptual frameworks to analyze and evaluate vendor selection methods for efficient SCM.
4. Analyse integrated approaches for making informed Inventory Decisions within procurement systems.
5. Evaluate current trends and practices in Global Sourcing and their implications for supply chain performance.

Unit 1: Framework of Procurement Management (7 Hours)

Understanding Procurement and Conveying Requirements, Exploring, Accepting and Placing Orders, Budgets and Expense Allocation, Establishing Procurement Methods, Internal Cost-Related Analysis. Sourcing and Vendor Management, Make or Buy Decisions, Types and

Methods of Sourcing in Retail, Centralized vs Decentralized Approaches, Single Sourcing vs Multiple Sourcing, Day-to-Day vs Long Range Sourcing, **Case Studies and Latest Updates.**

Unit 2: Processes in Procurements (7 Hours)

Market Analysis and Supplier Research, Identifying Prime Sources of Suppliers' Information, Request for Proposal, Different Methods of Buying, Fundamental Steps of the Buying Process, Terms and Condition of Purchase, Buying Documentation, Negotiation in Procurement, Use of IT in Sourcing, Global Tenders and E-Procurement, Reverse Auctions, Overview of Global Purchasing, **Case Studies and Latest Updates.**

Unit 3 Vendor Selection in Procurement (7 Hours)

Vendor Selection Process, Evaluation of Existing Vendors, Developing Vendor Performance Measures, New Vendor Development Process, Working with Suppliers to Manage Quality, JIT and TQM in Sourcing, Key Supplier Account Management, Vendor Relationship Development, Vendor Monitoring, Promoting SME suppliers. **Case Studies and Latest Updates.**

Unit 4 : Aligning Inventory Objectives with Procurement (8 Hours)

Objectives of Procurement for Strategic Alignment of Material Management in Supply Chain, Hedging vs. Forward Buying, Managing Price Fluctuation and Volatility in International Finance, Payment Modes, Matching Supply with Customer Demand, Managing Inward Logistics. **Case Studies and Latest Updates.**

Unit 5 Global Procurement Management (7 Hours)

Global Trade Barriers, Dealing with International Suppliers, UNO and GATT conventions, Legal, Socio-Cultural Issues in International Buying, Environmental Issues & Green Purchasing, Industry Best Practices, Measurement of Sourcing Performance, Benchmarking in Retail Purchasing. **Case Studies and Latest Updates.**

Course Outcomes

CO Code	CO Statement	Bloom's Taxonomy Level (K-Level)
CO1	Define procurement frameworks and distinguish between various sourcing approaches.	K1 – Remembering
CO2	Explain procurement processes including documentation, e-procurement, and global tenders.	K2 – Understanding
CO3	Apply vendor selection and evaluation techniques for procurement decision-making.	K3 – Applying
CO4	Analyse procurement strategies aligned with inventory and logistics decisions in a supply chain.	K4 – Analysing
CO5	Evaluate global procurement practices with respect to legal, ethical, and environmental considerations.	K5 – Evaluating

Suggested Readings

1. Sollish, F. and Semanch, J. (2007), Strategic Global Sourcing: Best Practices, Wiley Publications
2. Chopra and Miendl (2003), Supply Chain Management: Strategy, planning and operation, Pearson Books

3. by Sherry R. Gordon, Supplier Evaluation and Performance Excellence: A Guide to Meaningful Metrics and Successful Results.
4. B S Sahay, Emerging Issues in Supply Chain Management (McMillan)
5. Alan Harrison, Logistics Management and Strategy (Pearson)

INVENTORY AND WAREHOUSE MANAGEMENT

BMLS 304

Course Credit 3

Teaching Hours 40

Course Objectives

This course aims to:

1. Understand the principles and practices of inventory management within the context of supply chain and logistics
2. Apply knowledge of inventory replenishment systems and models to real-world supply chain scenarios
3. Analyze techniques for managing inventory under time-varying and uncertain demand conditions
4. Evaluate inventory and warehouse design options to support effective decision-making
5. Develop competencies to assess warehouse operations, analyze associated costs, and measure performance outcomes

Unit 1: Inventory Management Frameworks (9 Hours)

Nature and diversity of Stock Keeping Units (SKUs); Role of bounded rationality in inventory decisions; Functional classifications of inventory; ABC classification and its application in inventory models; Phases of inventory management: Analysis, Modelling, Decision-Making, Control, Evaluation; Importance of physical stock counting and audit practices

Unit 2: Replenishment Systems and Inventory Models (9 Hours)

EOQ models and assumptions; Numerical examples on EOQ and sensitivity analysis; Inventory with quantity discounts, inflation adjustments; Pricing strategies: fixed vs variable; Constraints on order sizes: maximum and minimum limits; Time-phased replenishment systems

Unit 3: Fundamentals of Warehouse Management (9 Hours)

Importance and functions of warehousing; Types of warehouses and specialised services; Warehouse strategy and standard development; Warehouse layout and sizing; Inventory placement and picking strategies; Warehouse automation and sustainability considerations; Contemporary challenges in warehousing

Unit 4: Warehouse Operations and Processes (6 Hours)

Receiving and put-away operations; Picking strategies and equipment; Replenishment, cycle counting, and return processing; Documentation in warehouse operations; Case studies on process optimisation

Unit 5: Cost and Performance Management in Warehousing (8 Hours)

Types of warehouse costs and ROI analysis; Traditional vs Activity-Based Costing (ABC); Logistics charging and pricing methods; Performance measures and metrics (traditional and modern); Integrated performance and benchmarking; Use of Balanced Scorecard; Safety and health regulations in warehousing

Course Outcomes (COs)

CO Code	Course Outcome Statement	Bloom's K-Level
CO1	Identify and describe the key elements and frameworks of inventory management.	K1 – Remembering
CO2	Explain replenishment systems and apply EOQ and related inventory models.	K2 – Understanding
CO3	Apply warehouse layout design principles and operational processes to real-life warehousing scenarios.	K3 – Applying
CO4	Analyse warehouse performance using costing and productivity metrics.	K4 – Analysing
CO5	Evaluate warehouse strategies and sustainability challenges for operational effectiveness.	K5 – Evaluating

Suggested Readings

1. Edward A. Silver, Alberta, Canada David F. J. Thomas Penn , Inventory and Production Management in Supply Chains (CRC Press)
2. Mamta Malik & Pushpa Rani, Warehouse Management and Inventory Control, Literature light
3. Robert A. Davis, Demand-Driven Inventory Optimization and Replenishment (Wiley-Wiley & SAS Business Series)
4. Max Mullar, Essentials of Inventory Management (AMACOM)
5. Nicolas Vendaput, Inventory Optimisations- Models and Simulation(De Gruyter)
6. Hanqin Zhang, Houmin Yan, and S.Prakash Sethi, Inventory and Supply Chain Management with Forecast Updates (Springer)

INTERNATIONAL AND MARITIME LOGISTICS

BMLS 305

Course Credit 3

Teaching Hours 40

Course Objectives

This course aims to:

1. Understand the structure and dynamics of international and maritime logistics systems
2. Enable understanding of trade facilitation through ports, customs, and global logistics networks.
3. Develop the ability to interpret international contracts, port operations, documentation, and compliance requirements.
4. Analyze and examine multi-modal logistics strategies, containerisation, and demand-driven global supply chains.
5. Evaluate & analyse costs, legal risks, voyage planning, and the broader economic impact of maritime logistics operations

Unit 1: Foundations of International and Maritime Logistics (9 Hours)

Introduction to Maritime and International Logistics; Role of Maritime Transport as a Trade Facilitator; Global Trade Environment & Non-Tariff Barriers; Economic and Strategic Importance of Maritime Logistics and Hinterland Connections; Overview of Global Logistics Operators and International Transport Systems; Customs and its Role in Global Supply Chains; Case Studies and Industry Trends

Unit 2: Contracts, Port Operations, and Documentation (9 Hours)

Export Sales Contract: Key Elements and Incoterms; Contract of Affreightment and International Purchasing Systems; Negotiating Contracts and Selecting Logistics Operators (3PLs); Port Management: Facilities, Equipment, Vessel Planning; Cargo Handling, Containerization, and Shipment Procedures; Shipping Documents and Quality Inspection; Role of Clearing & Forwarding Agents; Case Studies and Practical Updates

Unit 3: Transport Modes, Containerization, and Multimodal Logistics (10 Hours)

Characteristics of Transport Modes: Road, Rail, Maritime, Air; Multi-Modal Transport and Trade-Offs (Speed, Cost, Frequency); Containerization: Concepts, Liner Networks, and Port Centrality; Tanker Shipping Logistics and Cargo Transfer Procedures; Warehousing and Supply Chain Cycle Time Reduction; Demand-Driven Supply Networks in Global Logistics; Case Studies and Recent Innovations

Unit 4: Legal, Claims, and Capacity Management in Port Operations (8 Hours)

Port Agency Responsibilities and Selection; Port-Related Claims: Arbitration, Safe Port, Bills of Lading; Capacity Planning and Utilization in Ports; Legal Liabilities and Risk Management; Letters of Credit, Insurance, and Export Benefits; Conflict Resolution in Maritime Logistics; Case Studies and Real-World Scenarios

Unit 5: Cost Analysis, Economic Impact, and Voyage Management (9 Hours)

Components of International Transport Costs; Economic Development and Commercial Geography in Transport; Transport Supply & Demand, Location and Market Area Analysis; Transport Policy, Safety, and Security Considerations; Voyage Planning: Freight, Hire, Commissions, and Commercial Ops; Practical Voyage Estimation and Calculations; Case Studies and Current Industry Practices

Course Outcomes

CO Code	Course Outcome Statement	Bloom's Level
CO1	Explain the foundational principles of maritime logistics, global transport systems, and customs procedures.	Remember (K1)
CO2	Analyse the components of export contracts, port operations, and shipping documentation in international trade.	Analyse (K4)
CO3	Evaluate transport mode choices, container logistics, and multimodal integration in global supply chains.	Evaluate (K5)
CO4	Apply legal frameworks, claims procedures, and capacity management strategies in port operations.	Apply (K3)
CO5	Assess international logistics costs, voyage planning elements, and their influence on economic geography.	Evaluate (K5)

Suggested Readings

1. Ram Singh, International Trade Logistics, Oxford
2. Prabhakaran Paleri, Marine Environment: Management and People's Participation. KW Publishers Pvt. Ltd., and National Maritime Foundation: New Delhi.
3. Asopa, V.N: Shipping Management: Cases and Concepts, Macmillan, New Delhi.
4. Lambert, D et al: Strategic Logistic Management, Tata McGraw Hill, New Delhi.
5. Morlok, Edward K. "The Freight Transportation System," Excerpted from CRC Engineering Hand Book.
6. Maria G. Burns, Port Management and Operations. CRS Press, U.K.
7. Alan E. Branch, Elements of Shipping. Chapman and Hall, Fairplay Publications, U.K.
8. Shankar, U. Environmental Economics. Oxford University Press: New Delhi.
9. Karpagam M, Environmental Economics. Sterling Publishers: New Delhi

SUPPLY CHAIN ANALYTICS

BMLS 306

Course Credit 3

Teaching Hours 40

Course Objectives:

This course aims to:

1. Understand the importance of data and analytics in modern supply chain management (SCM).
2. Apply and identify key tools and techniques used in supply chain analytics across different decision-making domains
3. Analyze and construct analytical models for optimisation and simulation in supply chain systems
4. Describe forecasting techniques and predictive models relevant to SCM
5. Evaluate and implement prescriptive analytics and network design methods to optimise supply chain performance

Unit 1: Importance of Analytics in SCM (8 Hours)

Context of today's Supply Chains (SC) analytics, Understanding the Supply Chain Analytics (SCA), Revisions of Basic of Supply Chain Management, Important of Analytics in Supply Chain, Relating Operations Management with Supply Chain Concepts with SC Analytics, The Importance of Supply Chain Analytics in the Flows Involving Material, Money, Information and Ownership. **Case Studies and Latest Updates**

Unit 2: Framework of Supply Chain Analytics (9 Hours)

Supply Chain Analytics Tools, Key Issues in Supply Chain Analytics, What Involves in Supply Chain Analytics, Concept of Descriptive Analytics in a Supply Chain, Bullwhip Effect in SCM, Decision Domains in Supply Chain Analytics, Overview of SAP Supply Chain Analytics modules and its Functionalities. **Uses of Spreadsheet / Tableau in Supply chain Analytic (Lab Work).**

Unit 3: Modelling and Simulations for Supply Chain Analytics (9 Hours)

Introduction to Modelling, Approaches for Optimization and Simulation, Modelling Software, Supply Chain Decisions that Requires Mathematical or Interpretative Modelling. Understanding of Data and its Role in Analytics of a Transportation Problem in a Supply Chain. Managerial Implications of the Results of Analytics. **Spreadsheet Modelling for Supply Chain (Lab Work)**

UNIT 4: Predictive Modelling in Supply Chain (8 Hours)

Forecasting for Supply Chain Planning and Management, Review of Multiple Regression and Stepwise Selection of Predictive Variables, Identification of Variables in a Forecasting Model, Exponential Smoothing Forecasting Models, Introduction to ARIMA Modelling, Data Driven Inventory Optimization. **Uses of Spreadsheet for Statistical Analysis (Lab Work)**

Unit 5: Foundation of Prescriptive Analytics in SCM (6 Hours)

Network Planning in a Supply Chain, Importance of Network Planning, Design of Logistics Network using Heuristics/optimization, Concept of 3PL/4PL in a Supply Chain. Performance Optimisation in SCM, Information Technology in SCM. **Case Study with Latest Updates**

Course Outcomes

CO Code	Course Outcome Statement	Bloom's K-Level
CO1	Explain the importance of analytics in supply chain decisions and the role of information, material, and financial flows.	Understanding (K2)
CO2	Apply descriptive analytics tools and interpret simulation and optimisation models for supply chain problems.	Applying (K3), Analysing (K4)
CO3	Develop predictive models for forecasting and inventory planning using statistical techniques.	Understanding (K2), Applying (K3), Analysing (K4)
CO4	Analyse the role of prescriptive analytics in supply chain network planning, logistics optimisation, and 3PL/4PL selection.	Understanding (K2), Applying (K3), Analysing (K4)
CO5	Use spreadsheet tools and software (e.g., Tableau, Excel) for modelling, simulation, and data-driven decision making.	Applying (K3), Analysing (K4)

Suggested Readings

1. Sunil Chopra and Peter Meindle, Supply chain management (Pearson)
2. Jeremy F. Shapiro. Modeling the Supply Chain. Duxbury Thomson Learning
3. D. Simchi-Levi, P. Kaminsky, E. Simchi-Levi, and Ravi Shankar, Designing and Managing the Supply Chain concepts, Strategies and Case studies, Third Edition, Tata McGraw Hill, New Delhi, 2008.
4. Rahul Saxena & Anand Srinivasan, Business Analytics
5. Lora M. Cecere, Supply Chain Metrics that Matter(Wiley)
6. by Kusum Deep & Madhu Jain & Said Salh in Logistics, Supply Chain and Financial Predictive Analytics(Springer)

MULTIMODAL LOGISTICS

BMLS 307

Course Credit: 3

Teaching Hours: 36

Course Objectives:

This course aims to:

1. Understand the foundational concepts of multimodal logistics by integrating rail, road, air, and sea transport modes.
2. Develop analytical insights into the impact of transport modes on supply chain efficiency and economics.
3. Prepare students with detailed knowledge of air cargo systems, operations, and regulatory frameworks.
4. Illustrate learners with the economics and practicalities of multimodal transport planning and management.
5. Enable students to understand shipment handling procedures, documentation, and freight management in air logistics.

Unit 1 : Fundamentals of Rail, Road and Cargo Logistics (8 Hours)

Modes of Transportations. Importance of Road and Rail Logistics, Characteristics of Different Modes of Logistics, Airline Marketing and Customer Service Standardization in Logistics, Air Freights for Exports and Imports. E-Way Bills. Economic Impacts of Rail and Road Networks. **Case Studies with Latest Updates.**

Unit 2 : Introduction to Air Cargo (8 Hours)

Air Transport System and its Functions, Airside, Terminal Area, Landside Operations, Civil Aviation Structure, Safety and Security, Security v/s Facilitation, ICAO security manual, Training and Awareness, Rescue and Firefighting, Issues, Challenges and Future of the Air Cargo Industry. **Case Studies with Latest Updates.**

Unit 3 : Air Cargo Management System (8 Hours)

Introduction to Air Cargo: Aviation and airline terminology, IATA, Aircraft layout, Different Types of Aircraft, Aircraft Manufacturers, International Air Routes, National and International Airports, Various Codes at Airports & Consortium, Process Flow in Air Cargo. **Latest Updates**

Unit 4 : Shipment Planning in Air Cargo(8 Hours)

Strategies and Planning, Audits, Segmentation, SWOT, Management Control, Consignee Controlled Cargo, Sales leads, Routing Instructions, Customer service, Future trends, Advices, Booking, SLI, Labeling ,Volume/ Weight Ratio , Shipment Planning , TACT , Air Cargo Rates and Charges, Cargo operations, Customs clearance. **Latest Updates.**

Unit 5 Air Freight and Shipment Handling (8 Hours)

Air Freight Forwarding: Air freight Exports and Imports, Special Cargoes, Consolidation, Documentation, Air Way Bill (AWB), Communication in Air Cargo, Handling COD shipments, POD, Conditions of contract, Provisions for Dangerous or Hazardous Goods. **Latest Updates**

Course outcomes

CO Code	Course Outcome Statement	Bloom's Level
CO1	Recall the fundamental characteristics of different modes of transportation in logistics.	Remembering (K1)
CO2	Explain the key components and structure of air cargo management systems.	Understanding (K2)
CO3	Apply knowledge of air cargo operations to manage standard processes and documentation.	Applying (K3)
CO4	Analyse shipment planning strategies in air cargo logistics for operational efficiency.	Analysing (K4)
CO5	Evaluate handling methods for air freight and special cargo under international standards.	Evaluating (K5)

Suggested Readings

1. John J Liu, Supply Chain Management and Transport Logistics (Routledge)
2. Simon Taylor, Air transport logistics (Hampton)
3. Paul Jackson and William Brackenridge , Air cargo distributions: a management analysis of its economic and marketing benefits (Gower Press)
4. Peter S. Smith , Air freight: operations, marketing and economics (Faber)
5. Sung Chi-Chu , 4th Party Cyber Logistics for Air Cargo by (Kluwer)
6. Mark Wang , Accelerated Logistics (Santa Monica CA)

SEMESTER IV

UNIVERSAL HUMAN VALUES AND PROFESSIONAL ETHICS

KVE 401

Credit: 3

Teaching Hours: 40

Course Objectives

1. Understand, remember and distinguish between values and skills, and understand the need, basic guidelines, content and process of value education.
2. Prepare the students to initiate a process of dialog within themselves to know what they 'really want to be' in their life and profession
3. Analyse and understand the meaning of happiness and prosperity for a human being.
4. Understand harmony at all the levels of human living, and live accordingly.
5. Apply the understanding of harmony in existence in their profession and lead an ethical life

UNIT-1: Course Introduction - Need, Basic Guidelines, Content and Process for Value Education (6 Hours)

Understanding the need, basic guidelines, content and process for Value Education, Self-Exploration-what is it? - its content and process; 'Natural Acceptance' and Experiential Validation- as the mechanism for self-exploration, Continuous Happiness and Prosperity- A look at basic Human Aspirations, Right understanding, Relationship and Physical Facilities- the basic requirements for fulfillment of aspirations of every human being with their correct priority, Understanding Happiness and Prosperity correctly- A critical appraisal of the current scenario, Method to fulfill the above human aspirations: understanding and living in harmony at various levels.

UNIT-2: Understanding Harmony in the Human Being - Harmony in Myself (7 Hours)

Understanding human being as a co-existence of the sentient 'I' and the material 'Body', Understanding the needs of Self ('I') and 'Body' - Sukh and Suvidha, Understanding the Body as an instrument of 'I' (I being the doer, seer and enjoyer), Understanding the characteristics and activities of 'I' and harmony in 'I', Understanding the harmony of I with the Body: Sanyam and Swasthya; correct appraisal of Physical needs, meaning of Prosperity in detail, Programs to ensure Sanyam and Swasthya.

UNIT-3: Understanding Harmony in the Family and Society- Harmony in Human-Human Relationship (8 Hours)

Understanding harmony in the Family- the basic unit of human interaction, Understanding values in human-human relationship; meaning of Nyaya and program for its fulfillment to ensure Ubhay-tripti; Trust (Vishwas) and Respect (Samman) as the foundational values of relationship, Understanding the meaning of Vishwas; Difference between intention and competence, Understanding the meaning of Samman, Difference between respect and differentiation; the other salient values in relationship, Understanding the harmony in the society (society being an extension of family): Samadhan, Samridhi, Abhay, Sah-astitva as comprehensive Human Goals,

Visualizing a universal harmonious order in society- Undivided Society (AkhandSamaj), Universal Order (Sarvabhaum Vyawastha)- from family to world family!.

UNIT-4: Understanding Harmony in the Nature and Existence - Whole existence as Co-existence (8 Hours)

Understanding the harmony in the Nature, Interconnectedness and mutual fulfilment among the four orders of nature- recyclability and self-regulation in nature, Understanding Existence as Co-existence (Sah-astitva) of mutually interacting units in all-pervasive space, Holistic perception of harmony at all levels of existence.

UNIT-5: Implications of the above Holistic Understanding of Harmony on Professional Ethics (9 Hours)

Natural acceptance of human values, Definitiveness of Ethical Human Conduct, Basis for Humanistic Education, Humanistic Constitution and Humanistic Universal Order, Competence in Professional Ethics: a) Ability to utilize the professional competence for augmenting universal human order, b) Ability to identify the scope and characteristics of people-friendly and eco-friendly production systems, technologies and management models, Case studies of typical holistic technologies, management models and production systems, Strategy for transition from the present state to Universal Human Order: a) At the level of individual: as socially and ecologically responsible engineers, technologists and managers, b) At the level of society: as mutually enriching institutions and organizations

COURSE OUTCOMES

	Expected Levels of Learning as per Bloom's Taxonomy for Assessment of Course Outcome.
CO1 : Understand the significance of value inputs in a classroom, distinguish between values and skills, understand the need, basic guidelines, content and process of value education, explore the meaning of happiness and prosperity and do a correct appraisal of the current scenario in the society	Analysing (K4) Applying (K3) Understanding (K2) Remembering (K1)
CO2: Distinguish between the Self and the Body, understand the meaning of Harmony in the Self the Co-existence of Self and Body.	Analysing (K4) Applying (K3) Understanding (K2) Remembering (K1)
CO3: Understand the value of harmonious relationship based on trust, respect and other naturally acceptable feelings in human-human relationships and explore their role in ensuring a harmonious society	Analysing (K4) Applying (K3) Understanding (K2) Remembering (K1)
CO4: Understand the harmony in nature and existence, and work out their mutually fulfilling participation in the nature.	Analysing (K4) Applying (K3) Understanding (K2) Remembering (K1)
CO5: Distinguish between ethical and unethical practices, and start working out the strategy to actualize a harmonious environment wherever they work	Analysing (K4) Applying (K3) Understanding (K2) Remembering (K1)

Suggested Readings

1. R R Gaur, R Sangal, G P Bagaria, 2009, A Foundation Course in Human Values and Professional Ethics.
2. Ivan Illich, 1974, Energy & Equity, The Trinity Press, Worcester, and Harper Collins, USA
3. E.F. Schumacher, 1973, Small is Beautiful: a study of economics as if people mattered, Blond & Briggs, Britain.
4. Susan George, 1976, How the Other Half Dies, Penguin Press. Reprinted 1986, 1991
5. Donella H. Meadows, Dennis L. Meadows, Jorgen Randers, William W. Behrens III, 1972, Limits to Growth – Club of Rome's report, Universe Books.
6. A Nagraj, 1998, Jeevan Vidya Ek Parichay, Divya Path Sansthan, Amarkantak.
7. P L Dhar, RR Gaur, 1990, Science and Humanism, Commonwealth Publishers.
8. A N Tripathy, 2003, Human Values, New Age International Publishers.
9. Subhas Palekar, 2000, How to practice Natural Farming, Pracheen (Vaidik) KrishiTantraShodh, Amravati.
10. E G Seebauer & Robert L. Berry, 2000, Fundamentals of Ethics for Scientists & Engineers, Oxford University Press
11. M Govindrajran, S Natrajan & V.S. Senthil Kumar, Engineering Ethics (including Human Values), Eastern Economy Edition, Prentice Hall of India Ltd.
12. B P Banerjee, 2005, Foundations of Ethics and Management, Excel Books
13. B L Bajpai, 2004, Indian Ethos and Modern Management, New Royal Book Co., Lucknow. Reprinted 2008

RISKS MANAGEMENT IN SUPPLY CHAIN AND LOGISTICS

BMLS 402

Course Credits:3

Teaching Hours :40

Course Objectives

This course aims to:

1. Understand the concepts and principles of risk management in supply chain and logistics
2. Develop strategies to identify, assess, and manage various types of risks within the supply chain
3. Apply techniques to handle disruptions and ensure continuity in supply chain operations
4. Explain the role of supply chains in disaster response and crisis management scenarios
5. Evaluate tools and frameworks for building resilient, risk-aware, and adaptive supply chain systems.

Unit 1 : Introduction of Risks Management (8 Hours)

Risk Management: Concept and Process, An Action-Based Framework for Supply Chain Risk, Identification of Operational Hazards, Risk Assessment and Valuation, Tactical Risk Decisions and Crisis Management, Strategic Risk Mitigation, Four Operational Hedging Strategies. Effect of disruptive Supply Chain on Corporate Performance.

Unit 2 Operational Strategy for Managing Supply Chain Risks (8 Hours)

Introduction, Stockpile Inventory, Diversify Supply, Backup Supply, Manage Demand, Ambiguity in Risks. Decentralised Risks Management Strategy. Shared risks 177; Achieving an integrated approach 180; Identifying risks 184; Analysing and responding to risks 185; Problems with integrating SCRM 187; Levels of SCRM integration 190; In summary 192

Unit 3 Managing Supply Chain Disruption (8 Hours)

Economic Risks to Supply Chain-Demand Shock, Currency Fluctuation, Supply Shock, Industrial Unrest, Impacts of Natural Disasters, Pandemics and Climate Change, Societal Risks to Supply chain, Risks and Security in Air Cargo Supply chain, Time-Based Risk Management-Response Time and Impacts, Risk and Reward Considerations.

Unit 4; Approaches to Risk Management (8 Hours)

Identifying Risks and its Types, Tools for Analysing Past Events, Tools to Collect Opinions, Tools to Analyse Operations, Problems with Risks Identification, Conceptual Explanations with Examples, Development of Risk Management Techniques, Supply Chain Risk Management (SCRM) and aims of SCRM. Steps in Risk Management, Principles of SCRM. Supply Chain Management in Disaster Response.

Unit 5 : Creating Resilient Supply Chains (8 Hours)

Concept of Resilient Supply Chain, Principles of Designing a Resilient Supply Chain, Physical Features of a Resilient Supply Chain, Relationships within a Resilient Supply Chain, Risk Compensation and Business Continuity. Latest updates in Resilient Supply Chain.

CO Code	Course Outcome Statement	Bloom's K-Level
CO1	Explain the fundamental concepts and frameworks of risk management in supply chains	Understanding (K2)
CO2	Analyse strategies for managing operational and strategic risks in global supply chains	Analysing (K4)
CO3	Apply appropriate techniques for managing disruptions caused by economic, social, or natural factors	Applying (K3)
CO4	Evaluate risk management approaches and develop mitigation plans using analytical tools	Evaluating (K5)
CO5	Design resilient supply chain systems integrating risk management and continuity planning	Creating (K6)

Suggested Readings

1. Donald Water, Supply Chain Risks Managemnt, (Kogan Pages)
2. Omra Khan & George Zsidisn , Handbook for Supply Chain and Risks Management (Meri Pustak
3. Yacob Khojasteh, Supply Chain Risk Management: Advanced Tools, Models, and Developments(Springer)
4. Bret Wagner, Sime Curkovic, and Thomas Scannell, Managing Supply Chain Risk: Integrating with Risk Management
5. Lingxiu Dong, Onur Boyabatli, and Panos Kouvelis, Handbook of Integrated Risk Management in Global Supply Chains(Weily)

E-BUSINESS AND DIGITAL MARKETING

BMLS 403

Course Credit 3

Total Hours 40

Course Objectives

The course aims to:

1. Remember and understand the foundational concepts of digital business models and Industry 4.0/5.0 technologies, and their relevance to modern organisations
2. Analyse the concept of technological infrastructure supporting e-business, including security, privacy, and legal concerns.
3. Apply tools, platforms, and automation technologies to plan and execute effective digital marketing strategies
4. Create and evaluate digital business models using strategic thinking in a competitive and evolving digital marketplace
5. Understand and apply innovations in digital procurement, logistics, and supply chain management driven by emerging technologies

Unit I: Introduction to Digital Business and Industry 4.0 (5 Hours)

Overview of digital business and e-commerce fundamentals; E-Business models: B2B, B2C, C2C, B2G; Marketplace analysis and consumer behavior in digital markets; Drivers of digital business growth and emerging trends; Industry 4.0 and 5.0 concepts, technologies (IoT, AI, Big Data), and business impact; Latest updates and emerging trends in e-business.

Unit II: Digital Business Infrastructure and E-Business Environment (10 Hours)

Components of digital business infrastructure: Cloud computing (SaaS, PaaS, IaaS), Web services, APIs, Virtualization, SOA; Electronic Data Interchange (EDI) basics; Selecting and managing hosting/cloud providers, security challenges; Social, ethical, and legal factors influencing e-commerce adoption; Privacy, trust, intellectual property, and e-commerce laws; Electronic contracts, digital signatures, and payment mechanisms.

Unit III: Digital Marketing Fundamentals and Automation (8 Hours)

Digital marketing channels: SEO, SEM, Social Media, Email, Content, PPC, Affiliate marketing; Social media platforms strategy and content creation; Digital branding, reputation management, and customer engagement; Campaign management, lead generation, CRM automation; Digital marketing analytics and performance measurement; Emerging trends: influencer marketing, video marketing, AI in marketing;

Unit IV: Digital Business Strategy and Competitive Analysis (10 Hours)

Digital business strategy formulation and implementation; Digital channel strategy, omnichannel and mobile-first approaches; Competitive environment analysis: threats, co-opetition, competitor mapping; Business, revenue, and service model innovation in digital markets; Marketplace restructuring and supply chain digital capabilities; Resource-advantage and digital ecosystem strategy

Unit V: E-Procurement, E-Logistics, and Emerging Technologies (7 Hours)

Digital procurement processes and participants; Drivers, benefits, and challenges of e-procurement adoption; Push and Pull supply chain models in digital environments; E-logistics technologies: ASN, GPS, GIS, Barcoding, RFID, IoT-enabled tracking; Blockchain role in supply chain transparency and security; Integration of digital technologies in procurement, logistics, and supply chain management

Practical:

Working on SEOs, Content Writing, Use of Marketing automation tools and platforms, Google Analysis of digital marketing strategies of various companies.

Working on various analytics tools

Course Outcomes

CO Code	Course Outcome Statement	Bloom's K-Level
CO1	Explain the fundamentals of digital business models, consumer behaviour, and Industry 4.0/5.0 technologies.	K2 – Understanding
CO2	Analyse the components of digital infrastructure and evaluate the legal, ethical, and security aspects of e-business.	K4 – Analysing
CO3	Apply digital marketing tools and automation techniques for campaign management and lead generation.	K3 – Applying
CO4	Develop strategic digital business models and evaluate their effectiveness in competitive environments.	K6 – Creating
CO5	Assess the integration of emerging technologies in e-procurement, e-logistics, and digital supply chain management.	K5 – Evaluating

Suggested Readings

1. Bhaskar, B. (2018). *Electronic commerce: Framework, technologies and applications* (4th ed.). McGraw-Hill Education India.
2. Chaffey, D., & Ellis-Chadwick, F. (2019). *Digital marketing* (7th ed.). Pearson Education.
3. Dave Chaffy, *Digital Business and E commerce Management – Strategy, Implementation and Practices* (Pearson)
4. Efraim Turban, Jae Lee, David King, H.Michael Chung, "Electronic Commerce–A Managerial Perspective", Addison-Wesley
5. Elias. M. Awad, " Electronic Commerce", Prentice-Hall of India Pvt Ltd.
6. Gerhard Oswald & Michael Kleinemeier, *Shaping the Digital Enterprise: Trends and Use Cases in Digital Innovation and Transformation* (Springer)
7. Joseph, P. T. (2019). *E-commerce: An Indian perspective* (5th ed.). PHI Learning Pvt. Ltd
8. Kotler, P., Kartajaya, H., & Setiawan, I. (2021). *Marketing 5.0: Technology for humanity*. Wiley.
9. Laudon, K. C., & Traver, C. G. (2023). *E-commerce 2023: Business, technology, and society* (17th ed.). Pearson Education.
10. RaviKalakota, Andrew B. Whinston, "Electronic Commerce-A Manager's guide", Addison-Wesley.
11. Saini, A., & Saini, R. (2021). *E-commerce and digital marketing*. Kalyani Publishers.

WAREHOUSE AUTOMATION AND ADVANCE LOGISTICS

BMLS 404

Course Credit 3

Total Hours 40

Course Objectives

This course aims to:

1. Understand the core principles and functions of warehouse management to build foundational knowledge.
2. Explain the role and application of automation technologies such as robotics, drones, and AI in modern warehousing.
3. Demonstrate an understanding of key warehouse processes, including receiving, put-away, picking, and dispatch.
4. Analyse warehouse costs, performance metrics, and productivity models to evaluate operational efficiency
5. Evaluate distribution strategies, multimodal transportation, and cold chain logistics for perishable goods.

UNIT 1: Warehouse Management (8 Hours)

Importance of Warehousing and Warehousing Functions, Types of Warehouses, Specialized Warehouse Services, Developing Warehouse Strategies, Establishing Warehouse Standards, Receiving and Stocking, Order Picking and Shipping. Sizing the Warehouse, Warehouse Layout, Stocking Inventory in Warehouse Locations. Warehouse Automation: Introduction to Robotics and AI in Warehouse Management, Automated Storage and Retrieval Systems (AS/RS), Autonomous Mobile Robots (AMRs), Drones in Warehousing. Warehouse Management and Environmental Sustainability, Today's Warehouse Challenges. Case Studies and Latest Updates.

UNIT 2: Warehouse Management Process (6 Hours)

Receiving and Put Away, Picking Strategies and Equipment, Order Pick Methods, Replenishment, Stock Counting, Cycle Counting, Return Processing and Dispatch, Documentations. Integration of Automation Tools in Warehouse Operations. Case Studies and Latest Updates.

UNIT 3: Warehouse Costs and Performance Management (8 Hours)

Types of Costs in Warehousing, Return on Investment, Traditional vs Activity-Based Costing, Logistics Charging Methods, Selecting Right Performance Measures, Traditional and New Productivity Metrics, Integrated Performance Model, Benchmarking and Balanced Scorecard. Health and Safety Issues in Warehousing. Case Studies and Latest Updates.

UNIT 4: Distribution Management (7 Hours)

Defining the Distribution Function, Basic Supply Chain Distribution Formats, Alternative Distribution Channel Formats, Role of Distribution Channels, Service Outputs and Functions of Distribution Channels, Distribution Channel Transaction Flows, Distribution Channel Inventory Flows, Substituting Information for Inventory. Reverse Logistics, Sustainability in Distribution. Last-Mile Delivery Innovations and Urban Logistics: Challenges, Technologies (e.g., Electric Vehicles, Drones), Crowd-sourced Delivery Models. Case Studies and Latest Updates.

UNIT 5: Various Modes of Transportation and Cold Chain Management (7 Hours)

Importance of Various Modes of Transport - Rail, Road, Water, Air, Pipeline with their Characteristics and Cost Structure, The Carrier Selection Decision, Determinants of Carrier Selection, Legal Classification of Carriers, Role of Couriers as Carriers. Transportation Costs - Fixed, Variable, Joint and Common Costs, Product-Related & Market-Related Factors Influencing Transport Cost. Introduction to Cold Chain Management for Perishables and Pharmaceuticals: Temperature Control, Packaging Solutions, Regulatory Requirements, Technologies Used (IoT Sensors, Real-Time Monitoring). Case Studies and Latest Updates.

Course Outcomes

CO Code	Course Outcome Statement	Bloom's Level
CO1	Recall basic functions, types, and layout strategies in warehousing and automation tools.	Remembering (K1)
CO2	Describe core warehouse processes including receiving, put-away, picking, and dispatch.	Understanding (K2)
CO3	Apply suitable warehouse automation technologies and distribution formats to logistics scenarios.	Applying (K3)
CO4	Analyse warehousing costs, performance indicators, and sustainable practices in logistics operations.	Analysing (K4)
CO5	Evaluate multimodal transportation and cold chain logistics strategies to enhance advanced logistics efficiency.	Evaluating (K5)

Suggested Readings

1. Mahadevan, B. (2023). Operations management: Theory and practice (4th ed.). Pearson Education India.
2. Gwynne Richards, Warehouse Management: A Complete Guide to Improving Efficiency and Minimizing Costs in the Modern Warehouse (Kogan Press)
3. David Frederick Ross, Distribution Planning and Control Managing in the Era of Supply Chain Management (Springer)
4. David J. Bloomberg, Stephen LeMay: Supply Chain & Logistics, (Prentice-Hall)
5. Donald J. Bowersox & David J. Closs : Logistical Management, (Tata McGraw Hill).
6. Satish C. Ailawadi & Rakesh Singh : Logistics Management (Prentice-Hall)
7. Donald Waters : Logistics. (Palgrave Macmillan)
8. Sarika Kulkarni : Supply Chain Management, (Tata McGraw Hill)
9. Krishnaveni, M., & Aruna, M. (2018). Logistics and warehouse management. Himalaya Publishing House
10. Richards, G. (2021). *Warehouse Management: A Complete Guide to Improving Efficiency and Minimizing Costs in the Modern Warehouse* (3rd ed.). London: Kogan Page.
11. Sharma, A. K., & Garg, R. (2020). *Logistics and Warehouse Management: Concepts and Applications*. New Delhi: Kunal Books.

REGULATORY COMPLIANCES IN SUPPLY CHAIN AND LOGISTICS

BMLS 405

Course Credit: 3

Teaching Hours 40

Course Objectives:

This course aims to:

1. Understand the fundamental laws and legal frameworks governing logistics operations.
2. Apply a detailed understanding of contracts and their role in supply chain management.
3. Analyse the procedures and formalities involved in exports and imports.
4. Evaluate the key documentation used in international trade logistics.
5. Develop a conceptual understanding of international trade laws and Goods and Services Tax (GST) in logistics.

Unit 1: Introduction of Contracts and its Importance in Supply Chain (7)

Essentials of a Contract, Void Agreements and Contingent Agreements, Performance and Discharge, Remedies for Breach and Quasi Contracts, Consideration and Legality of Object, Bailment and Pledge, Carriage of Goods, Indemnity and Guarantee. Overview of Contracts in Supply chain. **Case Studies and Latest Updates.**

Unit 2: Preliminaries for Exports and Imports (7 Hours)

Classifications and Types of Export and Import, Export Licensing, Selection of Export Product, Methods of Exporting, Pricing Quotations, Payment Terms, Letter of Credit., Liberalization of Imports, Negative List for Imports, Categories of Importers. **Case Studies and Latest Updates.**

Unit 3: Documents for Shipping Logistics (7 Hours)

Commercial Invoice, Shipping Bill, Certificate of Origin, Consular Invoice, Bill of Lading, GR Form, ISO 9000, Procedure for obtaining ISO 9000, BIS 14000 Certification, Types of Marine Insurance Policies., Import Documents, Transport Documents, Bill to Entry, Certificate of Inspection, Certificate of Measurements, Freight Declaration. **Case Studies and Latest Updates.**

Unit 4: Procedure and Regulatory Compliances in Export-Import (8 Hours)

Steps in Export Procedure, Export Contract, Forward Cover, Excise Clearance, Pre-shipment Inspection, Methods of Pre-shipment Inspection, Marine Insurance, Role of Clearing and Forwarding Agents, Shipping and Customs Formalities, Customs EDI System, Realisation of Exports Proceeds. Pre-Import Procedure, Steps in Import Procedure, Legal Dimensions of Import Procedure, Customs Formalities for Imports Exchange Control Provisions for Imports. **Case Studies and Latest Updates.**

Unit 5: International Trade Policy and GST (7 Hours)

Latest Foreign Trade Policy, Anti-dumping & Countervailing Laws, Trade Secrets and Intellectual property Rights. Provisions for Air Cargo Supply Chain and Contract of the Carriage. Various Provisions of Goods and Service Acts (GST) with reference to Logistics. **Case Studies and Latest Updates.**

CO Code	Course Outcome Statement	Bloom's K- Level
CO1	Apply the key legal concepts and contractual terms relevant to logistics.	Applying (K3)
CO2	Describe and implement standard procedures in export and import operations.	Understanding (K2)
CO3	Prepare and assess export-import documentation for compliance.	Analysing (K4)
CO4	Interpret the legal and regulatory requirements governing international trade.	Analysing (K4)
CO5	Apply GST provisions and international trade policy knowledge in logistics.	Applying (K3)

Suggested Readings:

1. Ruwantissa Abeyratne, Law and Regulation of Air Cargo(Springer)
2. Handbook of Import-Export Procedures – Ministry of Commerce, -, Government of India, New Delhi
3. Ram Singh, Export and Import Management (Sage)
4. Thomas E. Johnson, Export Import Documentation and procedure (AMCOM)
5. Nabhi's Board of Editors, How to EXPORT(Nabhi Publications)
6. S. D.Majumdar , GST: Explained for Common Man (Niyogi Book)
7. M. I. Mahajan, Import – Do it Yourself, Snow White Publications, New Delhi
8. D C Kapoor, Export Management (Vikas Publishing House)
9. S.S. Gulshan, Mercantile Law (Excel Books)
10. Chawla, Garg & Sarin, Mercantile Law, (Kalyani Publishers)