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| **EL-301** | **STORE KEEPING AND WAREHOUSING MANAGEMENT** | **100** | **4** | **0** | **0** | **3** |

## UNIT I

Objectives of Procurement System, Principles of Procurement, History of procurement function: from administrative to strategic, value added role, Procurement Cycle, Procurement Planning, Purchasing Mix: Six Rights, Selecting the right supplier, Source of information and process, Supplier appraisal/vendor capability, Bidding process.

## UNIT-II

Introduction to Warehousing Concepts -Role of warehouse-types of warehouse- warehouse location- Need for warehousing- Supply chain trends affecting warehouse –Warehouse functions- Role of warehouse manager-Warehouse process: e-commerce warehouse- Receiving and put away- Warehouse process – pick up preparation-Receiving - Pre-receipt - In- handling - Preparation - offloading - Checking - Cross-docking - Quality control - Put-away - Pick preparation - Pick area layout – Picking strategies and equipment -order picking methods - Warehouse processes- Replenishment to dispatch- Value adding services - Indirect activities - Stock management - Stock or Inventory counting - Perpetual inventory counts - Security - Returns processing – Dispatch.

## UNIT-III

Strorage Management system – Storage Inventory Management – Functions of storage & Inventory - Classification of Inventory- Methods of Controlling Stock Levels- Always Better Control (ABC) Inventory system- Warehouse Management Systems (WMS) - choosing a WMS- the process implementation-cloud computing- Warehouse layout-Data collection-space calculation-aisle width- finding additional space.

## UNIT – IV

Storage and Warehousing Information system -Storage Equipment: storage option - shuttle technology - very high bay warehouse - warehouse handling equipment - vertical and horizontal movement - Automated Storage/ Retrieval System (AS/RS)-specialised equipment- Technical advancements- Resourcing a warehouse- warehouse costs- Types of cost - Return on Investment (ROI) - Charging for shared-user warehouse service - Logistics charging methods Warehousing Information System (WIS)- Performance management- outsourcing decisions.

## UNIT – V

Material Handling and Warehouse safety Material handling- Product movement- concept- costs- product load activity—dispatch activityunload activity-control device-impact of the computer technologyautomatic identification-issues and trends in product transport—Packaging - Pallet - Stretch wraps - Cartons – Labeling- Health and safety- Risk assessment - Layout and design - Fire safety- Slips and trips – Manual handling - Working at height - Vehicles - Forklift trucks – Warehouse equipment legislation. Warehouse safety check list- Warehouse Environment- Energy production - - Product waste - waste disposal - Hazardous waste- Sustainable warehouse Management.

## Text Books:

* 1. GWYNNE RICHARDS (2014) Warehouse Management: A Complete Guide to Improve Efficiency and Minimizing Cost in the Modern Warehouse. The Chartered Institute of Logistics and Transport, Kegan page limited.
	2. DAVID E. MULCHY & JOACHIM SIDON (2008) A Supply Chain Logistics Program for Warehouse Management. Auerbachian Publications

## References

1. Bowersox, D.J., Closs, D.J., Cooper, M.B., & Bowersox, J.C. (2013). Supply Chain Logistics Management. (4 th ed.), McGraw Hill/Irwin.
2. Arnold, J.R., Chapman, S.N. (2012). The Introduction to Materials Management. (7 th ed.), Prentice-Hall.
3. Coyle, J.J., Jr. Langley, C.J., Novack, R.A, & Gibson, B.J. (2013). Managing Supply Chains: A Logistics Approach. (9 th ed.), McGrawHill. Edward, F.(2002).
4. World-Class Warehousing and Material Handling. (International ed.), McGraw-Hill.
5. Muller, M. (2011). Essentials of Inventory Management. (2 nd ed.), American Management Association.

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| **EL-302** | **TRANSPORTATION AND INFRASTRUCTURE MANAGEMENT FOR SCM** | **100** | **4** | **0** | **0** | **3** |

## UNIT I

Basics of Transportation, Transportation Functionality and Principles; Multimodal Transport: Modal Characteristics; Modal Comparisons; International Air Cargo Transport; Coastal and Ocean transportation, Characteristics of shipping transport- Types of Ships. Containerization: Genesis, Concept, Classification, Benefits and Constraints; Inland Container Depot (ICD): Roles and Functions, CFS, Export Clearance at ICD; CONCOR; ICDs under CONCOR;

## UNIT II

Logistics management and Supply Chain management - Definition, Evolution, Importance. The concepts of logistics and Supply Chain Management, Key Drivers of Supply Chain Management and Logistics relationships. Drivers of Supply Chain Performance : Framework for structuring drivers- Facilities- Inventory- Transportation- Information- Sourcing- Pricing - an over view of Designing distribution network – and overview of Network Design in the Supply Chain - an overview of Network design in Uncertain Environment.

## UNIT III

Packing and Packaging: Meaning, Functions and Essentials of Packing and Packaging, Packing for Storage- Overseas Shipment- Inland-Transportation- Product content Protection, Packaging Types: Primary, Secondary and Tertiary- Requirements of Consumer Packaging, Channel Member Packaging and Transport Packaging - Shrink packaging –Identification codes, bar codes, and electronic data interchange (EDI)- Universal Product Code- GS1 Standards- package labels- Symbols used on packages and labels.

## UNIT IV

Sourcing and Planning Transportation Networks in Supply Chain: Sourcing decision in supply chain : Role of sourcing – in-house or outsource – Third and Fourth – Party Logistics providers – Supplier scoring and assessment – Transportation in Supply Chain : role- modes- performance characteristics – Logistics - Design options- role of IT- risk – Trade–offs in transportation design.

## UNIT V

Special Aspects of Export logistics: Picking, Packing, Vessel Booking [Less-than Container Load(LCL) / Full Container Load (FCL)], Customs, Documentation, Shipment, Delivery to distribution centers, distributors and lastly the retail outlets- Import Logistics: Documents Collection- Valuing- Bonded Warehousing- Customs Formalities- Clearing ,Distribution to Units.

## References:

1. 1.Bowersox, Closs, Cooper, Supply Chain Logistics Management, McGraw Hill.
2. Burt, Dobbler, Starling, World Class Supply Management, TMH.
3. Donald J Bowersox, David J Closs, Logistical Management, TMH
4. Pierre David, ―International Logistics‖, Biztantra.

6. Sunil Chopra, Peter Meindl, Supply Chain Management ,Pearson Education, India.

1. Liu, J., Supply Chain Management and Transport Logistics, Routledge, 2011.
2. Sinha, A. and Kotzab, H., Supply Chain Management: A Managerial Approach, Tata McGraw-Hill Education, 2011.
3. Sople, V.V., Supply Chain Management: Text and Cases, Pearson, 2011.

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| **EL-303** | **PURCHASING AND MATERIAL MANAGEMENT** | **100** | **4** | **0** | **0** | **3** |

## UNIT I

The purchasing and supply process - Introduction to purchasing and SCM - Strategic supply management roles and responsibilities - Improving the procure to pay process - Approval, contract and purchase order preparation - Types of purchases - Purchasing policy and procedures

-Policy overview - Purchasing policies Policy defining- Role and conduct of purchasing, Buyer- supplier Relationship, operational issues- Purchasing procedures.

## UNIT II

Organizing the purchasing function: Purchase function position within the organization structure, factors affecting purchasing‘s position, reporting of purchasing function, organizing of purchasing, separating operational and strategic purchasing- advantages and disadvantages of centralized- decentralized purchasing, hybrid purchasing structure.

## UNIT III

Concept of Integrated Materials Management (IMM) – Organising for IMM – Types of Inventories – Inventory Problems in India. Codification – Computerisation and Information Systems – Standardisation and Variety Reduction – Value Analysis: ABC, VED, XYZ and other methods of Selective Analysis.

## UNIT-IV:

Q-Based Inventory System – P-Based Inventory System – S-S based Inventory System – Practical Inventory Models – Inventory Valuation.Purchasing – Source Selection – Vendor Rating – Purchase Budget – Systems – Tenders – Price Negotiations – Forward Buying – Purchasing Capital Equipments – Seasonal Goods – Special Items – Deferred Payment Schemes

– Lending Institutions – Global Purchases – Government Buying – EGS & D – Rate Contract – Insurance – Legal Aspects in Purchasing – Evaluation of Purchase Performance.

## UNIT-V:2.

Stores Layouts – Stores Accounting Procedures and Forms – Stock Verification – Practical Problems in Management of Dead Stocks – Surplus and Scraps – Evaluation of Stores Performance – Materials Handing and Transportation Management.

## TEXT BOOKS:

1. Parasram, ―In Coterms Exports Coartind and Pricing with Practical Guide to in Co- Terms, 1st Edition, Jain Book, 6th Edition, 2010.
2. Gopalakrishnan, P & Sundaresan, M: MATERIALS MANAGEMENT – AN INTEGRATED APPROACH; Prentice Hall of Indian Private Ltd.
3. Gopalakrishnan, P & Sandilya, M.S: INVENTORY MANAGEMENT – TEXT AND CASES; The Macmillan Company of India Ltd.

## REFERENCES:

1. John Wiley, ―Global Operations & Logistics:Text & Cases-Dornier‖, Pearson Education, 2nd Edition 2013.
2. David Simchi-Levi, ―Designing & Managing Supply Chain-Concepts, Strategies‖, Tata- McGraw- Hill, 8th Edition, 2000.
3. Ammer, D.S, MATERIALS MANAGEMENT; Irwin.
4. Datta, A.K: MATERIALS MANAGEMENT – PROCEDURES, TEXT AND CASES; Prentice Hall of India Private Ltd.
5. Gokaran, P.R: ESSENTIALS OF MATERIALS MANAGEMENT; Somaiya Publications.
6. Menon,P.G: MATERIALS MANAGEMENT AND O.R. IN INDIA; M.M.J. Publication.

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| **EL-304** | **REVERSE LOGISTICS** | **100** | **4** | **0** | **0** | **3** |

## UNIT I

Reverse logistics and forward logistics Commercial logistics and the military Measuring reverse logistics and improvement Best practices of military reverse logistics Management of complex systems and reverse logistics. Successful management principles are successful reverse logistics principles Best practices in retail, apparel, electronics, food, beverage, and sporting goods.

## UNIT II

Customer Service Returns RMA and other elements of returns Best practices in customer service and after sales customer support Reverse logistics concerns of the secondary market- Green reverse logistics practices Green buildings that support logistics (LEED Certification) Successful global projects

## UNIT III

Explain and describe organizational culture and review how it applies to reserve logistics Review cultural design to support reverse logistics Reduction of risk in the reverse supply chain Securing the supply chain

## UNIT IV

Understand reverse logistics for manufacturing Understand reverse logistics for food and beverage operations Understand reverse logistics for warehouse management Understand reverse logistics inventory management Understand reverse logistics as applied to product life cycle management.

## UNIT V

Carbon Credits Carbon Footprint Logistics and reverse logistics as applied to carbon footprint What can you do to reduce your carbon footprint - Complexity theory Continuous improvement Lean principles New technologies for reverse logistics Communities and teams Future of revere logistics and supply chain management

## Text books:

1. Joseph Sarkis, Yijie Dou. Green Supply Chain Management: A Concise Introduction, Routledge, 2017.
2. Charisios Achillas, Dionysis D. Bochtis, Dimitrios Aidonis, Dimitris Folinas. Green Supply Chain Management, Routledge, 2018.
3. Janat Shah, Supply Chain Management: Text and Cases, 2nd Edition 2017.
4. John Manners-Bell, Logistics and Supply Chains in Emerging Markets, Kogan Page, 2017.

## REFERENCE BOOKS:

1. Coyle, John Joseph. (2017). Supply chain management: a logistics perspective. 10th ed. Australia: Cengage Learning. HD 38.5 C69 2017

1. Abbey, J. D., & Guide Jr, V. D. R. (2017). Closed-loop supply chains: a strategic overview Sustainable Supply
2. Hsiao-Fan Wang, Surendra M. Gupta. Green Supply Chain Management: Product Life Cycle Approach, McGraw Hill publishing, 2011