

APPRENTICESHIP-BASED UG DEGREE PROGRAMME IN LOGISTICS

COLLABORATIVE PROGRAMME OF LSC



REGULATION & CURRICULUM

VERSION 2023-24

NATIONAL SKILL QUALIFICATION FRAMEWORK LEVEL:5

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IN LOGISTICS**

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Apprenticeship-based UG Degree Programme in Logistics

COLLABORATIVE PROGRAMME OF LSC

The Programme

Apprenticeship-based UG Degree Programme in Logistics is offered by Logistics Sector Skill Council (LSC) in collaboration with Higher Education Institutions that are duly approved by the concerned authorities.

Logistics Sector Skill Council, established by the Ministry of Skill Development and Entrepreneurship (MSDE) through the National Skill Development Corporation of India (NSDC), has taken up several initiatives to create adequate skills for gainful employment at various levels in Logistics Industry. The apprenticeship - based UG Degree Programme in Logistics is one of the programmes.

The Collaborating Institution may choose either B.Com. or BBA or BMS as the nomenclature for this UG Degree Programme. LSC takes up the following responsibilities so far as BBA/BMS/B.Com. Degree is concerned.

- Curriculum Development and Continuous Improvement
- Sensitization of Students on Apprenticeship Assignment
- Create Course Materials on all Domain Courses and provide access to students through Logistics Learning Management System
- Securing Apprenticeship Training (On-the-job Training) in Logistics Companies for all students of this Programme under the provisions of Apprentices Act, 1961
- Securing a monthly stipend, as fixed by the Government from time to time, during the Apprenticeship Training period for every student.
- Assessing the performance & learning of students in Apprenticeship
- Arrange the conduct of final placement drive for the students of this Programme
- Assessment of the progress made by the Collaborating Institutions (CI) in the Programme, and offering suggestions & help achieve the objective of making the students skillful.

The Regulation and Curriculum given below shall be duly approved by the various academic bodies of the HEI/University and apply to all candidates admitted to the Programme.

1. Eligibility for Admission

Candidates for admission to this Apprenticeship-based UG Degree Programme should have passed 10+2 in any Board or possess an equivalent qualification. Any subject group in 10+2 is acceptable.

2. Admission

The Collaborating Institutions shall decide the minimum mark percentage for admission. The Reservation Policy of the State where the HEI is functioning is applicable.

3. Programme Duration

The Programme extends for three years consisting of Four teaching semesters and two apprenticeship semesters.

4. Programme Content

- 12 Domain Courses in Semesters I, II, III, and IV
- 2 Allied Courses in the MOOC format in Semesters V and VI
- 2 Spells of Apprenticeship Training for six months each in Semesters V and VI

5. Standard of Passing & Award Division

Standard of Passing & Award Divisions shall be as per the Collaborating Institution's policies that offer this Programme.

6. Continuous Internal Assessment

The Continuous Internal Assessment System, including the assessment components, periodicity, and proportionate weight in the total score for a particular course, is as per the policies and practices of the Collaborating Institution.

7. Attendance

The mandatory minimum attendance in teaching Semesters is as per the existing policies and practices of the Collaborating Institution.

Attendance requirement during Apprenticeship Training is as per the conditions/norms of the Apprenticeship Contract, Apprentices Act 1961, and National Apprenticeship Promotion Scheme.

8. Examination

The End Semester Examination for courses scheduled in teaching Semesters will be conducted and results declared by the Collaborating Institution. The question paper pattern for these examinations is as per the format decided by the Collaborating Institution.

9. Miscellaneous

- Each student shall possess Aadhaar Card, PAN, and Bank Account, which are necessary for onboarding for Apprenticeship.
- Students shall be willing to move out of their present place of residence to get onboarded in companies that might be located in different cities.
- Students shall take care of Boarding and Lodging arrangements in cities where the Apprenticeship providing company is located.
- Students need to possess the prescribed textbooks for all Courses of the Programme.
- The Collaborating Institution will award the Degree to students who successfully complete the Programme.

10. Fee Payment

The Programme Fee and Examination Fee are payable by students to the Collaborating Institution as per its norms.

Assessment System

The Assessment System of the apprenticeship-based Degree Programmes developed & offered by Logistics Sector Skill Council is designed to make an objective assessment of Knowledge, Skill, and Attitude development of students. In order to make the Assessment System fool-proof and inclusive, the Programme provides adequate & appropriate representation to the Industry, Sector Skill Council, and the Collaborating Institution in assessing the students. This makes the Assessment System objectively measure industry-readiness of students.

Teaching Semesters:

Semesters I, II, III, and IV are Teaching Semesters. All Courses scheduled in Teaching Semesters are assessed by the Collaborating Institution. The Assessment System (proportion of marks between the Continuous Internal Assessment & End Semester Examination, and the Question Paper Pattern) for these courses shall be as per the norms, standards and practices of the Collaborating Institution, notwithstanding the Regulations given in the Curriculum Booklet issued by LSC.

Apprenticeship Semesters:

Semesters V, and VI are Apprenticeship Semesters. Assessment System for the Courses scheduled in these Semesters will be as per the process described below.

Allied Courses: The Allied Courses are offered by LSC on the pattern of MOOC. LSC delivers the course online through Logistics Learning Management System (LLMS), and makes online assessment of students. End Semester Examination (online) comprising 50 multiple choice questions is conducted for a maximum mark of 100. Each question will have four choices of answers from which the candidate should choose the right answer. While each correct answer fetches 2 marks, each wrong answer is given a score of – (minus) 0.50. The marks scored by students would be communicated to the Collaborating Institution by LSC. Being offered under MOOC format, the Allied Courses do not have Internal Assessment.

Apprenticeship: The CIA Component of Apprenticeship is assessed by the Manager / Supervisor under whom the students work during Apprenticeship Semesters, and LSC for a maximum mark of 250. The Manager / Supervisor makes the assessment for 150 marks based on skill & attitudinal development of students. LSC assess the practical knowledge of students for 100 marks by conducting a Test on conceptual knowledge relevant to the process undergone during Apprenticeship, and Viva.

The Collaborating Institution will evaluate the Apprenticeship Report (comprising Work Diary) submitted by students, and conduct Viva for a mark of 150, which is considered as ESE. The Evaluation & Viva shall be conducted by a Panel comprising of the HoD (or Programme Coordinator), Student's Mentor, and one Executive from Logistics Sector. The Collaborating Institution may modify the proportion of marks between CIA and ESE as per its norms, standards, and practices.

Minimum Marks, Grading & Classification:

Minimum Marks required for passing courses, Pattern of Grading, and Classification of Successful Candidates between 'Distinction', 'First Class', 'Second Class', etc. shall be as per the norms, standards, and practices of Collaborating Institution.

Programme Structure

From the Academic Year 2023-24

The Programme Structure contains only the Domain Courses. The Collaborating Institutions may include other Courses in each Semester as per their Norms. The total Academic Credit shall be decided as per Collaborating Institutions' Norms.

Semester I - NSQF 3

No.	Course	Code	Type	Hours	Credit	CIA	ESE	Marks
1	Fundamentals of Logistics	LD2301	Domain	45	3	25	75	100
2	Materials Management	LD2302	Domain	60	4	25	75	100
3	Warehousing & Distribution Centre Operations	LD2303	Domain	45	3	25	75	100
	<i>Total</i>			150	10	75	225	300

Semester II - NSQF 3

No.	Course	Code	Type	Hours	Credit	CIA	ESE	Marks
1	Freight Forwarding (Ocean & Air Cargo)	LD2304	Domain	45	3	25	75	100
2	Forecasting and Inventory Management	LD2305	Domain	60	4	25	75	100
3	Surface Transportation	LD2306	Domain	45	3	25	75	100
	<i>Total</i>			150	10	75	225	300

Semester III - NSQF 4

No.	Course	Code	Type	Hours	Credit	CIA	ESE	Marks
1	MIS for Logistics	LD2307	Domain	60	4	25	75	100
2	Retail Logistics and E- Commerce	LD2308	Domain	45	3	25	75	100
3	Liner Logistics	LD2309	Domain	45	3	25	75	100
	<i>Total</i>			150	10	75	225	300

Semester IV - NSQF 4

No.	Course	Code	Type	Hours	Credit	CIA	ESE	Marks
1	Port Terminal Logistics	LD2310	Domain	60	4	25	75	100
2	Specialisation Module – Course I	LD2311	Domain	45	3	25	75	100
3	Specialisation Module – Course II	LD2312	Domain	45	3	25	75	100
	<i>Total</i>			150	10	75	225	300

Semester V - NSQF 5

No.	Course	Code	Type	Hours	Credit	CIA	ESE	Marks
1	Allied course - MOOC	LD2313A/B/C	Domain	60	2		100	100
2	Apprenticeship – I	LD2314	Domain	1008	22	250	150	400
	<i>Total</i>			1068	24	250	250	500

Semester VI - NSQF 5

No.	Course	Code	Type	Hours	Credit	CIA	ESE	Marks
1	Allied Course - MOOC	LD2315A/B/C	Domain	60	2		100	100
2	Apprenticeship – II	LD2316	Domain	1008	22	250	150	400
	<i>Total</i>			1068	24	250	250	500

Semester V-Allied Courses - MOOC

No.	Course	Code	Type	Hours	Credit	CIA	ESE	Marks
1	Logistics 4.0	LD2313A	Domain	60	2		100	100
2	Export & Import Documentation	LD2313B	Domain	60	2		100	100
3	Inland Waterways & Coastal Shipping	LD2313C	Domain	60	2		100	100

Semester VI-Allied Courses - MOOC

No.	Course	Code	Type	Hours	Credit	CIA	ESE	Marks
1	Courier, Express & Parcel Services	LD2315A	Domain	60	2		100	100
2	In plant Logistics	LD2315B	Domain	60	2		100	100
3	Multimodal Transportation	LD2315C	Domain	60	2		100	100

Specialisation Modules

Course	Group A – Aviation	Group B – Ecommerce	Group C – Land Transportation
1	Introduction to Aviation Industry & Airport Operations	First Mile Operations	Principles & Practices of Tourism
2	Introduction to Air Cargo Industry	Last Mile Operations	Commercial Aspects of Transportation

Students shall choose one of the three Modules and pursue both courses listed in the chosen Module.

Domain Credit Summary		
Sem	Courses	Credits
I	3	10
II	3	10
III	3	10
IV	3	10
V	2	24
VI	2	24
Total	16	88

FUNDAMENTALS OF LOGISTICS

Semester
ICourse Type
DomainCode
LD2301Hours
45Credits
3Version
2023-24**COURSE OBJECTIVES:**

- To develop competencies and knowledge of students to become logistics professionals
- To orient students in the field of Logistics
- To help Students to understand Fundamentals of Logistics

LEARNING OUTCOMES:

- Students will be able to apply the Basic knowledge of Logistics in the real-life situation
- This subject will enable them to enhance their ability and professional skills in Logistics

Unit	Topics
I	Introduction to Logistics: History of Logistics Need for logistics- Cost and Productivity, cost saving & Productivity improvement. Logistics Cost, reduction in logistics cost, benefits of efficient Logistics, Principles of Logistics, Technology & Logistics -Informatics, Logistics optimization. Listing of Sub-sectors of Logistics
II	Logistics and Customer Service - Definition of Customer Service Elements of Customer Service-Phases in Customer Service-Customer Retention - Procurement and Outsourcing - Definition of Procurement/Outsourcing - Benefits of Logistics Outsourcing - Critical Issues in Logistics Outsourcing
III	Global Logistics - Global Supply Chain - Organizing for Global Logistics-Strategic Issues in Global Logistics - Forces driving Globalization - Modes of Transportation in Global Logistics Barriers to Global Logistics - Markets and Competition - Financial Issues in Logistics Performance - Integrated Logistics - Need for Integration - Activity Centres in Integrated Logistics. Role of 3PL&4PL.
IV	a) Warehouse: Warehouse-Meaning, Types of Warehouses Benefits of Warehousing. b) Transportation- Meaning; Types of Transportations, efficient transportation system and Benefits of efficient transportation systems. c) Courier/Express - Courier/Express-Meaning, Categorization of Shipments, Courier Guidelines, Pricing in Courier - Express Sector for international and domestic shipping. d) E-Commerce - Meaning, Brief on Fulfillment Centers, Reverse logistics in e-commerce sector, Marketing in e-commerce and future trends in e-commerce.
V	a) EXIM: Brief on EXIM/FF & CC, Multi-modal transportation, brief on customs clearance, bulk load handling and brief on trans-shipment. b) Supply chain. c) Cold chain. d) Liquid Logistics. e) Rail Logistics.

Text & Reference Books:

1. Course Material Prepared by LSC
2. Fundamentals of Logistics Management (The Irwin/Mcgraw-Hill Series in Marketing), Douglas Lambert, James R Stock, Lisa M. Ellram, McGraw-hill/Irwin, First Edition, 1998.
3. Vinod V. Sople (2009) Logistic Management (2nd Edn.) Pearson Limited.
4. Logistics Management for International Business: Text and Cases, Sudalaimuthu & Anthony Raj, PHI Learning, First Edition, 2009.
5. Fundamentals of Logistics Management, David Grant, Douglas M. Lambert, James R. Stock, Lisa M. Ellram, McGraw Hill Higher Education, 1997.
6. Logistics Management, Ismail Reji, Excel Book, First Edition, 2008.

MATERIALS MANAGEMENTSemester
ICourse Type
DomainCode
LD2302Hours
60Credits
4Version
2023-24**COURSE OBJECTIVES:**

- To help Students to understand basic Principles and concept of material Management
- To orient students on contemporary development in the field of material management
- To develop competencies and knowledge of students to become effective professionals

LEARNING OUTCOMES:

- To apply the knowledge about material management in the real-life business situation
- Understand the contemporary practices followed in the field of Materials Management
- To enhance their managerial ability and professional skills

Unit	Topics
I	Introduction: Materials Management - Evolution, Importance, Scope and Objectives- Interface with other functions. -Supply Chain Management -Objectives- Components, Trade off Customer Service & Cost. Supply Chain Analytics.
II	Purchasing: purchasing and procurement activities under Materials management- Purchasing Methods- Purchasing and quality Assurance- Purchase Cycle – governmental purchasing practices and procedures - Negotiation & Bargaining – Vendor relations
III	Inventory - Need of Inventory -Types of Inventory - Basic EOQ Model - EOQ with discounts – Different types of Analysis. Forecasting –methods of forecasting-Material Requirement Planning (MRP) -Input and output of MRP system -BOM Explosion -MRP II.
IV	Quality control of material: Incoming material quality control- statistical quality control(Various control charts)- Inventory control & Cost Reduction techniques. Value Analysis & Value Engineering. Standardization – need and importance. Codification - concept, benefits.
V	Stores - Functions- Stores layout -documentation- Materials handling and storage systems, - Principles of Materials Handling system – Safety issues

Text & Reference Books:

1. Course Material Prepared by LSC
2. Materials management: procedures, text and cases - A.K. Datta
3. Materials management: An integrated approach - P. Gopalakrishnan
4. Introduction to Materials management - J.R. Tony Arnold & Stephen N. Chapman
5. Purchasing and Materials Management - K S Menon
6. Handbook of Materials Management – Gopalakrishnan

WAREHOUSING & DISTRIBUTION CENTRE OPERATIONSemester
ICourse Type
DomainCode
LD2303Hours
45Credits
3Version
2023-24**COURSE OBJECTIVES:**

- To develop competencies and knowledge of students to become Warehouse professionals
- To help Students to understand Warehousing and distribution centre operations
- To orient students about contemporary practices followed in Warehousing & Logistics

LEARNING OUTCOMES:

- To apply the Basic knowledge of Warehousing and distribution centre operations in the real-life situation
- To enhance their ability and professional skills
- To Understand the contemporary Practices in the Industry

Unit	Topics
I	Introduction to Warehouse (Storage and Packaging) Background - Types of Warehouses - Broad functions in a warehouse - warehouse layouts and layout related to functions. Equipment requirement in warehouse -Strategic Aspects of Warehouse.
II	Receiving of Goods- Advanced shipment notice (ASN)-Goods Receipt note-(GRN)-Stages involved receipt of goods- Visual inspection of goods unloaded- Formats for recording of goods unloaded from carriers- Procedure for Arranging of goods on dock -Put away of Goods- its activity -Put away list and its need-Put away of goods into storage locations - storage location codes and its application
III	Procedure to prepare warehouse dispatches-Preparing Packaging List/Dispatch Note-Packaging-its importance of packing-Packaging Materials-reading Labels-quality parameters in packing significance-Cross Docking Method-and its application- Automation: Pick / Put to Light - A Frame - Automated Order Selection – Pick-N- Go - Outbound Sorters - Automatic Truck Loading.
IV	Distribution – Definition – Need for physical distribution –concept–system perspective - functions of distribution –marketing forces affecting distribution. Channels of distribution: role of marketing channels – channel functions – channel structure –designing distribution channel – choice of distribution channels
V	Warehouse Safety Rules and Procedures: Hazardous cargo – Procedure for Identification of Hazardous Cargo - safety data sheet- Familiarization with the industry. Health, Safety & Environment - 5S Concept on shop floor. Personal protective Equipment's (PPE) and their uses.

Text & Reference Books:

1. Course Material Prepared by LSC
2. Definitive Guide to Warehousing, The: Managing the Storage and Handling of Materials and Products in the Supply Chain (Council of Supply Chain Management Professionals) 1st Edition
3. Warehouse Management: A Complete Guide to Improving Efficiency and Minimizing Costs in the Modern Warehouse- III Edition-Gwynne Richards

FREIGHT FORWARDING (OCEAN & AIR CARGO)Semester
IICourse Type
DomainCode
LD2304Hours
45Credits
3Version
2023-24**COURSE OBJECTIVES:**

- To develop competencies and knowledge of students to become freight forwarding professionals
- To develop competencies on documentation procedures
- To help Students to understand freight forwarding.

LEARNING OUTCOMES:

- Students will be able to apply the Basic knowledge of freight forwarding including ocean and air cargo in the real-life situation
- Students will be able to demonstrate their skill on documentation in their profession.
- This subject will enable them to enhance their ability and professional skills

Unit	Topics
I	Introduction to EXIM, Freight forwarding and custom clearance – types of custom clearances – Importance of custom clearance – certificate of origin, ICEGATE and insurance – custom Act – Regulations pertaining to custom clearance – different modes of freight forwarding – process of freight forwarding.
II	Operation Procedures of Freight Forwarding - The procedures for Pre-Operating Checks and Operational checks to be performed for every shipment / consignment
III	List of basic handling of errors and the Operational errors that occur in common - Procedure for checking of shipping bill, Airway bill based on invoice and packing list received from department for Freight Forwarding. Regulations (EXIM/IATA/Countries)/COM based on permutations and combinations of weight vs volume.
IV	Cargo handling, INCO terms and terminologies used in Cargoes - Different Types of Cargoes for transportation. Full Export and Import value of the cargo – Importer and exporter Code (IEC), The registered PAN based Business Identification number received from the Directorate General of Foreign Trade - Different type of Cargo, their quantity and value - Packaging requirement for the cargo during shipment from the shipper - Inspection procedure for the cargo while unloading - DO's and DON'T's while handling different cargo
V	Documentation of Freight Forwarding process as per customer timelines and requirements - Carting, unloading, Stacking, Loading; and Stuffing - Procedure for dealing with loss or damage to goods - Different P.G.A and their roles. Technical knowledge on Containers; Pallets; Palletization; Fumigation- Letters of Credit and payment Terms. Etc. computer and its application in internal systems of documentation.

Text & Reference Books:

1. Course Material Prepared by LSC
2. J P Saxena, Warehouse Management and Inventory Control- Vikas Publication House Pvt Ltd, First Edition, 2003.
3. Warehouse Management: Automation and Organisation of Warehouse and Order Picking Systems [With CDROM], Michael Ten Hompel, Thorsten Schmidt, Springer verlag, First Edition, 2006.
4. Management Guide to Efficient Money Saving Warehousing, Stephen Frey, Gower, 1982.
5. Swapna Pillai, Export Import Procedures & Documentation, Sahitya Bhawan Publication, 2020.

FORECASTING AND INVENTORY MANAGEMENTSemester
IICourse Type
DomainCode
LD2305Hours
60Credits
4Version
2023-24**COURSE OBJECTIVES:**

- To develop competencies and knowledge of students to become Forecasting and inventory management professionals
- To orient students in the field of Forecasting and inventory management
- To help Students to understand forecasting and inventory management

LEARNING OUTCOMES:

- Students will be able to apply the Basic knowledge of forecasting and inventory management in the real life situation
- It will enable them to enhance their ability and professional skills in inventory management

Unit	Topics
I	Forecasting: Meaning –Need -Types of forecasts –Demand Forecasting- Types of Demand Forecasting- -Importance - Demand planning v/s Forecasting-Sources of demand-Supply chain dynamics
II	Sales and Operations Planning- Goals and objectives of S&OP -Collaborative Planning-Types -Collaborative planning, forecasting and replenishment- Cyclic decomposition techniques. Short- term forecasting techniques- Technology Forecasting and Methodologies: Role of Technology Information Forecasting and Assessment Council (TIFAC).
III	Inventory: Purpose of Inventory- -Types of Goods -General Management of Inventory- Multi-Echelon Inventory Systems -Use of Computers in Inventory Management- Evaluation of Performance of Materials Function–Latest trends in Inventory Management
IV	Codification – Classification – Methodology–Requirement of codes – Coding Structure and Design –Advantages - International Codification – Right Quantity – Economic Ordering Quantity -Costs associated with Inventories- Models in logistics
V	Influence of production policy on inventory levels – inventories and customer service level – steps to improve inventory management – optimum inventory –Inventory management uncertainty (fixed order quantity model) - Calculation of safety stocks

Text & Reference Books:

1. Course Material Prepared by LSC
2. Sunil Chopra and Peter Meindl, Supply Chain Management Pearson Education Asia, 3rd edition, 2007
3. Chaman L Jain, "Fundamentals of Demand Planning & Forecasting", Graceway Publishing Company 3rd edition.
4. Operations Research – Concepts, Problems & Solutions- Kapoor V.K.-Sultan Chand & Sons/2017- 978-81-8054-854-3 (TC-532)
5. Vijay Kumar Khurana, 2007, Management of Technology and Innovation, Ane books India, Chennai Further Reading Source 5. Simchi-Levi, David, "Designing and Managing Supply Chain", Tata McGraw Hill, 3rd Edition, 2007. 6. David E Mulcahy, "Warehouse Distribution and Operations Handbook, McGraw Hill, 6th Edition, 1993.

SURFACE TRANSPORTATIONSemester
IICourse Type
DomainCode
LD2306Hours
45Credits
3Version
2023-24**COURSE OBJECTIVES:**

- To help Students to understand basics of surface transportation including road and rail transport
- To develop competencies and knowledge of students to become transportation professionals

LEARNING OUTCOMES:

- Students will be able to apply the knowledge of surface transportation in the real-life situation
- Enhancement of professional skills with regard to the field.

Unit	Topics
I	Introduction to surface transportation -Need - functions of transportations in logistics -Types of transportations metrics -various land transport carriers and their Load capacities - types of temperature-controlled carriers- inter modal transport -verification of carriers and drivers -transit rules
II	Transportation Optimisation -Documentation for transportation – GST – E Waybill Filing - Importance of consignment number -Transportation Telematics -Vehicle tracking system - GPS systems -Procedure for downloading and reading tracking data from devices -Probable reasons for delay or any issues during transit -Solutions - re-routing
III	Organisation structure in a Transport organization- Incident management systems & Processes - hazmat goods rules -Importance of safety data sheet and labels -Procedure for Consolidation of consignments for optimal loads -Reporting discrepancies such as pilferages, loss or damage of goods in transit -Checking insurance and claims -steps to close deliveries.
IV	Benefits of efficient transportation systems-emerging trends in transportation sector-pricing in transportation sector-govt regulations on transportation in India. Safety procedures during transit and emergency response steps - List of good practices in driving.
V	Customer Management-Vendor coordination for return truck loads-DG Handling – features and facilities offered by railways – innovative schemes-facilities to popularize rail logistics in India

Text & Reference Books:

1. Course Material Prepared by LSC
2. J P Saxena, Warehouse Management and Inventory Control-Vikas Publication House Pvt Ltd, First Edition, 2003.
3. A Practical Guide to Logistics: An Introduction to Transport, Warehousing, Trade and Distribution -Jerry Rudd-Kogan Page publications
4. Management Guide to Efficient Money Saving Warehousing, Stephen Frey, Gower, 1982.
5. Kapoor Satish K., and KansalPurva, 'Basics of Distribution Management: A Logistical Approach', Prentice HALL of India

MIS FOR LOGISTICS

Semester III	Course Type Domain	Code LD2307	Hours 60	Credits 4	Version 2023-24
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COURSE OBJECTIVES:

- To develop competencies and knowledge of students to become MIS for logistics professionals
- To orient students in the field of Logistics
- To help Students to understand MIS for Logistics

LEARNING OUTCOMES:

- Students will be able to apply the Basic knowledge of MIS for Logistics in the real-life situation
- This subject will enable them to enhance their ability and professional skills in Logistics

Unit	Topics
I	Introduction- IT and management opportunities and challenges-Strategic planning and models - Information management & IT Architecture – IT Architecture & infrastructure, cloud computing and services, Virtualization and Virtual Machines.
II	Database Technology- Data warehouse- Data Mart Technologies- Data and Text mining- Business Intelligence & Analytics, Digital and physical document management. Networks, collaboration & sustainability: Business IT networks & components, communication technologies – Sustainability and Ethical issues - Internal control-Business Control and Auditing.
III	Dissemination of technology information- and strategic planning – Technology choice and evaluation methods – Analysis of alternative technologies – Implementing technology programmes - Intellectual Capital - An introduction to Intellectual Property Right - Patent -Copyrights - Trademarks and other issues.
IV	Functional Area & Compliance systems: Management levels and functional systems Enterprise Systems and applications: Enterprise systems, Enterprise Resource Planning (ERP), Supply Chain Management (SCM), Collaborative Planning, Forecasting, and Replenishment system (CPFR), Customer Relationship Management (CRM). Performance Management: Data visualization, Mashups, and Mobile intelligence, Fleet Management Information System.
V	Business Process and Project Management: - Architecture & IT design, System development, Software & Applications for management (Business software tools), Support system. ERP modules -sales and Marketing, Accounting, Finance, Materials and Production management etc.

Text & Reference Books:

1. Course Material Prepared by LSC
2. KENNETH C. L., JANE P. L., & RAJANISH DASS (2001) Management Information System - Managing the Digital Firm. Pearson Education: New Delhi.
3. RAVI, K., & ANDREW, B. W. Frontiers of Electronic Commerce. Pearson Education: New Delhi.
4. KENNETH, C. L., & JANE P, L. (2001) Essentials of MIS. Prentice Hall India: New Delhi.
5. SADAGOPAN, S. (2003) Management Information System. Prentice Hall India: New Delhi.
6. EFF, O.Z. (2003) Management Information Systems. Vikas Publishing House Pvt. Ltd.: New Delhi.

RETAIL LOGISTICS AND E-COMMERCESemester
IIICourse Type
DomainCode
LD2308Hours
45Credits
3Version
2023-24**COURSE OBJECTIVES:**

- To develop competencies and knowledge of students to become Retail logistics and E-commerce professionals
- To orient students in the field of Logistics
- To help Students to understand Retail logistics and E-commerce

LEARNING OUTCOMES:

- Students will be able to apply the basic knowledge of Retail logistics and E-commerce in the real-life situation
- This subject will enable them to enhance their ability and professional skills in Logistics and E commerce

Unit	Topics
I	Concept and Scope: Concepts of Retail Logistics and supply chain- Importance of Logistics in these days global Sourcing, Dimension of Logistics: Macro and Micro aspects-Supply chain contours: Backward and forward linkages
II	Logistics and Retail Marketing: Logistics as a Support function of Order Fulfilment, Assembling & Labelling from Multi-storage points and Delivery- Logistics as an interface of Market forecasting, Stock level management and other relevant activities till transportation, preparation for dispatch and outbound documentation and customer facilitation tracking out-bound shipments.
III	Reverse Logistics: Basic of reverse logistics - concept, key activities , coordinating with carriers, route map optimization, collecting pickup and feedback - Types of reverse logistics –Roles and responsibilities -Best practices in reverse logistics
IV	E-Commerce: Introduction to E-commerce logistics including delivery and pickup models and the overall logistic setup – Order Processing – Activities in order processing - Types of order processing - - Procedures for generating plans and schedules through MIS
V	Types of Ecommerce- B2B-B2C and intra business. Retail Ecommerce – Retailing through internet, Direct Online Sales model and its types- Business Models for ecommerce. Electronic Payment system, Electronic CRM Applications. E-Security

Text & Reference Books:

1. John Fernie & Leigh Sparks, "Logistics and Retail Management: Emerging Issues and New Challenges in the Retail Supply Chain ", Kogan Page 3rd Edition, 2009
2. James B. Ayers & Mary Ann Odegaard , "Retail Supply Chain Management "taylor & francis, 2nd edition
3. Mr. Gibson G, "Retail Management: Functional Principles & Practices", Jaico Publishing house, 6th Edition, 2003.
4. Ray, Supply Chain Management For Retailing, TMH, 2010.
5. James B. Ayers, Retail Supply Chain Management, Auerbach Publications, 2007.

LINER LOGISTICSSemester
IIICourse Type
GeneralCode
LD2309Hours
45Credits
3Version
2023-24**COURSE OBJECTIVES:**

- To develop competencies and knowledge of students to Liner logistics professionals
- To orient students in the field of Logistics
- To help Students to understand Liner logistics

LEARNING OUTCOMES:

- Students will be able to apply the Basic knowledge of Liner Logistics in the real-life situation
- This subject will enable them to enhance their ability and professional skills in Logistics.

Unit	Topics
I	Definitions of liner trades; tramp trades; containerization- Unitization - containerization, liner operations, port organization – Vessel loading and discharging, liner trade routes, The major ports, liner service options - Liner trade – ship types – Tonnages; basic ship layout, types of container ships, Ro-Ro barge carrying vessels, The refrigerated cargo ship conventional (Break bulk) vessels future vessel developments, economy of scale, shipboard handling equipment.
II	Cargoes & cargo equipment – Dangerous goods IMO special goods, cargo handlings other methods of lifting cargo port handling equipment, port terminals; port and terminal management; the role of ships officers - agent. Liner Shipping operations - Management and policy, ship management and operations, independent ship management, insurance, trade of commercial department, accounting, budgeting, freight collection and port disbursements agency duties.
III	Containerization unitization and inter-modalism - Growth in world trade unitization; container dimensions, types of container other container expressions container inventory, owning, leasing meeting the demand for containers tracking the container fleet, container control, FCLs LCLs & ICDS, legal & insurance implications in the container trade.
IV	The Bill of Lading and other Documentation - The Bill of Lading UK bill of lading Act 1855 and UK carriage of goods by sea Act 1992, The use of Bill of Lading in liner trades, Bill of Lading documentary credits, Bill of Lading clauses The printed clauses – The evidence of the contract, other forms of Bill of Lading other liner documents, Intl conventions relating to Bill of Lading, paperless trading
V	The Exchange of goods transfer - Transfer of funds from country to country, methods of payments in International trade who are the merchants, International contracts of sale INCO terms; Legal aspects of the liner trades - The carrier insurance the carrier's liability for the cargo the liabilities of the agent, legal aspects of the Bill of Lading, cargo claims general average (GA), security, ISPS code.

Text & Reference Books:

1. Course Material Prepared by LSC
2. Ship Operation Management, Fujita, N.H. Publisher, 1974.
3. Ship Operation Management, Bertrams Publication, 2010.
4. Handbook of Ship Calculations, Construction and Operation, Charles H. Hughes, Wexford College Press, 2008.
5. Ocean Shipping - Elements of Practical Steamship Operation, Robert Edwards Annin, Thompson Press, 2010.

PORT TERMINAL LOGISTICSSemester
IVCourse Type
GeneralCode
LD2310Hours
60Credits
4Version
2023-24**COURSE OBJECTIVES:**

- To develop competencies and knowledge of students to Port terminals logistics professionals
- To orient students in the field of Logistics
- To help Students to understand Port terminals logistics

LEARNING OUTCOMES:

- Students will be able to apply the Basic knowledge of Port terminals Logistics in the real-life situation
- This subject will enable them to enhance their ability and professional skills in Logistics

Unit	Topics
I	Difference between Major and Minor Ports - Ports in India - Natural Harbours - New Ports to be developed in India - Major Ports of the World - Largest Port in the world - Port Officials and their roles - Role of Ports - Who are Port users
II	Container Terminals - Privatisation of Terminals - Reason for Privatisation - Major Terminal Operators in India - Terminal Operators of the world - Privatisation the need of the hour - Agreement between and existing Port Terminal and the new operator
III	Import Cycle - Export Cycle - Positions and Places in a Terminal - Facilities in a Terminal - Container Monitoring and stacking - CFS inside a Terminal - Reasons for Congestion of a terminal - de-congesting the terminal - Window system in a terminal.
IV	Major Port Trust Act - Port as a custodian of the cargo - Transit sheds - Cargo receivers - Wharfs and Berths - Various berths in a Port - Meaning of Berth Restrictions - Port equipment's and damage - Extra services - Berth reservation schemes
V	Port Tariff - Pilots and their duties - Tugs and its usage - Night navigations - Light Dues - Tariff Authorities of Major Port - Revision of rates - Port Trustees - Safety Procedures - Introduction of ISPS - Damage to Port property by ships - Compensation and confiscation of cargo to adjust dues

Text & Reference Books:

1. Course Material Prepared by LSC
2. Major Port Trust Act – Government of India
3. Port Industry Statistics, American Association of Port Authorities
4. AP MOLLOR Guide book on Terminal
5. DUBAI PORT AUTHORITIES Manual

LOGISTICS 4.0Semester
VCourse Type
DomainCode
LD2313AHours
60Credits
2Version
2023-24**COURSE OBJECTIVES:**

- To develop competencies and knowledge of students to understand the revolution in Logistics Industry
- To orient students in the field of Logistics
- To help students to learn the recent technology changes and challenges in Logistics Industry

LEARNING OUTCOMES:

- Students will be able to apply the basic knowledge of technology and ITC development
- This subject will enable them to enhance their ability and professional skills in Logistic

Unit	Topics
I	1.1 First Three Industrial Revolutions: Industry 1.0–3.0 1.2 Introduction to Industry 4.0 1.3 Digitalization and the Connected Economy 1.4 Drivers, Enablers, Compelling Forces and Challenges for Industry 4.0 1.5 The Journey so far: Developments in USA, Europe, China, and other countries 1.6 Comparison of Industry 4.0 Factory and Today's SMART Factory 1.7 Trends of Big Data (Evolution) along with the Maturity framework and Predictive Analytics for Smart Business Transformation
II	2.1 Evolution of Logistics 2.2 Introduction to Logistics 4.0 2.3 Digital Transformation of Supply Chain Management 2.4 Advanced robots, Augmented Reality, Digital Twins 2.5 Simulation — Network simulation and optimization 2.6 The Industrial Internet of Things 2.7 Cloud Computing 2.8 Cyber Security 2.9 Big data and analytics – Data Warehouse v/s Data Mart
III	3.1 Digitalization of Logistics and Challenges in Logistics 4.0 3.2 Inventory Control Systems (ICS)-MRP-1-MRP-2-ERP-1 3.3 The Internet of Things 3.4 Challenges of The Internet of Things 3.5 Changes in Business Models and Production Processes 3.6 Telematics Technology – Application in Logistics
IV	4.1 Technology in Procurement 4.0 (Consignor Inventory Model) 4.2 Technology in Inventory Management 4.0 (Impact of Digital Technologies on the Inventory Management Techniques) 4.3 Technology in Logistics and Warehousing 4.0 4.4 Logistics and Supply Chain Analytics
V	5.1 Business issues in Logistics 4.0 5.2 Opportunities and Challenges 5.3 Future of Works and Skills for Workers in the Logistics 4.0 Era 5.4 Advantages and disadvantages of Logistics 4.0 5.5 Strategies for competing in a Logistics 4.0 world

EXPORT AND IMPORT DOCUMENTATIONSemester
VCourse Type
DomainCode
LD2313BHours
60Credits
2Version
2023-24**COURSE OBJECTIVES:**

- To familiarize the student with the basic concept of formalities for export trade, and the documentation process required for import and export.

LEARNING OUTCOMES:

- Recognize the impact of information and communication technologies, especially of the internet in business operations.
- Recognize the fundamental principles of eBusiness and eCommerce.
- Explain the security protocols and the issues in internet security.

Unit	Topics
I	Introduction to Export and Import 12 Hrs Basics of Exports - Classification of goods - Preparation for Exports - Methods of Exporting - Export Marketing Organizations - Functions - Registration formalities IEC Number - Procedure of obtaining IEC Number - RCMC (Registration Cum Membership Certificate) –Export Credit Guarantee Council (ECGC) - Application for import and export of restricted items.
II	Documentation Framework and Contracts 15 Hrs Aligned Documentation System: Commercial Documents - Auxiliary Commercial Documents - Regulatory Documents - Documents related to goods - Documents related to Shipment - Documents related to Payments - Documents related to Inspection - Documents related to Excisable Goods - Types of Contracts - Export Contracts.
III	Payments and Finance 15 Hrs Factors - Methods of receiving Payment - Instruments of Payments-Letter of Credit Pre-shipment Finance - Post-shipment Finance - Post-shipment Credit in Foreign Currency - Negotiation of documents with bank - CENVAT - Duty Draw back
IV	Quality Control and Clearance of Cargo 15Hrs Objective of Quality Control - Methods - Procedure for Pre-shipment Inspection - Role of Clearing and Forwarding Agents – Role of Inspection Agents-Clearance of Cargo Central Excise Clearance Procedure - Central Excise Clearance Option - Shipment of Export Cargo.
V	Customs Clearance, Risk and Insurance Policy 15 Hrs Customs Clearance of Export Cargo - Customs Clearance of Import Cargo - Risk: Types - Types of cover issued by ECGC - Cargo Insurance. Processing of an export order - Major laws governing export contract.

Text & Reference Books:

- RAMA, GOPAL C. (2008) Export Import Procedures Documentation and Logistics. New Age International Publishers: New Delhi.
- KHUSHPAT, S. J. (2013) Export Import Procedures and Documentation. Himalaya Publishing House: New Delhi.
- PAWAN, KUMAR (2001) Export of India's Major Products Problems and Prospects. New Century Publications: New Delhi.
- KAPOOR, D. C. (2002) Export Management. Vikas Publications: New Delhi.
- CHERUNILAM, F. (2004) International Trade and Export Management. Himalaya Publications: New Delhi.

Websites:

- www.cbec.gov.in/customs/cs-act/cs-act-idx.htm (Central Board of Excise and Customs - Customs Act, 1962, Customs Tariff Act – 1975, Other Acts)
- www.epckkenya.org/(Export Promotion Council)
- commerce.nic.in/MOC/index.asp (Ministry of Commerce and Industry)
- www.dgft.gov.in/ (Directorate General of Foreign Trade)

INLAND WATERWAYS & COASTAL SHIPPINGSemester
VCourse Type
DomainCode
LD2313CHours
60Credits
2Version
2023-24**COURSE OBJECTIVES:**

- To familiarize the student with the basic concept of Inland water ways and coastal shipping, their importance and future development of Indian water ways

LEARNING OUTCOMES:

- Recognize the impact of Inland water ways and coastal shipping
- Recognize the importance and future development of Indian water ways.

Unit	Topics
I	Basics of shipping- Introduction for shipping - Types of ship- sizes of ship – Basic terminology of ships- Sea transport and its importance- Roll of ports in sea transport - Coastal shipping and its importance.
II	Inland waterways: Introduction –Scope –Sources (lakes, Rivers, Canals, Back water, creeks, water courses inlets and bays)-Working principles -Impact - Inland waterways in India: locations
III	Roll and importance of inland waterways: Infrastructure facility required - Roll and importance of inland water ways in transportation- Transportation through creeks
IV	Inland waterways: Road connectivity – Availability of cargo (scarcity)-Navigation (night navigation)- Draft restriction
V	Inland waterways in other countries: Bangladesh – China - Vietnam - Europe Inland waterways in India: Network in India –upcoming inland waterways – Inland waterways authority – Government policies on inland waterways – National waterways Act

Text & Reference Books:

1. Course Material Prepared by LSC
2. Inland Waterway Transport: Challenges and prospects (Routledge Studies in Transport Analysis) Hardcover – Import, 12 Jul 2016 by Bart Wiegman (Editor), Rob Konings (Editor)
3. Inland waterways Transportation (IWT) in India – Machiraju presentation Pvt Ltd.

APPRENTICESHIP I

<i>Semester</i> V	<i>Course Type</i> Domain	<i>Code</i> LD2314	<i>Hours</i> 1008	<i>Credits</i> 22	<i>Version</i> 2023-24
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The students would be onboarded in Logistics Processes of companies by the Logistics Sector Skill Council for Apprenticeship Training. The duration of Apprenticeship Training is 6 months. During Apprenticeship Training students would be assigned on-the-job-training by companies. Being a legal engagement, students would receive a monthly stipend during Apprenticeship Training as per the existing norms.

On completion of the Apprenticeship Training, students shall submit Apprenticeship Report in the form of Work Diary to the Collaborating Institutions. The Report would be evaluated and Viva conducted by the Collaborating Institution.

COURIER, EXPRESS & PARCEL SERVICESSemester
VICourse Type
DomainCode
LD2315AHours
60Credits
2Version
2023-24**COURSE OBJECTIVES:**

- To develop competencies and knowledge of students to become Courier and Express
- Professionals
- To orient students in the field of Courier and Express
- To help Students to understand Courier and Express

LEARNING OUTCOMES:

- Students will be able to apply the Basic knowledge of Courier and Express in the real-life situation
- This subject will enable them to enhance their ability and professional skills

Unit	Topics
I	Types of consignments for shipment - Information on labels and handling instructions - consignee locations- consignments and destinations- consignment shipment operations – (loading, handling, scheduling and documentation) - Special instructions for safe handling of fragile consignments
II	Customer declarations – verification of customer declarations and consignment package - Clarification procedure in case of discrepancies noticed - Generation of bill of lading / shipping bill for export consignments – Coordination for import/export consignments clearance
III	Hub-Spoke Operations & Inbound and Outbound activities: Introduction – Hub spoke activities inbound and outbound activities. Types of consignments coming in the hub-spoke - layout of the hub-spoke - Areas to receive, sort and inspect - Documentation activities in hub-spoke - Inspection process of inbound sorted and outbound consignments
IV	Tracking and tracing; AWB –essential time of arrival delivery - Last mile delivery – LMD -First mile delivery
V	Customer satisfaction- quality, delivery time, costs (shortest cost, loss prevention) - Weighment rate, cube scan –diversions/LBW/Volumetric density of cargo

Text & Reference Books:

1. Course Material Prepared by LSC
2. Logistics and Supply chain management – Martin Christopher
3. Basics of Distribution Management; A Logistical Approach Prentice HALL of India - Kapoor Sathish
4. Ware house management and Inventory control - Vikas Publication House

IN PLANT LOGISTICS

Semester VI	Course Type Domain	Code LD2315B	Hours 60	Credits 2	Version 2023-24
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COURSE OBJECTIVES:

- To develop competencies and knowledge of students to become In-plant logistics professionals
- To orient students in the field of Logistics
- To help Students to understand In-plant logistics operations

LEARNING OUTCOMES:

- Students will be able to apply the Basic knowledge of In-plant operations in the real life situation
- This subject will enable them to enhance their ability and professional skills

Unit	Topics
I	Introduction to Logistics in a manufacturing setup - Manufacturing process - physical flow - Assembly line – OTIF (on time in full) - Basic activities of in-plant logistics : Loading, Unloading, Receiving, sorting, Storing, Picking and dispatch activities - process of coordination with assembly line
II	Job shop- work allocation - Production scheduling – selection of products/ models/parts/ Team table/Time table - Material flow – production line –feeding just in time inventory, Vendor management -
III	Inbound logistics- inventory management, importance, Value addition, stock counts, audits
IV	Out bound logistics – Finished goods (FG)- tooling, binding ,creating, input process, output - packaging, Kitting, far goods(FH), Spare parts, , After markets process, schedule of transport, vendor coordination
V	Timely supply – scheduling, vendor co ordination quality control, pre delivery Inspection, Quality assurance, on time in full (OTIF)

Text & Reference Books:

1. Course Material Prepared by LSC

MULTI-MODAL TRANSPORTATION

Semester
VICourse Type
DomainCode
LD2315CHours
60Credits
2Version
2023-24**COURSE OBJECTIVES:**

- Introduce Multi-modal and Intermodal Transport concepts.
- Explain Regulatory framework and policies for Multi-modal transportation.
- Describe Indian Railways' initiatives to promote Multimodal Logistics in India.
- Overview evolution of infrastructure facilitating Multi-modal Logistics in India.

LEARNING OUTCOMES:

After completing this Course, the student will have the following learnings:

- The importance and role played by Multi-modal transport in the efficient and cost-effective movement of cargo
- Types of multi-modal movement and the role of containerisation for security and speed
- The provisions and procedures for Exim trade and INCOTERMS
- Indian Government's policies and vision R for development of seamless multi-modal transport.

Unit	Topics
I	Transportation Systems & Multi modal Transport –Concept of Multi modal & Intermodal Transport – introduction to Multi modal transport, the difference between Multi modal and Intermodal transport-Type of transport Modes – detail and characteristics of air, road, rail, water, pipelines, package carriers-Need, Aim and Key Issues of Multi modal transport.
II	How to organise Multi modal transport-Role of Containerisation in MMT- history, utility, types, ease of handling, cost saving-Types of Multi modal transport – combined container transport, rolling Road & forwarding of trailers, RORO & LASH transportation-National Multi modal Transport Committee (NMTC) and Logistics Policy of India – key features and importance
III	Multi modal Transportation Act & Procedures-MMTG Act of 1993-Custom procedures for Export & Import - Bill Of Lading – Hague Rules, Visby Rules, Hamburg Rules, Voyage by Sea-INCOTERMS – meaning, explanation, list, and types
IV	MMT and Indian Railways-PFT Policy – maintenance of rolling stock, cargo handling, customs, etc-Warehousing Policy – stuffing, de-stuffing, stacking, use of MHE, etc-Layout and design of Multi modal Logistics parks
V	Multi modal transport & Practice Today-India's growing conflict between Trade & transport – issues, policy, problems & pricing-Integrated Transport – Bharatmala, Sagarmala, IWT, DFC, the concept of ICP (International Check Posts-Scenario in India and neighbouring countries with a case study

TEXT BOOKS

- 1 Course Material Prepared by LSC

APPRENTICESHIP II

<i>Semester</i> VI	<i>Course Type</i> Domain	<i>Code</i> LD2316	<i>Hours</i> 1008	<i>Credits</i> 22	<i>Version</i> 2023-24
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The students would be onboarded in Logistics Processes of companies by the Logistics Sector Skill Council for Apprenticeship Training. The duration of Apprenticeship Training is 6 months. During Apprenticeship Training students would be assigned on-the-job-training by companies. Being a legal engagement, students would receive a monthly stipend during Apprenticeship Training as per the existing norms.

On completion of the Apprenticeship Training, students shall submit Apprenticeship Report in the form of Work Diary to the Collaborating Institutions. The Report would be evaluated and Viva conducted by the Collaborating Institution.

Specialisation Module – Group A - Course I**INTRODUCTION TO AVIATION INDUSTRY & AIRPORT OPERATIONS**Semester
IVCourse Type
DomainCode
LD2311AHours
45Credits
3Version
2023-24**COURSE OBJECTIVES:**

- To develop competencies and knowledge of students to become Aviation Professionals
- To help Students to understand Fundamentals of Aviation Industry & Airport Operations

LEARNING OUTCOMES:

- Students will be able to apply the Basic knowledge of Aviation and Airport Operations in the real-life situation
- This subject will enable them to enhance their ability and professional skills in the Aviation Industry & Airport Operations

Unit	Topics
I	History of Aviation & Key Organizations in the Aviation Industry a. History of Aviation through the ages-Origins in Greek Mythology- The Wright Brothers- Aviation in the era of World War 1 & 2- Commercial Aircraft Era- Modern Jetliners b. Key Organizations in the Aviation Industry- 1. ICAO- International Civil Aviation Organization, 2. IATA- International Air Transport Association 3. MoCA - Ministry of Civil Aviation, 4. DGCA - Directorate General of Civil Aviation 5. AAI- Airports Authority of India, 6. AAICLAS- Airports Authority of India Cargo Logistics Allied Services 7. AERA- Airport Economic Regulatory Authority 8. BCAS- Bureau of Civil Aviation Security
II	Freedoms of the Air & the Airline Business a. Freedoms of the Air- Overview- Nine Freedoms of the Air b. Airline Business- - i Business Models- Legacy, Low Cost, Charter, Regional, Cargo & Hybrid - ii Airplane Manufacturers- Primary Manufacturers- Boeing, Airbus and others - iii Narrow Body v/s Wide Body- Definition & Features - iv The Airline Industry as a Business- Key Functions in the Airline Business - v Airline Codeshares & Alliances- a. Concept, b. Key Benefits, c. Major Airline Alliances - vi Airline Cabin Classes- First, Business, Premium Economy & Economy
III	World Geography & Airline Communication Protocol Traffic Conference Areas, Time Zones, Codes- Country, City, Carrier, Currency, Aircraft Registration, Airline Phonetics
IV	Airport Operations a. Key Stakeholders, Airport Types, Airport Revenue Sources, Airport Functional Layout- Landside, Governmental Agencies at Airport, Baggage Handling, Airside Operations b. Airport as an Operational System- Infrastructure & Facilities, Airport Operations Control Centre (AOCC), Airport Collaborative Decision Making (ACDM), Key Information Technology Systems at Airports
V	Concessionaire Activities at Airports (terminology restricted to Indian scenario) a. Non-Aero Activities- Retail, Food & Beverage, Real Estate, Car Rentals Car Parking, Currency & Banking, Advertising b. Maintenance Repair & Overhaul (MRO)- Types of MRO Models c. Ground Handling - i Concept, ii Self-Handling V/s Outsourced Handling - iii IATA Standard Ground Handling Agreement

Text & Reference Books:

- 1 Course Material Prepared by LSC
- 2 Airport Operations- Norman Ashford, Pierre Coutu, John Beasley- McGraw-Hill Education; 3rd edition (16 December 2012)
- 3 Principles of Airport Economics- P.S. Sengupta- Excel Books (1 December 2007)
- 4 Managing Airports- An International Perspective- Anne Graham- Routledge; 5 edition (June 9, 2018)
- 5 IATA Airport Handling Manual- 40th edition- Year of Publication- 2020
- 6 IATA Ground Operations Manual- 9th edition- Year of Publication- 2020

Specialisation Module – Group B - Course I**FIRST MILE OPERATIONS**Semester
IVCourse Type
DomainCode
LD2311BHours
45Credits
3Version
2023-24**COURSE OBJECTIVES:**

- To understand the First Mile operational processes in e-commerce logistics.

LEARNING OUTCOMES:**THE STUDENTS WILL LEARN:**

- Basics of First Mile operations.
- Shipment pickup operations.
- Different types of shipment processing operations at Processing Centers.
- Layout of a Processing Centre.
- Key challenges in First Mile operations and First Mile metrics.

Unit	Topics
I	Role of First Mile in E-Commerce Logistics Difference between First Mile, Line Haul and Last Mile operations. -First Mile Operations - Overview. -Why is First Mile operations important in e-commerce logistics-First Mile process flow.
II	Shipment Pickup Operations Shipment pickup process. -Pickup operations staff - roles and responsibilities. -Pickup coordination. -Safety and security of shipments during pickup-Pickup documentation.
III	Shipment Processing Operations Primary and secondary processing. -Bagging operations. -Manual processing operations-Automated processing operations
IV	Layout of A Processing Centre Inbound operations-Processing Operations-Outbound Operations-Safety and security-Processing Centre staff - roles and responsibilities
V	First Mile Analytics and Metrics Productivity-Pickup operations metrics-Processing operations metrics-First Mile dashboard. Tools and Applications Pickup tools and applications-Processing tools and applications-Exceptions in First Mile and impact on operations-Tools and communication to resolve exceptions.

Text & Reference Books:

- Course Material Prepared by LSC

Specialisation Module – Group C – Course I
PRINCIPLES & PRACTICES OF TOURISM

Semester IV	Course Type Domain	Code LD2311C	Hours 45	Credits 3	Version 2023-24
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COURSE OBJECTIVES:

- Understand the fundamentals of the Tourism industry and its development in India.
- Develop insights on the difference between International and National Industry.
- Knowhow on Tourism in India through Surface transportation.
- Impart knowledge on new trends in Tourism.

LEARNING OUTCOMES:

- To develop an understanding of the nature of tourism in India
- Throw light on an initiative by Government and Railways to promote tourism.
- To understand different modes and package tours by Travel Agencies and to learn how to develop packages.
- Recent trends of tourism and Infrastructure including Hotels

Unit	Topics
I	Basics of Tourism-History & Growth-Tourism & Economy, Multiplier Effect-Principles, Components & Types of Tourism – Service Industry, Passenger Transportation. Travel Agencies
II	Domestic & International Tourism-Tourism Policy & Initiatives of Govt – Dept of Tourism, ITDC, IRCTC Etc-Inbound & Outbound Tourism – Segmentation, Bookings, Package Tours-Travel Agencies, Destinations & Infrastructure – Ratings
III	Tourism - Road-Road Infrastructure – Connectivity to destinations, Quadrangle, Highways, Bharatmala Project-Road Vehicles – Cabs, Minibuses, luxury buses, Double deck sleeper. Regulations-Single point. Multiple destinations, Group booking, Cluster approach.
IV	Tourism by Rail-Infrastructure – Rail destination. Toy trains to Hills – Shimla, Darjeeling, Ooty – Last mile connectivity-Railway Initiatives – Rail Yatrik Niwas at stations, Budget hotels. Online bookings, Tourist lounges. Bookings – Group ticket, package tours, circular journey ticket etc.-Tourist trains – Palace on Wheels, Maharaja, Deccan Odyssey, Rail package tours, Coach Bookings itinerary.
V	Trends in Tourism-Sustainable tourism – Ecological & environmental issues-Heritage, Religious, Medical, Leisure, Conferences Tourism, Destination weddings-New destinations- Statue of Unity, Akshardham, Winter tourism etc

Suggested Readings:

1. Course Material Prepared by LSC

Specialisation Module – Group A - Course II**INTRODUCTION TO AIR CARGO INDUSTRY**Semester
IVCourse Type
DomainCode
LD2312AHours
45Credits
3Version
2023-24**COURSE OBJECTIVES:**

- To develop competencies and knowledge of students to become Air Cargo Professionals
- To help Students to understand Fundamentals of Air Cargo Industry

LEARNING OUTCOMES:

- Students will be able to apply the Basic knowledge of Air Cargo Industry in the real-life situation
- This subject will enable them to enhance their ability and professional skills in the Air Cargo Industry

Unit	Topics
I	History of Air Cargo & Multi Modal forms of Transport a. History of Air Cargo & Mail, Air Freight, Air Express, Overnight Air Express & Air Mail b. Other Multi Modal forms of Transport- Rail, Sea & Surface Transport- Key Concepts
II	Key Organizations Facilitating Air Cargo International Air Transport Association (IATA), International Civil Aviation Organization (ICAO), International Federation of Freight Forwarders Association (FIATA), The International Air Cargo Association (TIACA)
III	Air Cargo Business Models Freighters, Charters, Integrators, Combination Carriers, Systems), Couriers, E-commerce, Postal mail a. Key Concepts- Brief Introduction to the Business Models b. Impact of various Business Models in relation to geography, size and scope
IV	Key Stakeholders & Key Terminologies a. Key Stakeholders- Airports, Airlines (Direct), Airlines through General Sales Agents (GSA) or General Sales & Service Agents (GSSA), Shippers, Freight Forwarders, Custom Brokers, Consolidators, Trucking b. Key Terminologies & Abbreviations
V	Training & Development in Air Cargo Industry a. Importance of Training in the Aviation & Cargo Industry b. Areas of Training in the Air Cargo Industry c. Key Organizations facilitating Training & Development in the Aviation & Air Cargo Industry.

Text & Reference Books:

1. Course Material Prepared by LSC
2. Air Cargo Management- Air Freight and The Global Supply Chain- Michael Sales- Routledge (2016)
3. Air Cargo and Logistics - Classics and Contemporary practice by Rico Merket and Jackie Walters- Academic Publishers (01 June, 2019)
4. Moving Boxes by Air - The Economics of International Air Cargo by Peter S. Morrell and Thomas Klein - Routledge; 2 edition (19 October 2018)

Specialisation Module – Group B - Course II**LAST MILE OPERATIONS**Semester
IVCourse Type
DomainCode
LD2312BHours
45Credits
3Version
2023-24**COURSE OBJECTIVES:**

- To understand Last Mile Operations in E-Commerce

COURSE OUTCOME:

The students will be able to:

- Understand the basics concept of Last mile logistics in E-Commerce
- Understand the processes involved in Last mile logistics
- Understand various metrics and customer services processes to be followed in last mile logistics
- Explain the prospects of last mile logistic

Unit	Topics
I	Introduction 1.1 What is Last Mile in Ecommerce? 1.2 Importance of Last Mile in the supply chain 1.3 Last Mile Delivery challenges for ecommerce 1.4 Trends in Last Mile delivery 1.5 Route optimization in Last Mile operations
II	Last Mile Processes 2.1 Delivery Process & its challenges 2.2 Reverse pickup process in Last mile operations 2.3 Challenges in Reverse Pickup process 2.4 Tools and applications in Last Mile operations 2.5 Considerations for effective last mile logistics strategy
III	Metrics 3.1 Metrics to measure in last file 3.2 Automation and technology driving metrics.
IV	Customer service 4.1 Customer service and its importance 4.2 Good and bad customer service (Dos and Don'ts of customer service) 4.3 Relationship between metrics and customer service.
V	Prospects of Last Mile Logistics- 5Hrs 5.1 Innovations in Last Mile Logistics 5.2 Technology Trends in Last Mile Delivery 5.3 Last Mile Delivery Market Future Prospects

Text & Reference Books:

1. Course Material Prepared by LSC.

Specialisation Module – Group C - Course II**COMMERCIAL ASPECTS OF TRANSPORTATION**Semester
IVCourse Type
DomainCode
LD2312CHours
45Credits
3Version
2023-24**COURSE OBJECTIVES:**

- To high light vital part of commercial considerations in providing transport services for Freight and Passengers movement.
- To Understand the importance and need for marketing and strategies involved.
- To Describe the principles in fixing Railway Freight and Rates
- To evaluate Competition in rates of Road and Rail mode of transportation.

LEARNING OUTCOMES:

- Develop a clear perspective of various commercial aspects in transportation
- Distinguish between the Operational feasibility of a work and its commercial viability
- Know the issues involved in booking and reservation of passengers,
- Know the various types of costs involved and understand the concept of cost-of-service vs value of service

Unit	Topics
I	Commercial Aspects in Transportation – A Perspective-Role and importance of Commercial Aspects, relative strengths of rail vs road-Concept of commercial viability vis a vis operational feasibility-Issues/ functions included in the commercial aspects, organisational set up to handle these
II	Commercial Aspects involving Passenger transportation –Passenger Services on Indian Railways; Booking and Reservation of passengers, Various class of services, types of tickets, concessions etc-Passengers Services in Road Sector, A state subject- differences from State to state-Supplementary and related services such luggage, parcel, refunds, catering etc.
III	Commercial Aspects involving Goods / Freight transportation–Different components of freight traffic, Booking and delivery of freight traffic on Railways, Demurrage and Wharfage, sidings-Booking and delivery of goods in roadways, agencies involved and their role-Claims and liabilities, Organisational set-up and procedure for Claims' compensation,
IV	Pricing of Transport-Basic consideration in pricing; Different type of costs involved in computing price, Relativity index of passenger fares in Indian Railways; surcharges and discounts-Principles of classification and Rate fixation and routing of traffic-Cost of service vs value of service, Cross subsidisation etc
V	Marketing Strategies for Commercial growth –Need for marketing, Rail vs Road: Complementary and not competitive role, High profit yielding commodities-Incentive schemes, IT-enabled user-friendly solutions for Booking, payment, tracking consignments and trains, Passenger movement – PRS, etc-Future trends: technology-induced improvements in various aspects of commercial working

Textbooks

1. Course Material Prepared by LSC



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