APPRENTICESHIP-BASED UG DEGREE PROGRAMME IN LOGISTICS

COLLABORATIVE PROGRAMME OF LSC

DOMIAN REGULATION & CURRICULUM

VERSION 2023-24

NATIONAL SKILL QUALIFICATION FRAMEWORK LEVEL:5
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:

Seminars 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:

Seminars 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**

<table>
<thead>
<tr>
<th>No.</th>
<th>Course</th>
<th>Code</th>
<th>Type</th>
<th>Hours</th>
<th>Credit</th>
<th>CIA</th>
<th>ESE</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Fundamentals of Logistics</td>
<td>LD2301</td>
<td>Domain</td>
<td>45</td>
<td>3</td>
<td>25</td>
<td>75</td>
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<tr>
<td>2</td>
<td>Materials Management</td>
<td>LD2302</td>
<td>Domain</td>
<td>60</td>
<td>4</td>
<td>25</td>
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<tr>
<td>3</td>
<td>Warehousing &amp; Distribution Centre Operations</td>
<td>LD2303</td>
<td>Domain</td>
<td>45</td>
<td>3</td>
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<td><strong>Total</strong></td>
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<td>75</td>
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**Semester II - NSQF 3**

<table>
<thead>
<tr>
<th>No.</th>
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<th>Credit</th>
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<th>ESE</th>
<th>Marks</th>
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<tbody>
<tr>
<td>1</td>
<td>Freight Forwarding (Ocean &amp; Air Cargo)</td>
<td>LD2304</td>
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<td>45</td>
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<td>Forecasting and Inventory Management</td>
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<td>3</td>
<td>Surface Transportation</td>
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<td>25</td>
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<td><strong>Total</strong></td>
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**Semester III - NSQF 4**

<table>
<thead>
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<th>No.</th>
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<th>Hours</th>
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<th>CIA</th>
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<tbody>
<tr>
<td>1</td>
<td>MIS for Logistics</td>
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<td>2</td>
<td>Retail Logistics and E- Commerce</td>
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<td>Liner Logistics</td>
<td>LD2309</td>
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**Semester IV - NSQF 4**

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<th>ESE</th>
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<tr>
<td>1</td>
<td>Port Terminal Logistics</td>
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<td>2</td>
<td>Specialisation Module – Course I</td>
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**Semester V - NSQF 5**

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<th>ESE</th>
<th>Marks</th>
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<td>Allied course - MOOC</td>
<td>LD2313A/B/C</td>
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<td>Apprenticeship – I</td>
<td>LD2314</td>
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<td>22</td>
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**Semester VI - NSQF 5**

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<th>Credit</th>
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<th>ESE</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Allied Course - MOOC</td>
<td>LD2315A/B/C</td>
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<td>Apprenticeship – II</td>
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<td>1068</td>
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### Semester V - Allied Courses - MOOC

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<th>Credit</th>
<th>CIA</th>
<th>ESE</th>
<th>Marks</th>
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<tbody>
<tr>
<td>1</td>
<td>Logistics 4.0</td>
<td>LD2313A</td>
<td>Domain</td>
<td>60</td>
<td>2</td>
<td>100</td>
<td>100</td>
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<tr>
<td>2</td>
<td>Export &amp; Import Documentation</td>
<td>LD2313B</td>
<td>Domain</td>
<td>60</td>
<td>2</td>
<td>100</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Inland Waterways &amp; Costal Shipping</td>
<td>LD2313C</td>
<td>Domain</td>
<td>60</td>
<td>2</td>
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### Semester VI - Allied Courses - MOOC

<table>
<thead>
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<th>No.</th>
<th>Course</th>
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<th>Credit</th>
<th>CIA</th>
<th>ESE</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Courier, Express &amp; Parcel Services</td>
<td>LD2315A</td>
<td>Domain</td>
<td>60</td>
<td>2</td>
<td>100</td>
<td>100</td>
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<tr>
<td>2</td>
<td>In plant Logistics</td>
<td>LD2315B</td>
<td>Domain</td>
<td>60</td>
<td>2</td>
<td>100</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Multimodal Transportation</td>
<td>LD2315C</td>
<td>Domain</td>
<td>60</td>
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### Specialisation Modules

<table>
<thead>
<tr>
<th>Course</th>
<th>Group A – Aviation</th>
<th>Group B – Ecommerce</th>
<th>Group C – Land Transportation</th>
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</thead>
<tbody>
<tr>
<td>1 Introduction to Aviation Industry &amp; Airport Operations</td>
<td>First Mile Operations</td>
<td></td>
<td>Multimodal Transportation</td>
</tr>
<tr>
<td>2 Introduction to Air Cargo Industry</td>
<td>Last Mile Operations</td>
<td></td>
<td>Commercial Aspects of Transportation</td>
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</table>

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

### Domain Credit Summary

<table>
<thead>
<tr>
<th>Sem</th>
<th>Courses</th>
<th>Credits</th>
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<tr>
<td>I</td>
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<td>10</td>
</tr>
<tr>
<td>II</td>
<td>3</td>
<td>10</td>
</tr>
<tr>
<td>III</td>
<td>3</td>
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<tr>
<td>IV</td>
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<td>V</td>
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<td>VI</td>
<td>2</td>
<td>24</td>
</tr>
<tr>
<td>Total</td>
<td>16</td>
<td>88</td>
</tr>
</tbody>
</table>
FUNDAMENTALS OF LOGISTICS

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

<table>
<thead>
<tr>
<th>Unit</th>
<th>Topics</th>
</tr>
</thead>
</table>
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
### 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

<table>
<thead>
<tr>
<th>Unit</th>
<th>Topics</th>
</tr>
</thead>
</table>
|      | 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.  
| 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
3. Materials management: An integrated approach - P. Gopalakrishnan
5. Purchasing and Materials Management - K S Menon
6. Handbook of Materials Management – Gopalakrishnan
### 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.

### Text & Reference Books:
1. Course Material Prepared by LSC
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

<table>
<thead>
<tr>
<th>Unit</th>
<th>Topics</th>
</tr>
</thead>
</table>
| 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
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

<table>
<thead>
<tr>
<th>Unit</th>
<th>Topics</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Forecasting: Meaning – Need - Types of forecasts – Demand Forecasting - Types of Demand Forecasting - Importance - Demand planning v/s Forecasting - Sources of demand - Supply chain dynamics</td>
</tr>
<tr>
<td>II</td>
<td>Sales and Operations Planning - Goals and objectives of S&amp;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).</td>
</tr>
<tr>
<td>III</td>
<td>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</td>
</tr>
<tr>
<td>V</td>
<td>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</td>
</tr>
</tbody>
</table>

Text & Reference Books:

1. Course Material Prepared by LSC
## SURFACE TRANSPORTATION

<table>
<thead>
<tr>
<th>Semester</th>
<th>Course Type</th>
<th>Code</th>
<th>Hours</th>
<th>Credits</th>
<th>Version</th>
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<tbody>
<tr>
<td>II</td>
<td>Domain</td>
<td>LD2306</td>
<td>45</td>
<td>3</td>
<td>2023-24</td>
</tr>
</tbody>
</table>

### 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.

<table>
<thead>
<tr>
<th>Unit</th>
<th>Topics</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>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 - intermodal transport - verification of carriers and drivers - transit rules</td>
</tr>
<tr>
<td>II</td>
<td>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</td>
</tr>
<tr>
<td>III</td>
<td>Organisation structure in a transport organization - Incident management systems &amp; 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.</td>
</tr>
<tr>
<td>IV</td>
<td>Benefits of efficient transportations - 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.</td>
</tr>
<tr>
<td>V</td>
<td>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</td>
</tr>
</tbody>
</table>

### Text & Reference Books:
1. Course Material Prepared by LSC
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

<table>
<thead>
<tr>
<th>Unit</th>
<th>Topics</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Introduction- IT and management opportunities and challenges - Strategic planning and models - Information management &amp; IT Architecture – IT Architecture &amp; infrastructure, cloud computing and services, Virtualization and Virtual Machines.</td>
</tr>
<tr>
<td>II</td>
<td>Database Technology- Data warehouse- Data Mart Technologies- Data and Text mining- Business Intelligence &amp; Analytics, Digital and physical document management. Networks, collaboration &amp; sustainability: Business IT networks &amp; components, communication technologies – Sustainability and Ethical issues - Internal control- Business Control and Auditing.</td>
</tr>
<tr>
<td>V</td>
<td>Business Process and Project Management: - Architecture &amp; IT design, System development, Software &amp; Applications for management (Business software tools), Support system. ERP modules -sales and Marketing, Accounting, Finance, Materials and Production management etc.</td>
</tr>
</tbody>
</table>

Text & Reference Books:
1. Course Material Prepared by LSC
Apprenticeship-based UG Degree Programme in Logistics - Collaborative Programme of LSC

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

<table>
<thead>
<tr>
<th>Unit</th>
<th>Topics</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>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</td>
</tr>
<tr>
<td>II</td>
<td>Logistics and Retail Marketing: Logistics as a Support function of Order Fulfilment, Assembling &amp; 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.</td>
</tr>
<tr>
<td>III</td>
<td>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</td>
</tr>
<tr>
<td>IV</td>
<td>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</td>
</tr>
</tbody>
</table>

Text & Reference Books:
### 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.

### Table of Topics

<table>
<thead>
<tr>
<th>Unit</th>
<th>Topics</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>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.</td>
</tr>
<tr>
<td>II</td>
<td>Cargoes &amp; 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.</td>
</tr>
<tr>
<td>III</td>
<td>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 &amp; ICDS, legal &amp; insurance implications in the container trade.</td>
</tr>
<tr>
<td>IV</td>
<td>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</td>
</tr>
<tr>
<td>V</td>
<td>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.</td>
</tr>
</tbody>
</table>

### Text & Reference Books:
1. Course Material Prepared by LSC
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

<table>
<thead>
<tr>
<th>Unit</th>
<th>Topics</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>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</td>
</tr>
<tr>
<td>II</td>
<td>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</td>
</tr>
<tr>
<td>III</td>
<td>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.</td>
</tr>
<tr>
<td>IV</td>
<td>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</td>
</tr>
<tr>
<td>V</td>
<td>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</td>
</tr>
</tbody>
</table>

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
**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

<table>
<thead>
<tr>
<th>Unit</th>
<th>Topics</th>
</tr>
</thead>
</table>
| 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 Changes in Business Models and Production Processes  
3.5 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 |
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.

<table>
<thead>
<tr>
<th>Unit</th>
<th>Topics</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>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.</td>
</tr>
<tr>
<td>III</td>
<td>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</td>
</tr>
<tr>
<td>IV</td>
<td>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.</td>
</tr>
<tr>
<td>V</td>
<td>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.</td>
</tr>
</tbody>
</table>

Text & Reference Books:

Websites:
2. www.epckenya.org/(Export Promotion Council)
3. commerce.nic.in/MOC/index.asp (Ministry of Commerce and Industry)
4. www.dgft.gov.in/ (Directorate General of Foreign Trade)
COURSE OBJECTIVES:
• To familiarize the student with the basic concept of Inland waterways 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.

<table>
<thead>
<tr>
<th>Unit</th>
<th>Topics</th>
</tr>
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<tbody>
<tr>
<td>II</td>
<td>Inland waterways: Introduction –Scope –Sources (lakes, Rivers, Canals, Back water, creeks, water courses inlets and bays)- Working principles -Impact - Inland waterways in India: locations</td>
</tr>
<tr>
<td>III</td>
<td>Roll and importance of inland waterways: Infrastructure facility required - Roll and importance of inland water ways in transportation- Transportation through creeks</td>
</tr>
<tr>
<td>IV</td>
<td>Inland waterways: Road connectivity – Availability of cargo (scarcity)-Navigation (night navigation)- Draft restriction</td>
</tr>
<tr>
<td>V</td>
<td>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</td>
</tr>
</tbody>
</table>

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 Wiegmans (Editor), Rob Konings (Editor)
3. Inland waterways Transportation (IWT ) in India – Machiraju presentation Pvt Ltd.
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.
## 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
4. Ware house management and Inventory control - Vikas Publication House
Apprenticeship-based UG Degree Programme in Logistics - Collaborative Programme of LSC

IN PLANT LOGISTICS

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

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
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.

<table>
<thead>
<tr>
<th>Unit</th>
<th>Topics</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Transportation Systems &amp; Multi modal Transport –Concept of Multi modal &amp; 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.</td>
</tr>
<tr>
<td>II</td>
<td>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 &amp; forwarding of trailers, RORO &amp; LASH transportation-National Multi modal Transport Committee (NMTC) and Logistics Policy of India – key features and importance</td>
</tr>
<tr>
<td>IV</td>
<td>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</td>
</tr>
<tr>
<td>V</td>
<td>Multi modal transport &amp; Practice Today-India’s growing conflict between Trade &amp; transport – issues, policy, problems &amp; pricing-Integrated Transport – Bharatmala, Sagarmala, IWT, DFC, the concept of ICP ( International Check Posts-Scenario in India and neighbouring countries with a case study</td>
</tr>
</tbody>
</table>

TEXT BOOKS
1. Course Material Prepared by LSC
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.
# INTRODUCTION TO AVIATION INDUSTRY & AIRPORT OPERATIONS

## 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

## Course Details:

<table>
<thead>
<tr>
<th>Semester</th>
<th>Course Type</th>
<th>Code</th>
<th>Hours</th>
<th>Credits</th>
<th>Version</th>
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</thead>
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<td>IV</td>
<td>Domain</td>
<td>LD2311A</td>
<td>45</td>
<td>3</td>
<td>2023-24</td>
</tr>
</tbody>
</table>

## Text & Reference Books:
1. Course Material Prepared by LSC

## Units and Topics:

<table>
<thead>
<tr>
<th>Unit</th>
<th>Topics</th>
</tr>
</thead>
</table>
| 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. AAI CLAS- 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


**Specialisation Module – Group B - Course I**

**FIRST MILE OPERATIONS**

<table>
<thead>
<tr>
<th>Semester</th>
<th>Course Type</th>
<th>Code</th>
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<th>Credits</th>
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<tr>
<td>IV</td>
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<td>LD2311B</td>
<td>45</td>
<td>3</td>
<td>2023-24</td>
</tr>
</tbody>
</table>

**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.

<table>
<thead>
<tr>
<th>Unit</th>
<th>Topics</th>
</tr>
</thead>
</table>
| 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:**

1. Course Material Prepared by LSC
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

<table>
<thead>
<tr>
<th>Unit</th>
<th>Topics</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Basics of Tourism-History &amp; Growth-Tourism &amp; Economy, Multiplier Effect-Principles, Components &amp; Types of Tourism – Service Industry, Passenger Transportation. Travel Agencies</td>
</tr>
<tr>
<td>II</td>
<td>Domestic &amp; International Tourism-Tourism Policy &amp; Initiatives of Govt – Dept of Tourism, ITDC, IRCTC Etc- Inbound &amp; Outbound Tourism – Segmentation, Bookings, Package Tours-Travel Agencies, Destinations &amp; Infrastructure – Ratings</td>
</tr>
<tr>
<td>III</td>
<td>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.</td>
</tr>
</tbody>
</table>

Suggested Readings:
1. Course Material Prepared by LSC
Specialisation Module – Group A - Course II

INTRODUCTION TO AIR CARGO INDUSTRY

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

<table>
<thead>
<tr>
<th>Unit</th>
<th>Topics</th>
</tr>
</thead>
</table>
| 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  
|      | a. 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  
|      | a. Freighters, Charters, Integrators, Combination Carriers, Systems), Couriers, E-commerce, Postal mail  
|      | b. 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
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** IV  
**Course Type**  
**Domain**  
**Code** LD2312B  
**Hours** 45  
**Credits** 3  
**Version** 2023-24

<table>
<thead>
<tr>
<th>Unit</th>
<th>Topics</th>
</tr>
</thead>
<tbody>
<tr>
<td>I Introduction</td>
<td></td>
</tr>
</tbody>
</table>
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

<table>
<thead>
<tr>
<th>Semester IV</th>
<th>Course Type</th>
<th>Domain</th>
<th>Code</th>
<th>Hours</th>
<th>Credits</th>
<th>Version</th>
</tr>
</thead>
<tbody>
<tr>
<td>IV</td>
<td></td>
<td></td>
<td>LD2312C</td>
<td>45</td>
<td>3</td>
<td>2023-24</td>
</tr>
</tbody>
</table>

COURSE OBJECTIVES:

- To highlight 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

<table>
<thead>
<tr>
<th>Unit</th>
<th>Topics</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>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</td>
</tr>
<tr>
<td>II</td>
<td>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.</td>
</tr>
<tr>
<td>III</td>
<td>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,</td>
</tr>
<tr>
<td>IV</td>
<td>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</td>
</tr>
<tr>
<td>V</td>
<td>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</td>
</tr>
</tbody>
</table>

Textbooks

1. Course Material Prepared by LSC