Model Curriculum

QP Name: Warehouse Data Analyst

QP Code: LSC/Q0503

QP Version: 1.0

NSQF Level: 6

Model Curriculum Version: 1.0

Table of Contents

Training Parameters

Sector	Logistics
Sub-Sector	Warehousing (Storage & Packaging)
Occupation	Technology
Country	India
NSQF Level	6
Aligned to NCO/ISCO/ISIC Code	NCO-2015/2511
Minimum Educational Qualification and Experience	Completed MBA (Operations Management) OR Completed B. E/B. Tech + 1-year experience in warehouse operations. OR Completed 3-Year UG Degree + 5 years experience in warehouse operations OR Pursuing 2nd year PG diploma in Logistics after 3 year UG degree
Pre-Requisite License or Training	NA
Minimum Job Entry Age	23 years
Last Reviewed On	30-11-2023
Next Review Date	30-11-2026
NSQC Approval Date	30-11-2023
QP Version	1.0
Model Curriculum Creation Date	30-11-2023
Model Curriculum Valid Up to Date	30-11-2026
Model Curriculum Version	1.0
Minimum Duration of the Course	630
Maximum Duration of the Course	630

Program Overview

This section summarizes the end objectives of the program along with its duration.

Training Outcomes

At the end of the program, the learner will be able to:

- Describe the basic functions of Warehouse Management
- Detail the various processes involved in Warehouse.
- Detail the process of data collection in warehouse and its sources.
- Describe the system tools used for data processing and explain the methods used for data validation.
- Perform the steps involved for creating KPIs for warehouse performance.
- Detail about the Operations in Warehouse Receiving and Order Fulfilment process.
- Explain data analytics, data warehousing, and data management tools.
- Evaluate ETL tools, business intelligence tools and statistical analysis software based on the specifications.
- Follow the steps involved in preparing Business Requirement Document (BRD) and design document.
- Guide in designing and developing technical design documents.
- Perform Unit tests of Reports, Dashboards and User Acceptance Tests with workers.
- Detail the process of Forecasting Inventory Needs.
- Perform the steps to prepare demand forecasts aligned with business strategies and plans.
- Follow the steps involved in maintaining Data Integrity.
- Explain the methods for maintaining data quality control.
- Perform the steps for implementing data quality control.
- Detail the steps involved in the implementation of warehouse systems in Greenfield and Brownfield Warehouse.
- Discuss the Employability Skills required for jobs in various industries.
- Explain the constitutional values, including civic rights and duties, citizenship, responsibility towards society and personal values and ethics such as honesty, integrity, caring and respecting others that are required to become a responsible citizen.
- Discuss how to identify opportunities for potential business, sources of funding and associated financial and legal risks with its mitigation plan.

Compulsory Modules

The table lists the modules, their duration and mode of delivery.

NOS and Module Details	Theory Duration	Practical Duration	On-the-Job Training Duration (Mandatory)	On-the-Job Training Duration (Recommended)	Total Duration
Bridge Module	**20**	**10**			**30**
Module 1: Introduction to Warehouse Data Analyst	20	10			30
LSC/N0509 - Data Analysis for Warehouse V1.0	**20**	**60**	**10**		**90**

NSQF Level 6					
Module 2: Data Analysis for Warehouse	20	60	10		90
LSC/N0510 - Performance Monitoring and tracking Key KPIs V1.0 **NSQF Level 6**	**20**	**60**	**10**		**90**
Module 3: Performance Monitoring and tracking Key KPIs	20	60	10		90
LSC/N0511 - Technical tool analysis **V1.0** **NSQF Level 6**	**15**	**35**	**10**		**60**
Module 4: Technical tool analysis	15	35	10		60
LSC/N0512 - Reporting, Visualization and BI **V1.0** **NSQF Level 6**	**30**	**60**			**90**
Module 5: Reporting, Visualization and BI	30	60			90
LSC/N0513 - Data Modelling and Forecasting **V1.0** **NSQF Level 6**	**30**	**60**			**90**
Module 6: Data Modelling and Forecasting	30	60			90
LSC/N0514 – Data integrity and quality control **V1.0** **NSQF Level 6**	**20**	**40**			**60**
Module 7: Data integrity and quality control	20	40			60
LSC/N9911: Follow health, safety, security procedures and maintain integrity, ethics at workplace **V1.0** **NSQF Level 6**	**10**	**20**			**30**
Module 8: Follow health, safety, security procedures and maintain integrity, ethics at workplace	10	20			30
Employability Skills (90 hours) **DGT/VSQ/N0103**	**30**	**60**			**90**
Total Duration	**195**	**405**	**30**		**630**

Module Details

Module 1: Introduction to Warehouse Data Analyst
Mapped to Bridge Module

Terminal Outcomes:

- Describe the basic functions of Warehouse Management
- Detail the various processes involved in Warehouse.

Duration: 20:00	Duration: 10:00
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
- Brief the sub sectors of logistics and their basic functions. - Detail the activities that take place in Warehouse. - Detail the various job roles in Warehouse. - Explain your job role as Warehouse Data Analyst and its interface with other job roles.	- Analyse the various activities that take place in Warehouse. - Illustrate the functions of other job roles in Warehouse. - Identify the operations of various types of Locations in the Warehouse (ex: Rack, Shelf, etc.)
Classroom Aids	
Charts, Models, Video presentation, Flip Chart, Whiteboard/Smart Board, Marker, Board eraser	
Tools, Equipment and Other Requirements	
PPE	

Module 2: Data Analysis for Warehouse
Mapped to LSC/N0509, v1.0

Terminal Outcomes:

- Detail the process of data collection in warehouse and its sources.
- Describe the system tools used for data processing and explain the methods used for data validation.

Duration: 20:00	Duration: 60:00
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
- Detail the process of data collection in warehouse and its sources. - Explain reverse logistics in warehouse. - Describe the system tools used for data processing. - Explain the methods used for data validation.	- List down the various information that needs to be collected and their sources. - Perform data collection. - Process the data in system tools. - Validate data against the physical count and check for duplicate records. - Organize the data collected from different sources in separate Files/Folders. - Prepare flow charts to represent data and analyse any missing entity.
Classroom Aids	
Charts, Models, Video presentation, Flip Chart, Whiteboard/Smart Board, Marker, Board eraser	
Tools, Equipment and Other Requirements	
Computers with web camera, scanner cum printer, system tools	

Module 3: Performance Monitoring and tracking Key KPIs
Mapped to LSC/N0510, v1.0

Terminal Outcomes:

- Perform the steps involved for creating KPIs for warehouse performance.
- Detail about the Operations in Warehouse Receiving and Order Fulfilment process.

Duration: 20:00	Duration: 60:00
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
- Explain Key Performance Criteria and its importance. - Describe Warehouse Inventory Level Monitoring. - Detail about the Operations involved in Warehouse Receiving process. - Explain Order Fulfilment process in warehouse. - Summarize Warehouse Cycle Count. - Explain root cause analysis.	- Perform the steps involved for creating KPIs for warehouse performance. - Monitor and track for improvement of performance. - Perform the steps for optimising inventory. - Analyse the time required for various operations in receiving. - Evaluate the time taken for each order processing and the delay's reason. - Monitor the Cycle Count Process and track Inventory Mismatch. - Generate reports and analyse the factors of variance in cycle count. - Gather data and evaluate the costs associated with reverse logistics.
Classroom Aids	
Charts, Models, Video presentation, Flip Chart, Whiteboard/Smart Board, Marker, Board eraser	
Tools, Equipment and Other Requirements	
Computers, MS office, Warehouse Applications and RDT tools	

Module 4: Technical Tool Analysis
Mapped to LSC/N0511, v1.0

Terminal Outcomes:

- Explain data analytics, data warehousing, and data management tools.
- Evaluate ETL tools, business intelligence tools and statistical analysis software based on the specifications.

Duration: 15:00	Duration: 35:00
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
- Explain data analytics, data warehousing, and data management tools. - Describe SWOT analysis and ETL process. - Explain the specifications in selection of each tools and software. - Detail proof of concept projects and testing process for checking the effectiveness and compatibility of the selected tools.	- Research and evaluate the currently available tools for data analytics, data warehousing, and data management. - Assess the strengths and weaknesses of different tools and technologies after considering various factors. - Perform a SWOT analysis and follow the steps in finalising a tool. - Evaluate ETL tools, business intelligence tools and statistical analysis software based on the specifications. - Ensure that the selected tools comply with data security and governance requirements. - Conduct testing and proof of concept projects to validate the effectiveness and compatibility of the selected tools. - Effectively transition the vendor of the tool to responsible stakeholders and end users.
Classroom Aids	
Charts, Models, Video presentation, Flip Chart, Whiteboard/Smart Board, Marker, Board eraser	
Tools, Equipment and Other Requirements	
Computers, sample Predictive Modelling tools, Business Intelligence tool and ETL tools, WMS (learning version).	

Module 5: Reporting Visualization and BI
Mapped to LSC/N0512, v1.0

Terminal Outcomes:

- Follow the steps involved in preparing Business Requirement Document (BRD) and design document.
- Guide in designing and developing technical design documents.
- Perform Unit tests of Reports, Dashboards and User Acceptance Tests with workers.

Duration: 30:00	Duration: 60:00
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
- Explain As-Is analysis and Fit-Gap analysis. - Describe Business Requirement Document. - Detail the process of developing a design document.	- Collect the requirement about Reports from Business users after discussing the different processes. - Perform As-Is analysis of the existing Reports and Fit-Gap analysis for enhancement. - Follow the steps involved in preparing Business Requirement Document (BRD) and design document. - Guide in designing and developing technical design documents. - Perform Unit tests of Reports, Dashboards and User Acceptance Tests with workers. - Deploy the Reports for Business End Users
Classroom Aids	
Charts, Models, Video presentation, Flip Chart, Whiteboard/Smart Board, Marker, Board eraser	
Tools, Equipment and Other Requirements	
Computers, sample Report Designing tools.	

Module 6: Data Modelling and Forecasting
Mapped to LSC/N0513, v1.0

Terminal Outcomes:

- Detail the process of Forecasting Inventory Needs.
- Perform the steps to prepare demand forecasts aligned with business strategies and plans.

Duration: 30:00	Duration: 60:00
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Detail the process of Forecasting Inventory Needs. • Explain various forecasting methods like Moving Average. • Describe seasonal demand patterns, trends and methods to read the same.	• Perform data collection from specified sources. • Follow the steps involved in choosing an appropriate forecasting method. • Use the selected forecasting method(s) to generate future demand forecasts for each warehouse product or category. • Incorporate lead time information and insights from sales and marketing teams into inventory forecast calculations. • Gather data from various specified sources for identifying demand patterns. • Cleanse and preprocess the collected data to ensure accuracy and consistency. • Perform the steps to prepare demand forecasts aligned with business strategies and plans.
Classroom Aids	
Charts, Models, Video presentation, Flip Chart, Whiteboard/Smart Board, Marker, Board eraser	
Tools, Equipment and Other Requirements	
Computers, samples of forecasting and demand patterns, system tools, WMS (learning version).	

Module 7: Data integrity and Quality control
Mapped to LSC/N0514, v1.0

Terminal Outcomes:

- Follow the steps involved in maintaining Data Integrity.

- Explain the methods for maintaining data quality control.

- Perform the steps for implementing data quality control.

Duration: 20:00	Duration: 40:00
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Explain the importance of Data Integrity, data security and compliance. • Describe the process for maintaining Data Integrity. • Detail data security and data protection regulations relevant to warehouse. • Explain the methods for maintaining data quality control.	• Follow the steps involved in maintaining Data Integrity. • Optimize data storage and retrieval processes. • Conduct periodic data audits to assess the overall data quality and identify areas for improvement. • Perform the steps for implementing data quality control. • Provide training and support to data users.
Classroom Aids	
Charts, Models, Video presentation, Flip Chart, Whiteboard/Smart Board, Marker, Board eraser	
Tools, Equipment and Other Requirements	
Computers, system tools	

Module 8: Follow health, safety, security procedures and maintain integrity, ethics at workplace.

Mapped to LSC/N9911, v1.0

Terminal Outcomes:

- Detail the steps involved in the implementation of warehouse systems in Greenfield and Brownfield Warehouse.

Duration: 10:00	Duration: 20:00
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
- Detail the safety regulations and procedures w.r.t fire hazards, biohazards, etc. - Explain various PPE utilized in logistics and their uses. - Describe data safety regulations and clear worktable policy. - Explain the importance of taking care of personal health and hygiene. - Detail the standard procedures to be followed during emergency situations. - Explain 5s at workplace and code of ethics.	- Follow health, safety and security measures during all activities. - Wear all safety equipment including protective gear, helmets etc., in relevant bay areas. - Recognize unsafe conditions and safety practices at the workplace and report it to concerned authorities. - Comply with data safety regulations of the organization and follow clear worktable policy. - Maintain personal health and hygiene. - Practise basic first aid methods. - Follow procedures to handle emergency situations. - Protect data and information related to business or commercial decisions. Prevent company and customer information leakage. - Refrain from indulging in corrupt practices and consult senior management when in an ethical dilemma. - Follow organization procedures with respect to documentation.
Classroom Aids	
Charts, Models, Video presentation, Flip Chart, Whiteboard/Smart Board, Marker, Board eraser	
Tools, Equipment and Other Requirements	
Computers, PPE, system tools, LLMS (learning version).	

Terminal Outcomes:

- Discuss the Employability Skills required for jobs in various industries.
- Explain the constitutional values, including civic rights and duties, citizenship, responsibility towards society and personal values and ethics such as honesty, integrity, caring and respecting others that are required to become a responsible citizen.
- Discuss how to identify opportunities for potential business, sources of funding and associated financial and legal risks with its mitigation plan.

Duration: **30:00**	**Duration**: **60:00**
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
- Outline the importance of Employability Skills for the current job market and future of work - List different learning and employability related GOI and private portals and their usage - Explain the constitutional values, including civic rights and duties, citizenship, responsibility towards society and personal values and ethics such as honesty, integrity, caring and respecting others that are required to become a responsible citizen - Discuss relevant 21st century skills required for employment - Highlight the importance of practicing 21st century skills like Self-Awareness, Behaviour Skills, time management, critical and adaptive thinking, problem-solving, creative thinking, social and cultural awareness, emotional awareness, learning to learn etc. in personal or professional life - Explain the importance of communication etiquette including active listening for effective communication - Discuss the significance of escalating sexual harassment issues as per POSH act - Discuss various financial institutions, products, and services - Explain the common components of salary such as Basic, PF, Allowances (HRA, TA, DA, etc.), tax deductions - Discuss the legal rights, laws, and aids - Describe the role of digital technology in day-to-day life and the workplace - Discuss the significance of displaying responsible online behaviour while using various social media platforms - Explain the types of entrepreneurship and enterprises	- Research and prepare a note on different industries, trends, required skills and the available opportunities - Demonstrate how to practice different environmentally sustainable practices - Create a pathway for adopting a continuous learning mindset for personal and professional development. - Show how to use basic English sentences for everyday conversation in different contexts, in person and over the telephone - Write a short note/paragraph / letter/e-mail using correct basic English - Create a career development plan - Identify well-defined short- and long-term goals - Demonstrate how to communicate effectively using verbal and nonverbal communication etiquette - Write a brief note/paragraph on a familiar topic - Role play a situation on how to work collaboratively with others in a team - Demonstrate how to behave, communicate, and conduct appropriately with all genders and PwD - Demonstrate how to conduct offline and online financial transactions, safely and securely and check passbook/statement - Calculate income and expenditure for budgeting - Demonstrate how to operate digital devices and use the associated applications and features, safely and securely - Demonstrate how to connect devices securely to internet using different means - Follow the dos and don'ts of cyber security to protect against cyber crimes - Create an e-mail id and follow e-mail etiquette to exchange e-mails

• Discuss how to identify opportunities for potential business, sources of funding and associated financial and legal risks with its mitigation plan	• Show how to create documents, spreadsheets and presentations using appropriate applications
• Describe the 4Ps of Marketing-Product, Price, Place and Promotion and apply them as per requirement	• Utilize virtual collaboration tools to work effectively
• Discuss various tools used to collect customer feedback	• Create a sample business plan, for the selected business opportunity
• Discuss the significance of maintaining hygiene and dressing appropriately	• Classify different types of customers
• Discuss the significance of maintaining hygiene and dressing appropriately for an interview	• Demonstrate how to identify customer needs and respond to them in a professional manner
• List the steps for searching and registering for apprenticeship opportunities	• Draft a professional Curriculum Vitae (CV)
	• Use various offline and online job search sources to find and apply for jobs
	• Role play a mock interview

Classroom Aids

Charts, Models, Video presentation, Flip Chart, Whiteboard/Smart Board, Marker, Board eraser, UPS, LCD Projector, Computer Tables & chairs

Tools, Equipment and Other Requirements

Computer (PC) with latest configurations – and Internet connection with standard operating system and standard word processor and worksheet software (Licensed) (all software should either be latest version or one/two version below), Scanner cum Printer

Annexure

Trainer Requirements

<table>
<tr><th colspan="6">Trainer Prerequisites</th></tr>
<tr><th rowspan="2">Minimum Educational Qualification</th><th rowspan="2">Specialization</th><th colspan="2">Relevant Industry Experience</th><th colspan="2">Training Experience</th><th rowspan="2">Remarks</th></tr>
<tr><th>Years</th><th>Specialization</th><th>Years</th><th>Specialization</th></tr>
<tr><td>Any degree</td><td>Warehousing (Storage & Packaging)</td><td>2</td><td>Warehousing (Storage & Packaging)</td><td></td><td></td><td></td></tr>
</table>

Trainer Certification	
Domain Certification	**Platform Certification**
Certified for Job Role: "Warehouse Data Analyst" mapped to QP: "LSC/Q0503, v1.0". Minimum accepted score is 80%	Recommended that the Trainer is certified for the Job Role: "Trainer (VET and Skills)", mapped to the Qualification Pack: "MEP/Q2601, V2.0". Minimum accepted score is 80%

Assessor Requirements

<table>
<tr><th colspan="7">Assessor Prerequisites</th></tr>
<tr><th rowspan="2">Minimum Educational Qualification</th><th rowspan="2">Specialization</th><th colspan="2">Relevant Industry Experience</th><th colspan="2">Training/Assessment Experience</th><th rowspan="2">Remarks</th></tr>
<tr><th>Years</th><th>Specialization</th><th>Years</th><th>Specialization</th></tr>
<tr><td>Any degree</td><td>Warehousing (Storage & Packaging)</td><td>2</td><td>Warehousing (Storage & Packaging)</td><td></td><td></td><td></td></tr>
</table>

<table>
<tr><th colspan="2">Assessor Certification</th></tr>
<tr><th>Domain Certification</th><th>Platform Certification</th></tr>
<tr><td>Certified for Job Role: "Warehouse Data Analyst" mapped to QP: "LSC/Q0503, v1.0". Minimum accepted score is 80%</td><td>Recommended that the Assessor is certified for the Job Role: "Assessor (VET and Skills)", mapped to the Qualification Pack: "MEP/Q2701, V2.0". Minimum accepted score is 80%</td></tr>
</table>

Assessment Strategy

The emphasis is on 'learning-by-doing' and practical demonstration of skills and knowledge based on the performance criteria. Accordingly, assessment criteria for each job role is set and made available in qualification pack.

The assessment papers for both theory and practical would be developed by Subject Matter Experts (SME) hired by Logistics Sector Skill Council or with the LSC accredited Assessment Agency as per the assessment criteria mentioned in the Qualification Pack. The assessments papers would also be checked for the various outcome-based parameters such as quality, time taken, precision, tools & equipment requirement etc.

Each NOS in the Qualification Pack (QP) is assigned a relative weightage for assessment based on the criticality of the NOS. Therein each Element/Performance Criteria in the NOS is assigned marks on relative importance, criticality of function and training infrastructure.

The following tools would be used for final assessment:

1. **Practical Assessment:** This comprises of a creation of mock environment in the skill lab which is equipped with all equipment required for the qualification pack.
   Candidate's soft skills, communication, aptitude, safety consciousness, quality consciousness etc. is ascertained by observation and marked in observation checklist. The outcome is measured against the specified dimensions and standards to gauge the level of their skill achievements.

2. **Viva/Structured Interview:** This tool is used to assess the conceptual understanding and the behavioral aspects with regard to the job role and the specific task at hand. It also includes questions on safety, quality, environment and equipment etc.

3. **On-Job Training:** OJT would be evaluated based on standard log book capturing departments worked on, key observations of learner, feedback and remarks of supervisor or mentor.

4. **Written Test:** Question paper consisting of 100 MCQs (Hard:40, Medium:30 and Easy: 30) with questions from each element of each NOS. The written assessment paper is comprised of following types of questions:

   i. True / False Statements
   ii. Multiple Choice Questions
   iii. Matching Type Questions
   iv. Fill in the blanks
   v. Scenario based Questions
   vi. Identification Questions

QA Regarding Assessors:

Assessors are selected as per the "eligibility criteria" laid down by LSC for assessing each job role. The assessors selected by Assessment Agencies are scrutinized and made to undergo training and introduction to LSC Assessment Framework, competency-based assessments, assessors guide etc. LSC conducts "Training of Assessors" program from time to time for each job role and sensitize assessors regarding assessment process and strategy which is outlined on following mandatory parameters:

1) Guidance regarding NSQF
2) Qualification Pack Structure
3) Guidance for the assessor to conduct theory, practical and viva assessments
4) Guidance for trainees to be given by assessor before the start of the assessments.
5) Guidance on assessments process, practical brief with steps of operations practical observation checklist and mark sheet
6) Viva guidance for uniformity and consistency across the batch.
7) Mock assessments
8) Sample question paper and practical demonstration

References

Glossary

Term	Description
Declarative Knowledge	Declarative knowledge refers to facts, concepts and principles that need to be known and/or understood in order to accomplish a task or to solve a problem.
Key Learning Outcome	Key learning outcome is the statement of what a learner needs to know, understand and be able to do in order to achieve the terminal outcomes. A set of key learning outcomes will make up the training outcomes. Training outcome is specified in terms of knowledge, understanding (theory) and skills (practical application).
OJT (M)	On-the-job training (Mandatory); trainees are mandated to complete specified hours of training on site
OJT (R)	On-the-job training (Recommended); trainees are recommended the specified hours of training on site
Procedural Knowledge	Procedural knowledge addresses how to do something, or how to perform a task. It is the ability to work, or produce a tangible work output by applying cognitive, affective or psychomotor skills.
Training Outcome	Training outcome is a statement of what a learner will know, understand and be able to do upon the completion of the training.
Terminal Outcome	Terminal outcome is a statement of what a learner will know, understand and be able to do upon the completion of a module. A set of terminal outcomes help to achieve the training outcome.

Acronyms and Abbreviations

Term	Description
QP	Qualification Pack
NSQF	National Skills Qualification Framework
NSQC	National Skills Qualification Committee
NOS	National Occupational Standards