



Model Curriculum

QP Name: Warehouse Manager

(Electives –Automated Warehouse/ Cold Chain Warehouse/ Dry Bulk Warehouse/ Bonded Warehouse)

QP Code: LSC/Q0103

QP Version: 2.0

NSQF Level: 6

Model Curriculum Version: 2.0

Table of Contents

Training Parameters.....	2
Program Overview	3
Training Outcomes.....	3
Compulsory Modules.....	3
Elective Modules.....	5
Option Modules	7
Module 1: Introduction to Warehouse Manager	9
Module 2: Daily review and process control	10
Module 3: Business development and stakeholder relations	11
Module 4: Performance management system	12
Module 5: Profit and loss account management and cost accounting	13
Module 6: Warehouse design and customs clearance	14
Module 7: Guidelines on integrity and ethics.....	15
Module 8: Compliance to health and safety standards.....	16
Module 9: GST and its application	17
Module 10 : Employability Skills	18
Module 11: Automated warehouse management	20
Module 12: Cold chain warehouse management.....	21
Module 13: Dry bulk warehouse management	22
Module 14: Bonded warehouse management	23
Module 15: Bid process management	23
Annexure.....	255
Trainer Requirements	25
Assessor Requirements.....	26
Assessment Strategy.....	27
References	29
Glossary.....	29
Acronyms and Abbreviations.....	30

Training Parameters

Sector	Logistics
Sub-Sector	Warehousing (Storage and Packaging)
Occupation	Warehousing operations, packaging, documentation and reporting, engineering/maintenance
Country	India
NSQF Level	6
Aligned to NCO/ISCO/ISIC Code	NCO-2015/ 1324.1200 and ISCO-08/1324
Minimum Educational Qualification and Experience	<p>Pursuing first year of 2-year PG program after completing 3 year UG degree</p> <p>OR</p> <p>Pursuing PG diploma after completing 3 year UG degree</p> <p>OR</p> <p>Completed 4 year UG</p> <p>OR</p> <p>Completed 12th Grade + 2 years of Vocational Education & Training. in Logistics</p> <p>OR</p> <p>Completed 12th grade + 4 years relevant experience in warehousing</p> <p>OR</p> <p>Completed Previous relevant Qualification of NSQF Level 5 (Warehouse Supervisor) + 3 years relevant experience in warehousing</p>
Pre-Requisite License or Training	NA
Minimum Job Entry Age	23
Last Reviewed On	25-08-2022
Next Review Date	25-08-2025
NSQC Approval Date	25-08-2022
QP Version	2.0
Model Curriculum Creation Date	04-07-2022
Model Curriculum Valid Up to Date	25-08-2025
Model Curriculum Version	2.0
Minimum Duration of the Course	660
Maximum Duration of the Course	900

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:

- Analyse activities scheduled and corresponding resources allocated
- Assess compliance to regulatory requirements
- Generate business for the organisation and manage relationships with stakeholders including clients, customs, PGAs etc.
- Analyse operational and business performance to undertake improvement initiatives
- Manage business profitably by analysing profit and loss and undertaking operations improvement initiatives.
- Design warehouse layout and equipment
- Plan and coordinate customs clearance
- Comply to workplace integrity, ethical and regulatory practices.
- Manage workplace for safe and healthy work environment by following and ensuring compliance to regulatory and safety norms
- Inspect invoices for correct application of GST
- Design layout, equipment, route and processes for automated, cold chain, dry bulk and bonded warehouse
- Assess asset utilisation in a warehouse
- Manage compliance to SOP in safe segregation, grading, storage, temperature control, microbiological control and movement of goods in a cold storage warehouse
- Manage cargo handling, volume/weight measurement, pest control, spillage control and equipment maintenance in a dry bulk warehouse
- Manage goods demarcation, segregation, bond issue, customs clearance and related activities in a bonded warehouse
- Manage bid processing activities to improve business turnover

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 Manager	20	10			30
LSC/N9601 – Conduct daily review and facilitate operations V1.0 6	20	35	5		60
Module 2: Daily review and process control	20	35	5		60

LSC/N9701– Business development and stakeholder relations V2.0 6	20	35	5		60
Module 3: Business development and stakeholder relations	20	35	5		60
LSC/N9602 – Review performance and develop performance improvement plans V2.0 6	20	35	5		60
Module 4: Performance management system	20	35	5		60
LSC/N9603- Profit and loss account management and cost accounting V1.0 6	20	35	5		60
Module 5: Profit and loss account management and cost accounting	20	35	5		60
LSC/N0111 – Support in warehouse layout design and customs clearance V1.0 6	20	35	5		60
Module 6: Warehouse design and customs clearance	20	35	5		60
LSC/N9908 - Maintain and monitor integrity and ethics in operations V1.0 6	20	40			60
Module 7: Guidelines on integrity and ethics	20	40			60
LSC/N9909 - Follow and monitor health, safety and security procedures V1.0 6	20	40			60

Module 8: Compliance to health, safety and security norms	20	40			60
LSC/N9907- Verify and review GST application V1.0 6	20	35	5		60
Module 9: GST and it's application	20	35	5		60
Employability DGT/VSQ/N0103	30	60			90
Total Duration	210	360	30		600

Elective Modules

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

Elective 1: Automated warehouse

NOS and Module Details	Theory Duration	Practical Duration	On-the-Job Training Duration (Mandatory)	On-the-Job Training Duration (Recommended)	Total Duration
LSC/N0112 Automated warehouse operations V1.0 6	30	30			60
Module 11: Automated warehouse management	30	30			60
Total Duration	30	30			60

Elective 2: Cold Chain Warehouse

NOS and Module Details	Theory Duration	Practical Duration	On-the-Job Training Duration (Mandatory)	On-the-Job Training Duration (Recommended)	Total Duration
LSC/N0113 – Cold Chain Operations V1.0 6	30	30			60
Module 12: Cold chain warehouse management	30	30			60
Total Duration	30	30			60

Elective 3: Dry Bulk warehouse operations

NOS and Module Details	Theory Duration	Practical Duration	On-the-Job Training Duration (Mandatory)	On-the-Job Training Duration (Recommended)	Total Duration
LSC/N0114 – Dry Bulk warehouse operations V1.0 6	30	30			60
Module 13: Dry bulk warehouse management	30	30			60
Total Duration	30	30			60

Elective 4: Bonded warehouse

NOS and Module Details	Theory Duration	Practical Duration	On-the-Job Training Duration (Mandatory)	On-the-Job Training Duration (Recommended)	Total Duration
LSC/N0115 – Bonded warehouse operations V1.0 6	30	30			60
Module 14: Bonded warehouse management	30	30			60
Total Duration	30	30			60

Option Modules

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

Option 1: Bid Process

NOS and Module Details	Theory Duration	Practical Duration	On-the-Job Training Duration (Mandatory)	On-the-Job Training Duration (Recommended)	Total Duration
LSC/N9702– Bid process management V1.0 6	30	30			60
Module 15: Bid process management	30	30			60
Total Duration	30	30			60

Module Details

Module 1: Introduction to Warehouse Manager

Mapped to Bridge Module

Terminal Outcomes:

- Describe the basic structure and function of supply chain
- Detail the various functions of a warehouse manager

Duration: 20:00	Duration: 10:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none"> • Classify the components of supply chain and logistics sector • Detail the various sub-sectors and the opportunities in them • Identify various activities in cold chain, warehousing, port yard, land, ship and air transportation • Explain job roles in warehousing • Detail your job role as a warehouse manager and its interface with other job roles • Discuss the documentation requirements in warehouse 	<ul style="list-style-type: none"> • Identify the various MHEs used in warehouse • Perform various operations functions of a warehouse manager
Classroom Aids	
Charts, Models, Video presentation, Flip Chart, Whiteboard/Smart Board, Marker, Board eraser	
Tools, Equipment and Other Requirements	
WMS (Learning version)	

Module 2: Daily review and process control

Mapped to LSC/N9601, v1.0

Terminal Outcomes:

- Detail the steps to perform in daily review and process control as per SOP

Duration: 20:00	Duration: 35:00
<p>Theory – Key Learning Outcomes</p> <ul style="list-style-type: none"> Discuss the process of approving resource allocation inspection Explain the importance of creating daily /weekly activity plan Detail the ways to resolve interdepartmental issues Illustrate the ways to achieve optimal utilization of resources Explain the need to have a cohesive working environment between clients and organisation Detail the ways to analyse business performance trends and forecasts Discuss the way to prepare budgets as per SOP State the relevant state/ country and international laws and regulations Detail the standards for handling hazardous goods 	<p>Practical – Key Learning Outcomes</p> <ul style="list-style-type: none"> Analyse the previous day's performance to chart the plan of action Approve resource allocation post inspection of pending activities for the day Prepare daily/ weekly activity plan Resolve interdepartmental queries and issues Assess optimal utilisation of all available resources Identify training and development needs Create a cohesive working environment between clients and organisation Analyse business performance trends and forecasts Prepare budgets for various operations Review compliance to relevant state/ country and international laws and regulations Plan corrective and preventive actions to improve outcome of business activities <ul style="list-style-type: none"> Assess compliance to hazardous goods handling standards
Classroom Aids	
Charts, Models, Video presentation, Flip Chart, Whiteboard/Smart Board, Marker, Board eraser	
Tools, Equipment and Other Requirements	
WMS(Learning version), Computer, Management information system (MIS), Enterprise Resource Planning (ERP), performance review software, budgeting and forecasting software, stationery, worksheets, SOP etc	

Module 3: Business development and stakeholder relations

Mapped to LSC/N9701, V1.0

Terminal Outcomes:

- Detail the steps to be followed for business development

Duration: 20:00	Duration: 35:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none"> • List target population to approach for business development • Assess prospective clients • Discuss client requirements • Plan customised or bundled solutions based on sales pitch • Demonstrate effective oral and written business communication • Detail the procedure for preparing costing sheets for service delivery • Demonstrate usage of ERP for updating client data • Assess when to upsell and cross-sell services to existing clients • Describe the nuances in building rapport with clients, customs, government agencies, insurance for healthy relationship • Discuss the process of writing service level agreements 	<ul style="list-style-type: none"> • Identify target population to approach for business development • Assess prospective clients • Identify client requirements • Offer customised or bundled solutions based on sales pitch • Demonstrate effective oral and written business communication • Prepare costing sheets for service delivery • Use ERP for updating client data • Estimate when to upsell and cross-sell services to existing clients • Establish rapport with clients, customs, government agencies, insurance for healthy relationship • Prepare service level agreements • Schedule resources as per operational requirement
Classroom Aids	
Charts, Models, Video presentation, Flip Chart, Whiteboard/Smart Board, Marker, Board eraser	
Tools, Equipment and Other Requirements	
WMS(Learning version), MS Project, MS Office, Computer, Projector, TV, Stationery, Worksheets, Reefer vehicle, loading dock, MHE equipment such as pallet trucks & forklifts, pallets, crates, sample products, weighing tables, standard formats, temperature control systems, PPE etc.	

Module 4: Performance management system

Mapped to LSC/N9602, v1.0

Terminal Outcomes:

- Detail the appropriate steps for performance management as per SOP

Duration: 20:00	Duration: 35:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none"> • Define performance measurement metrics for assigned activities • Explain performance review process • Explain root cause analysis for non-performing areas • Discuss the importance of performance improvement plan • Define KPIs as per organisational metrics and expectations • Explain effective ways for resolving employee grievances 	<ul style="list-style-type: none"> • Establish performance measurement metrics for assigned activities • Demonstrate performance review process • Perform root cause analysis for non-performing areas • Develop corrective and preventive actions to avoid recurrence • Design performance improvement plan • Communicate performance improvement plan • Establish the KPIs as per organisational metrics and expectations • Examine employee grievances and undertake corrective actions
Classroom Aids	
Charts, Models, Video presentation, Flip Chart, Whiteboard/Smart Board, Marker, Board eraser	
Tools, Equipment and Other Requirements	
WMS(Learning version), MS Office compressor, condenser, evaporator, temperature and humidity sensor, simulator, tools and tackles, consumables, cold storage equipment, gas leak detectors, electrical systems, start relays and defrost timers, pressure pumps, etc.	

Module 5: Profit and loss account management and cost accounting

Mapped to LSC/N9603, v1.0

Terminal Outcomes:

- Demonstrate the process of profit and loss account management and cost accounting

Duration: 20:00	Duration: 35:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none"> • Describe P&L analysis process • Explain budgeting and monitoring process • Explain methods to analyse variance between budget and actual expenditure • Compare budget with actual physical output • Detail the procedure for making budget amendments • List the risk management procedures • Detail the procedure for performing Activity Based Costing (ABC) • Discuss the audit process to identify reasons for deviation from costing • Explain the process to rationalize cost by undertaking improvement activities 	<ul style="list-style-type: none"> • Perform P&L analysis • Perform budgeting and monitoring process • Analyse variance between budget and actual expenditure • Cross check budget with actual physical output • Prepare budget amendments • Demonstrate risk management procedures • Perform Activity Based Costing (ABC) • Perform audit to identify reasons for deviation from costing • Implement improvement activities to rationalize cost
Classroom Aids	
Charts, Models, Video presentation, Flip Chart, Whiteboard/Smart Board, Marker, Board eraser	
Tools, Equipment and Other Requirements	
WMS(Learning version), MS Office compressor, condenser, evaporator, temperature and humidity sensor, simulator, tools and tackles, consumables, cold storage equipment, gas leak detectors, electrical systems, start relays and defrost timers, pressure pumps, etc.	

Module 6: Warehouse design and customs clearance

Mapped to LSC/N0111, v1.0

Terminal Outcomes:

- Detail the steps to be performed for designing the warehouse

Duration: 20:00	Duration: 35:00
<p>Theory – Key Learning Outcomes</p> <ul style="list-style-type: none"> • Detail the process of designing the layout for different types of goods such as Fast-Moving Consumer Goods (FMCG) products, electronics and appliances, automotive and assembly line products, bulk cargo, etc • Detail prioritisation of goods placement location within a warehouse • Describe the precautions and signages to be used while storing hazardous goods • Explain the design process, equipment and manpower movement flow in the warehouse • Detail the method of analysing technology feasibility of the proposed designs • Detail the coordination requirements with clients, custom officials, custom brokers, transport brokers, International Air Transport Association (IATA) agents, etc. for customs clearance requirements 	<p>Practical – Key Learning Outcomes</p> <ul style="list-style-type: none"> • Design the process layout for different types of goods such as Fast-Moving Consumer Goods (FMCG) products, electronics and appliances, automotive and assembly line products, bulk cargo, etc • Demonstrate prioritisation of goods placement location within a warehouse • Exhibit the precautions and signages to be used while storing hazardous goods • Design process, equipment and manpower movement flow in the warehouse • Identify the right temperature, humidity and other requirements as per product category • Analyse technology feasibility of the proposed designs • Support during construction, commissioning and performance reporting of warehouse • Perform effective coordination with clients, custom officials, custom brokers, transport brokers, International Air Transport Association (IATA) agents, etc. for customs clearance requirements
<p>Classroom Aids</p> <p>Charts, Models, Video presentation, Flip Chart, Whiteboard/Smart Board, Marker, Board eraser</p>	
<p>Tools, Equipment and Other Requirements</p> <p>WMS(Learning version), Computer, Enterprise Resource Planning (ERP), warehouse design software, inventory models, stationery, SOP etc..</p>	

Module 7: Guidelines on integrity and ethics

Mapped to LSC/N9909, v1.0

Terminal Outcomes:

- Explain the concepts of integrity, ethics
- Detail the various regulatory requirements related to logistics industry

Duration: 20:00	Duration: 40:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none"> • Describe the concepts of integrity, ethics • Detail the various regulatory requirements related to logistics industry • Explain data and information security practices • Discuss corrupt practices • Discuss regulatory requirements, code of conduct and etiquettes • Detail the procedure for documenting all integrity and ethics violations Explain escalation matrix for reporting deviation 	<ul style="list-style-type: none"> • Practice the principles of integrity and ethics • Follow the various regulatory requirements related to logistics industry • Perform data and information security practices • Identify corrupt practices • Comply to regulatory requirements • Practice code of conduct and etiquettes • Document all integrity and ethics violations • Report deviation as per the escalation matrix
Classroom Aids	
Charts, Models, Video presentation, Flip Chart, Whiteboard/Smart Board, Marker, Board eraser	
Tools, Equipment and Other Requirements	
WMS(Learning version)LLMS, MS Project, MS Office, Computer, Projector, TV, Stationery, Worksheets, Statistical Tools compressor, condenser, evaporator, temperature and humidity sensor, simulator, tools and tackles, consumables	

Module 8: Compliance to health and safety standards

Mapped to LSC/N9909, v1.0

Terminal Outcomes:

- Describe health, safety, and security procedures in warehouse
- Demonstrate the inspection procedure to ensure appropriate and safe conditions of activity area and equipment
- Illustrate the standard protocol to be followed during emergency situations, accidents and breach of safety

Duration: 20:00	Duration: 40:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none"> • Detail health, safety and security procedures in warehouse • Describe the 5S to be followed • Explain the inspection procedure to ensure appropriate and safe conditions of activity area and equipment • Discuss unsafe working conditions • Describe the inspection procedure to check safe handling of hazardous goods • Discuss the standard protocol to be followed during emergency situations, accidents and breach of safety • Document health, safety and security violations • Explain the escalation matrix for reporting deviation 	<ul style="list-style-type: none"> • Follow health, safety and security procedures in warehouse • Implement 5S at workplace • Inspect the activity area and equipment, for appropriate and safe conditions • Identify unsafe working conditions • Inspect adherence to standard operating procedures (SOP) while handling dangerous and hazardous goods • Implement standard protocol in case of emergency situations, accidents, and breach of safety • Prepare report on health, safety and security violations • Report deviation as per the escalation matrix
Classroom Aids	
Charts, Models, Video presentation, Flip Chart, Whiteboard/Smart Board, Marker, Board eraser	
Tools, Equipment and Other Requirements	
WMS(Learning version), LLMS(Learning version), MS Project, MS Office, Computer, Projector, TV, Stationery, Worksheets, Statistical Tools compressor, condenser, evaporator, temperature and humidity sensor, simulator, tools and tackles, consumables	

Module 9: GST and its application

Mapped to LSC/N9907, v1.0

Terminal Outcomes:

- Demonstrate the GST application procedure as per SOP

Duration: 20:00	Duration: 35:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none"> • Describe the GST application procedure in invoicing process • Detail the rules and regulation in applying and reversing GST • Inspect to identify faults in a document with GST computation • Describe GST documents approval process • Examine for pending litigation from previous regime • Review monthly returns for compliance to regulations • Examine correctness of tax payment records and acknowledgements received 	<ul style="list-style-type: none"> • Prepare the GST application for invoicing process • Examine faults in a document with GST computation • Perform all activities for GST documents approval process • Examine for pending litigation from previous regime • Review monthly returns for compliance to regulations • Examine correctness of tax payment records and acknowledgements received
Classroom Aids	
Charts, Models, Video presentation, Flip Chart, Whiteboard/Smart Board, Marker, Board eraser	
Tools, Equipment and Other Requirements	
WMS(Learning version), MS office, ERP, stationery, worksheets, computer, projector, GST guidelines etc.	

Module 10: Employability Skills

Mapped to DGT/VSQ/N0103, v1.0

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
<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • 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 • Read and understand text written in basic English • 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

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| <ul style="list-style-type: none"> • Discuss the significance of displaying responsible online behaviour while using various social media platforms • Explain the types of entrepreneurship and enterprises • Discuss how to identify opportunities for potential business, sources of funding and associated financial and legal risks with its mitigation plan • Describe the 4Ps of Marketing-Product, Price, Place and Promotion and apply them as per requirement • Discuss various tools used to collect customer feedback • Discuss the significance of maintaining hygiene and dressing appropriately • Discuss the significance of maintaining hygiene and dressing appropriately for an interview • List the steps for searching and registering for apprenticeship opportunities | <ul style="list-style-type: none"> • 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 • Show how to create documents, spreadsheets and presentations using appropriate applications • Utilize virtual collaboration tools to work effectively • Create a sample business plan, for the selected business opportunity • Classify different types of customers • Demonstrate how to identify customer needs and respond to them in a professional manner • 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 |
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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

WMS(Learning version), LLMS(Learning version), 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

Module 11: Automated warehouse management

Mapped to LSC/N0112, v1.0

Terminal Outcomes:

- Demonstrate the steps to be followed for effective management of automated warehouse

Duration: 30:00	Duration: 30:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none"> • List the parameters to be analysed to design the automated warehouse • Detail the requirements for automated devices such as Automatic Storage and Retrieval Systems (ASRS), automated racking, Automated Guided Vehicle (AGV), automated packaging system, robotic palletisation and depalletization, product profiling systems, product identification systems and other equipment to be used • Design collision free routes • Explain storage racks and pallets selection process • Explain the standard operating procedures to operate and maintain automated warehouse equipment • Detail the maintenance requirements of automated warehouse equipment • Explain utilisation analysis of automated warehouse assets • Describe automated warehouse redesign process to adapt to changing customer needs 	<ul style="list-style-type: none"> • Analyse types of products being stored, their volume, turn-around time and other business requirements to design the automated warehouse • Assess requirements for automated devices such as Automatic Storage and Retrieval Systems (ASRS), automated racking, Automated Guided Vehicle (AGV), automated packaging system, robotic palletisation and depalletization, product profiling systems, product identification systems and other equipment to be used • Propose conveyor, AGV & MHE movement & merging routes • Design collision free routes • Exhibit storage racks and pallets selection process • Use RFID grid to map the warehouse • Perform the standard operating procedures to operate and maintain automated warehouse equipment • Demonstrate the maintenance requirements of automated warehouse equipment • Perform utilisation analysis of automated warehouse assets • Demonstrate automated warehouse redesign process to adapt to changing customer needs • Review operational parameters, challenges, accidents, system failures etc. to implement preventive and corrective actions
Classroom Aids	
Charts, Models, Video presentation, Flip Chart, Whiteboard/Smart Board, Marker, Board eraser	
Tools, Equipment and Other Requirements	
WMS(Learning version), Computer, enterprise resource planning (ERP), warehouse design software, inventory models, stationery, SOP, MS Office, bar code readers, pallets, MHE, RFID and its software etc.	

Module 12: Cold chain warehouse management

Mapped to LSC/N0113, v1.0

Terminal Outcomes:

- Demonstrate the steps to be followed for effective cold chain warehouse management

Duration: 30:00	Duration: 30:00
<p>Theory – Key Learning Outcomes</p> <ul style="list-style-type: none"> • List the parameters to be analysed to design the cold storage warehouse • Discuss the factors to be considered for designing warehouse layout and storage location • Detail the safe storage standards for refrigerant and gasses (ethylene etc.) • State the temperature, humidity and product handling standards as per SOP • Detail the process of segregation, sorting, grading and ripening operations as per product requirements and SOP • Discuss the HACCP and HAZMAT regulations for different types of goods to provide inputs • Describe the operational fitness requirements of various equipment in cold chain warehouse • Detail the safety requirements to be followed for various types of products • Detail the compliance requirements of reefer vehicle operations • State the cold chain warehouse operational metrics relating to employee operations, work completion status, temperature maintenance, resource utilized, down time etc. 	<p>Practical – Key Learning Outcomes</p> <ul style="list-style-type: none"> • Analyse types of products being stored, their volume, turn-around time and other business requirements to design the cold chain warehouse • Design warehouse layout and storage location to comply with the various storage and temperature requirements for different products • Assess safe storage of refrigerant and gasses (ethylene etc.) • Plan for evacuation routes, storage racks, pallets, and other equipment in cold chain warehouse • Monitor compliance to temperature, humidity and product handling as per SOP • Assess compliance of segregation, sorting, grading and ripening operations as per product requirements and SOP • Analyse implementation of HACCP and HAZMAT regulations for different types of goods to provide inputs • Check the operational fitness requirements of various equipment in cold chain warehouse • Demonstrate the safety requirements to be followed for various types of products • Monitor compliance of reefer vehicle operations to temperature and delivery timelines <ul style="list-style-type: none"> • Prepare reports on cold chain warehouse operational metrics relating to employee operations, work completion status, temperature maintenance, resource utilized, down time etc.
Classroom Aids	
Charts, Models, Video presentation, Flip Chart, Whiteboard/Smart Board, Marker, Board eraser	
Tools, Equipment and Other Requirements	
WMS(Learning version), ERP, MS Office, cold storage facility, temperature control systems, HACCP and HAZMAT guidelines, stationery, demarcation equipment, SOP, computer, projector, worksheets, etc	

Module 13: Dry bulk warehouse management

Mapped to LSC/N0114, v1.0

Terminal Outcomes:

- Demonstrate the steps to be followed for effective management of dry bulk warehouse

Duration: 30:00	Duration: 30:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none"> • List the parameters to be analysed to design the dry bulk warehouse • Detail the method to plan the right storage method based on temperature, humidity and other conditions required • State the factors on which the storage site depends • State the standards for safe handling of MHE equipment • Detail the handling and storage safety requirements to be followed for various types of products • Detail the process to reduce product loss by analysing pest/rodent control measure, spillages/breakages and implementing necessary preventive and corrective actions • Explain the various operational metrics relating to employee operations, work completion status, resource utilized, down time, spillages etc. 	<ul style="list-style-type: none"> • Analyse product/commodity nature, volume, turn-around time and other business requirements to design the dry bulk warehouse • Plan the right storage method based on temperature, humidity and other conditions required • Assess storage site based on <ul style="list-style-type: none"> ○ ground condition and suitability ○ cargo size, weight, height and size of stows/heaps ○ electrical installations ○ stack integrity and product flow dynamics ○ arrangements for both operational and emergency situations, traffic, requirements for permanent or movable bulk walls and maintenance cleaning requirements ○ likely vehicle fumes in bulk storage areas ○ other operational units in the vicinity ○ type of equipment going to be deployed • Propose layout and routes for safe handling of MHE equipment • Plan systems to continuously monitor cargo volume and warehouse utilisation • Demonstrate handling and storage safety requirements to be followed for various types of products • Minimise product loss by analysing pest/rodent control measure, spillages/breakages and implementing necessary preventive and corrective actions • Prepare reports on dry bulk warehouse operational metrics relating to employee operations, work completion status, resource utilized, down time, spillages etc.
Classroom Aids	
Charts, Models, Video presentation, Flip Chart, Whiteboard/Smart Board, Marker, Board eraser	
Tools, Equipment and Other Requirements	
WMS(Learning version), ERP, MS Office, stationery, demarcation equipment, MHE and conveyor controls, SOP, computer, projector, worksheets, etc.	

Module 14: Bonded warehouse management

Mapped to LSC/N0115, v1.0

Terminal Outcomes:

- Demonstrate the steps to be followed for effective bonded warehouse management

Duration: 30:00	Duration: 30:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none"> • Explain the importance of assessing site fitness for bonded • Detail the bonded warehouse layout regulations • Detail the standards for safe handling of MHE equipment • Explain the documentation to be maintained in bonded warehouse • Describe the relationship to be maintained with customs, brokers, transporters, clients, IATA agents, insurance agents etc for timely inspection, customs clearance and delivery of goods • Explain dispute resolution and grievance redressal process in-case of any discrepancies in export/import documentation • State the legal regulations governing bonded warehouses 	<ul style="list-style-type: none"> • Assess site fitness for bonded warehouse in terms of industrial development, licenses, products handled, turnaround time, etc. • Inspect compliance of design to regulations • Propose layout and routes for safe handling of MHE equipment • Plan systems to continuously monitor cargo flow and warehouse utilisation • Prepare documentation to be maintained in bonded warehouse • Prepare bonds for goods stored in warehouse • Establish good relationship with customs, brokers, transporters, clients, IATA agents, insurance agents etc for timely inspection, customs clearance and delivery of goods • Demonstrate dispute resolution and grievance redressal process in-case of any discrepancies in export/import documentation • Review operational parameters, challenges, equipment maintenance, asset utilisation, accidents etc to implement preventive and corrective actions • Apply opportune changes or updates in accordance to the legal regulations governing bonded warehouse
Classroom Aids	
Charts, Models, Video presentation, Flip Chart, Whiteboard/Smart Board, Marker, Board eraser	
Tools, Equipment and Other Requirements	
WMS(Learning version), ERP, MS Office, stationery, demarcation equipment, SOP, computer, projector, customs documentation, worksheets, etc.	

Module 15: Bid process management

Mapped to LSC/N9702, v1.0

Terminal Outcomes:

- Demonstrate the steps for bid process management as per SOP

Duration: 30:00	Duration: 30:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none"> • Describe activities to identify new business proposals • Detail the methodology of analysing technical requirement of the tender specification as mentioned in the Request for Proposal (RFP) • Explain the process of conducting preliminary feasibility study and cost analysis of the tender based on CAPEX and OPEX requirements • Describe work allocation to various internal teams for proposal preparation • Calculate CAPEX, OPEX, project quote • Explain the reviewing process of proposal for compliance to all tender requirements • Discuss the process for client relationship management 	<ul style="list-style-type: none"> • Identify new business proposals as per SOP • Analyse technical requirement of the tender specification as mentioned in the Request for Proposal (RFP) • Prepare preliminary feasibility study and cost analysis of the tender based on CAPEX and OPEX requirements • Review queries on bid scope with client • Allocate work to various internal teams for proposal preparation • Prepare CAPEX, OPEX, project quote in discussion with engineering, procurement, implementation, operations, HR and finance team • Review the proposal for compliance to all tender requirements • Establish good relationship with clients
Classroom Aids	
Charts, Models, Video presentation, Flip Chart, Whiteboard/Smart Board, Marker, Board eraser	
Tools, Equipment and Other Requirements	
WMS(Learning version), Computer, Enterprise Resource Planning (ERP), MS office, stationery, worksheets, SOP etc	

Annexure

Trainer Requirements

Trainer Prerequisites						
Minimum Educational Qualification	Specialization	Relevant Industry Experience		Training Experience		Remarks
		Years	Specialization	Years	Specialization	
Graduate	Warehousing	2	Warehousing	1	Warehousing	

Trainer Certification	
Domain Certification	Platform Certification
Certified for Job Role: “Warehouse Manager” mapped to QP: “LSC/Q0103, v2.0”. 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” with minimum score of 80%

Assessor Requirements

Assessor Prerequisites						
Minimum Educational Qualification	Specialization	Relevant Industry Experience		Training/Assessment Experience		Remarks
		Years	Specialization	Years	Specialization	
Graduate	NA	1	Warehousing	1	warehousing	

Assessor Certification	
Domain Certification	Platform Certification
Certified for Job Role: “Warehouse Manager” mapped to QP: “LSC/Q0103, v2.0”. Minimum accepted score is 80%	Recommended that the Assessor is certified for the Job Role: “Assessor (VET and Skills)”, mapped to the Qualification Pack: “MEP/Q2701, V2.0” with minimum score of 80%

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 logbook 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
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
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