



Model Curriculum

QP Name: Material Handling Equipment (MHE) Maintenance Technician

QP Code: LSC/Q2315

QP Version: 3.0

NSQF Level: 4

Model Curriculum Version: 3.0

Logistics Sector Skill Council, Ground Floor, Temple Tower, No.476, Anna Salai, Nandanam, Chennai, Tamil Nadu, 600035



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Training Parameters

Sector	Logistics
Sub-Sector	Warehousing (Storage & Packaging)
Occupation	MHE Maintenance Technician
Country	India
NSQF Level	4
Aligned to NCO/ISCO/ISIC Code	NCO-2004/7231.90
Minimum Educational Qualification and Experience	11th grade pass + No Experience required or Completed 1st year of 3-year diploma (after 10th) and pursuing regular diploma + No Experience required or 10th grade pass plus 1-year NTC/ NAC + No Experience required or 8th grade pass plus 2-year NTC + 1 Year NAC or 8th pass plus 1-year NTC + 1-Year NAC plus CITS + No Experience required or 10th grade pass and pursuing continuous schooling + No Experience required or 10th Grade Pass + 2 year relevant experience or Previous relevant Qualification of NSQF Level 3.0 with minimum education as 5th Grade pass + 2 year relevant experience or Previous relevant Qualification of NSQF Level 3.5 + 1 year relevant experience
Pre-Requisite License or Training	Trained in operating and maintaining MHE
Minimum Job Entry Age	18 Years
Last Reviewed On	27/01/2022
Next Review Date	27/01/2025
NSQC Approval Date	27/01/2022
QP Version	3.0
Model Curriculum Creation Date	13/08/2021



Model Curriculum Valid Up to Date	27/01/2025
Model Curriculum Version	3.0
Minimum Duration of the Course	450 hrs
Maximum Duration of the Course	450 hrs

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 structure and function of supply chain
- Identify various activities in warehousing
- Detail the various tasks to be performed while preparing for maintenance
- Perform maintenance operations as per standard operating procedure
- Perform the necessary tasks post maintenance
- Demonstrate health, safety and security measures while carrying out maintenance activities

Compulsory Modules

The table lists the modules and their duration corresponding to the Compulsory NOS of the QP.

NOS and Module Details	Theory Duration	Practical Duration	On-the-Job Training Duration (Mandatory)	On-the-Job Training Duration (Recommended)	Total Duration
Bridge Module	20:00	10:00	00:00	00:00	30:00
Module 1: Introduction to MHE Maintenance Technician	20:00	10:00	00:00	00:00	30:00
LSC/N2321: Prepare for maintenance NOS Version 1.0 NSQF Level 4	20:00	60:00	10:00	00:00	90:00
Module 2: Preparation for Maintenance	20:00	60:00	10:00	00:00	90:00
LSC/N2322: Perform Maintenance Operations NOS Version 1.0 NSQF Level 4	20:00	90:00	10:00	00:00	120:00

Module 3: Maintenance Operations	20:00	90:00	10:00	00:00	120:00
LSC/N2323: Perform Post Maintenance Activities NOS Version 1.0 NSQF Level 4	20:00	60:00	10:00	00:00	90:00
Module 4: Post Maintenance Activities	20:00	60:00	10:00	00:00	90:00
LSC/N2330: Maintain Health, Safety and Security measures for carrying out maintenance activities on MHE NOS Version 1.0 NSQF Level 4	10:00	50:00	00:00	00:00	60:00
Module 5: Compliance to Health, Safety and Security Measures	10:00	50:00	00:00	00:00	60:00
Employability Skill Module	30:00	30:00	00:00	00:00	60:00
Total Duration	120:00	300:00	30:00	00:00	450:00

Module Details

Module 1: Introduction to MHE Maintenance Technician

Mapped to Bridge Module

Terminal Outcomes:

- Describe the basic structure and function of supply chain
- Detail the various functions of MHE Maintenance Technician

Duration: 20:00	Duration: 10:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none"> • Describe Supply Chain and Logistics Management • Detail the various sub-sectors and the opportunities in them • Explain warehousing industry and opportunities in it • Detail your job role as MHE Maintenance Technician and its interface with other job roles • Discuss the employment opportunities in warehousing industry 	<ul style="list-style-type: none"> • Identify various sub-sectors and the opportunities in them • Identify various activities in warehousing industry • Perform your job role as MHE Maintenance Technician • Identify the employment opportunities in warehousing
Classroom Aids:	
Charts, Models, Video presentation, Flip Chart, Whiteboard/Smart Board, Marker, Board eraser	
Tools, Equipment and Other Requirements	
Teaching board, Computer, Projector, Video player or TV	

Module 2: Preparation for Maintenance

Mapped to LSC/N2321, v1.0

Terminal Outcomes:

- Detail the various tasks to be performed while preparing for maintenance

Duration: 20:00	Duration: 60:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none"> • Detail the various tasks to be performed while preparing for maintenance • List the various documents and information to be collected from supervisor for maintenance • Explain the process of prioritizing the machines or equipments to be checked first • Detail the process of planning the sequence for maintenance 	<ul style="list-style-type: none"> • Identify the different types of goods and their classification • Prioritize the machines or equipments which are to be checked first • Demonstrate the usage of various PPEs • Demonstrate various forms required by the store
Classroom Aids:	
Charts, Models, Video presentation, Flip Chart, Whiteboard/ Smart Board, Marker, Board eraser	
Tools, Equipment and Other Requirements	
Teaching board, Computer, Projector, PPEs, checklists, tools and supplies	

Module 3: Maintenance Operations

Mapped to LSC/N2322, v1.0

Terminal Outcomes:

- Demonstrate the various maintenance operations

Duration: 20:00	Duration: 90:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none"> • Describe the various maintenance operations • Details the steps involved in preventive maintenance • List the steps to be followed during breakdown maintenance • Explain the testing process of MHE as per SOP 	<ul style="list-style-type: none"> • Perform various maintenance operations as per SOP • Perform the various checks in case of preventive maintenance • Demonstrate the checks to be performed during breakdown maintenance • Report deviations as per escalation matrix
Classroom Aids:	
Charts, Models, Video presentation, Flip Chart, Whiteboard/Smart Board, Marker, Board eraser	
Tools, Equipment and Other Requirements	
PPEs, tools and supplies	

Module 4: Post Maintenance Activities

Mapped to LSC/N2323, v1.0

Terminal Outcomes:

- Discuss the various tasks to be performed post maintenance

Duration: 20:00	Duration: 60:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none"> • Discuss the various activities to be performed after maintenance activities • Detail the inspection process of the work area • Explain the importance of housekeeping • Detail the documentation requirements in post maintenance activities • Explain how to prepare daily reports regarding damage, condition of equipment etc. 	<ul style="list-style-type: none"> • Perform the various activities after maintenance • Perform disposal of components as per company policy • Inspect the work area for proper maintenance • Identify the documentation requirements in post maintenance activities • Prepare various reports such as daily reports, damage reports etc. •
Classroom Aids:	
Charts, Models, Video presentation, Flip Chart, Whiteboard/Smart Board, Marker, Board eraser	
Tools, Equipment and Other Requirements	
Teaching board, Computer, Projector	

Module 5: Compliance to Health, Safety and Security Measures

Mapped to LSC/N2330, v1.0

Terminal Outcomes:

- Demonstrate health, safety and security measures for carrying out maintenance activities

Duration: 10:00	Duration: 50:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none"> • Detail health, safety and security procedures while carrying out maintenance activities • Explain the importance of safety equipment including protective gear, helmets etc. • Detail the inspection procedure for activity area and equipment 	<ul style="list-style-type: none"> • Demonstrate health and safety procedures while carrying out maintenance activities • Identify the reasons for occurrence of accident • Follow organization procedures with respect to documentation • Show the usage of safety equipment including protective gear, helmets etc. when checking inbound/outbound consignments. • Inspect the activity area and equipment for appropriate and safe condition.
Classroom Aids:	
Charts, Models, Video presentation, Flip Chart, Whiteboard/Smart Board, Marker, Board eraser	
Tools, Equipment and Other Requirements	
Teaching board, Computer, Projector, Workshop Safety: Fire extinguishers, First Aid kits, Safety signs, SOP Charts on safety norms and drills, Charts of Do's and Don'ts in work area	

Module 8: Employability Skills

Mapped to DGT/VSQ/N0102, 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: 30:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none"> • Discuss the Employability Skills required for jobs in various industries • 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 importance of relevant 21st century skills. • Describe the benefits of continuous learning. • Explain the importance of active listening for effective communication • Discuss the significance of working collaboratively with others in a team • Discuss the significance of escalating sexual harassment issues as per POSH act. • List the common components of salary and compute income, expenditure, taxes, investments etc. • Discuss the legal rights, laws, and aids • Describe the role of digital technology in today's life • Discuss the significance of displaying responsible online behaviour while browsing, using various social media platforms, e-mails, etc., safely and securely • Explain the types of entrepreneurship and enterprises • Discuss how to identify opportunities for potential business, sources of funding and 	<ul style="list-style-type: none"> • Practice different environmentally sustainable practices. • Exhibit 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. • Demonstrate to use basic English sentences for everyday conversation in different contexts, in person and over the telephone • Read and interpret text written in basic English • Write a short note/paragraph / letter/e - mail using basic English • Create a career development plan with well-defined short- and long-term goals • Communicate effectively using verbal and nonverbal communication etiquette. • Demonstrate how to behave, communicate, and conduct oneself appropriately with all genders and PwD • Outline the importance of selecting the right financial institution, product, and service • Demonstrate how to carry out offline and online financial transactions, safely and securely • Operate digital devices and use the associated applications and features, safely and securely • Create sample word documents, excel sheets and presentations using basic features

<p>associated financial and legal risks with its mitigation plan</p> <ul style="list-style-type: none"> • Describe the 4Ps of Marketing-Product, Price, Place and Promotion and apply them as per requirement • Detail the significance of analyzing different types and needs of customers • Explain the significance of identifying customer needs and responding to them in a professional manner. • Discuss the significance of maintaining hygiene and dressing appropriately • Explain the significance of maintaining hygiene and confidence during an interview • List the steps for searching and registering for apprenticeship opportunities 	<ul style="list-style-type: none"> • Utilize virtual collaboration tools to work effectively • Devise a sample business plan, for the selected business opportunity • Create a professional Curriculum Vitae (CV) • Use various offline and online job search sources such as employment exchanges, recruitment agencies, and job portals respectively • Perform a mock interview
<p>Classroom Aids</p>	
<p>Charts, Models, Video presentation, Flip Chart, Whiteboard/Smart Board, Marker, Board eraser, UPS, LCD Projector, Computer Tables & chairs</p>	
<p>Tools, Equipment and Other Requirements</p>	
<p>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</p>	

Annexure

Trainer Requirements

Trainer Prerequisites						
Minimum Educational Qualification	Specialization	Relevant Industry Experience		Training Experience		Remarks
		Years	Specializations	Years	Specializations	
12 th pass		2		1		Specialized in Warehousing services

Trainer Certification	
Domain Certification	Platform Certification
Certified for Job Role: “Material Handling Equipment (MHE) Maintenance Technician” mapped to QP: “LSC/Q2315, v3.0” with minimum score of 80%.	Recommended that the Trainer is certified for the Job Role: “Trainer”, mapped to the Qualification Pack: “MEP/Q2601” with minimum score of 80%.

Assessor Requirements

Assessor Prerequisites						
Minimum Educational Qualification	Specialization	Relevant Industry Experience		Training/Assessment Experience		Remarks
		Years	Specialization	Years	Specialization	
12 th pass		2		1		Specialized in warehousing services

Assessor Certification	
Domain Certification	Platform Certification
Certified for Job Role: "Material Handling Equipment (MHE) Maintenance Technician" mapped to QP: "LSC/Q2315, v3.0" with minimum score of 80%.	Recommended that the Trainer is certified for the Job Role: "Assessor", mapped to the Qualification Pack: "MEP/Q2701" 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 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
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).
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