Model Curriculum

QP Name: Automotive Tool Room Lead Technician

QP Code: ASC/Q4102

QP Version: 2.0

NSQF Level: 5

Model Curriculum Version: 1.0

Automotive Skills Development Council | 153, Gr Floor, Okhla Industrial Area, Phase – III, Leela Building, New Delhi – 110020

Table of Contents

Training Parameters

Sector	Automotive
Sub-Sector	Manufacturing
Occupation	Tool Room Operation
Country	India
NSQF Level	5
Aligned to NCO/ISCO/ISIC Code	NCO-2015/3115.1302
Minimum Educational Qualification and Experience	10th Class + I.T.I (Fitter/Turner/Machinist) with 2 Years of relevant experience OR 12th Class with 4 years relevant experience OR 3 years Diploma (Mechanical/Automobile) from a recognized body (after class 12th) OR Certificate-NSQF (Automotive Tool Room Technician Level 4) with 2 Years of relevant experience
Pre-Requisite License or Training	NA
Minimum Job Entry Age	20 years
Last Reviewed On	30/09/2021
Next Review Date	30/09/2024
NSQC Approval Date	30/09/2021
QP Version	2.0
Model Curriculum Creation Date	30/09/2021
Model Curriculum Valid Up to Date	30/09/2024
Model Curriculum Version	1.0
Minimum Duration of the Course	540 Hours 00 Minutes
Maximum Duration of the Course	540 Hours 00 Minutes

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 should have acquired the listed knowledge and skills.

- Support the technicians and operators in performing machining and assembly operations.
- Prepare shift plans, manage operational productivity and measure employee performance in the Shift/ Line on a day to day basis.
- Identify and implement process improvement techniques on the shop floor.
- Maintain quality standards and manage organizational resources efficiently and effectively.
- Work effectively and efficiently as per schedules and timelines.
- Implement safety practices.
- Use resources optimally to ensure less wastage and maximum conservation.
- Communicate effectively and develop interpersonal skills.

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	**05:00**	**00:00**			**05:00**
Module 1: Introduction to the role of an Automotive Tool Room Lead Technician	5:00	0:00			5:00
ASC/N9810: Manage work and resources (Manufacturing) NOS Version No. – 1.0 NSQF Level – 5	**20:00**	**40:00**	-	-	**60:00**
Module 2: Manage work and resources according to safety and conservation standards	20:00	40:00	-	-	60:00
ASC/N9812 – Interact effectively with team, customers and others NOS Version No. 1.0 NSQF Level 5	**20:00**	**35:00**			**55:00**
Module 3: Communicate effectively and efficiently	20:00	35:00			55:00
ASC/N4106 – Manage shop floor tool room operations and team NOS Version No. – 1.0 NSQF Level – 5	**60:00**	**120:00**			**180:00**

Module 4: Manage shop floor operations and team	60:00	120:00			180:00
ASC/N4105 – Supervise various operations related to tool and die manufacturing NOS Version No. – 2.0 NSQF Level – 5	**90:00**	**150:00**			**240:00**
Module 5: Supervise preparatory and machining activities	30:00	90:00			120:00
Module 6: Supervise assembly and post-production activities	60:00	50:00			120:00
Total Duration	**195:00**	**345:00**			**540:00**

Module Details

Module 1: Introduction to the role of an Automotive Tool Room Lead Technician

Bridge module

Terminal Outcomes:

- Discuss the role and responsibilities of an Automotive Tool Room Lead Technician.

Duration: *<05:00>*	**Duration**: *<00:00>*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• List the role and responsibilities of an Automotive Tool Room Lead Technician. • Discuss the job opportunities of an Automotive Tool Room Lead Technician in an automobile industry. • Explain about Indian automotive market. • List various automobile Original Equipment Manufacturers (OEMs) and different products/ models manufactured by them. • Discuss the standards and procedures involved in the different processes of tool and die manufacturing. • Identify the standard checklists and schedules recommended by OEM.	
Classroom Aids:	
Whiteboard, marker pen, projector	
Tools, Equipment and Other Requirements	

Module 2: Manage work and resources according to safety and conservation standards

Mapped to ASC/N9810, v1.0

Terminal Outcomes:

- Employ appropriate ways to maintain safe and secure working environment
- Apply material and energy conservation practices at the workplace.

Duration: *<20:00>*	**Duration**: *<40:00>*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Discuss organisational procedures for health, safety and security and individual role and responsibilities related to the same. • List the potential workplace related risks, threats and hazards, their causes and preventions. • List personal protective equipment like safety gloves, glasses, shoes and mask used at the workplace. • List various types of fire extinguisher. • Identify various safety boards/ signs placed on the shop floor. • Explain 5S standards, procedures and policies followed at workplace. • Discuss organisational procedures to deal with emergencies and accidents at the workplace and importance of following them. • State the importance of conducting safety drills or training sessions. • Explain the process of filling daily check sheet for reporting to the concerned authorities about improvements done and risks identified. • Discuss how and when to report about potential hazards identified in the workplace and limits of responsibility for dealing with them. • Outline the importance of keeping workplace, equipment, restrooms etc. clean and sanitised. • Explain the importance of following hygiene and sanitation regulations developed by organisation at the workplace. • Discuss the importance of maintaining the availability of running water, hand wash and alcohol-based sanitizers at the	• Apply appropriate ways to implement safety practices to ensure safety of people at the workplace. • Display the correct way of wearing and disposing PPE. • Demonstrate the use of fire extinguisher. • Demonstrate how to provide first aid procedure in case of emergencies. • Demonstrate how to evacuate the workplace in case of an emergency. • Employ various techniques for checking malfunctions in the machines with the support of maintenance team and as per Standard Operating Procedures (SOP). • Demonstrate to arrange tools/ equipment/ fasteners/ spare parts into proper trays, cabinets, lockers as mentioned in the 5S guidelines/work instructions. • Apply appropriate ways to organise safety drills or training sessions for others on the identified risks and safety practices. • Prepare a report about the health, safety and security breaches. • Apply appropriate ways to check that workplace, equipment, restrooms etc. are cleaned and sanitised. • Role play a situation to brief the team about the hygiene and sanitation regulations developed by organisation. • Demonstrate the correct way of washing hands using soap and water and alcohol-based hand rubs. • Apply appropriate methods to support the employees to cope with stress, anxiety etc. • Demonstrate proper waste collection and disposal mechanism depending upon types of waste.

workplace. • Discuss the significance of conforming to basic hygiene practices such as washing hands, using alcohol based hand sanitizers or soap. • Recall ways of reporting advanced hygiene and sanitation issues to the concerned authorities. • Elucidate various stress and anxiety management techniques. • Discuss the significance of greening. • Classify different categories of waste for the purpose of segregation. • Differentiate between recyclable and non-recyclable waste. • Discuss various methods of waste collection and disposal. • List the various materials used at the workplace. • Explain organisational recommended norms for storage of tools, equipment and material. • Discuss the importance of efficient utilisation of material and water. • Explain basics of electricity and prevalent energy efficient devices. • Explain the processes to optimize usage of material and energy/electricity. • Enlist common practices for conserving electricity at workplace.	• Perform the steps involved in storage of tools, equipment and material after completion of work. • Employ appropriate ways to resolve malfunctioning (fumes/ sparks/ emission/ vibration/ noise) and lapse in maintenance of equipment as per requirements. • Perform the steps to prepare a sample material and energy audit reports. • Employ practices for efficient utilization of material and energy/electricity.
Classroom Aids:	
Whiteboard, marker pen, projector	
Tools, Equipment and Other Requirements	
• Housekeeping material: Cleaning agents, cleaning cloth, waste container, dust pan and brush set, liquid soap, hand towel, fire extinguisher • Safety gears: Safety shoes, ear plug, goggles, gloves, helmet, first-aid kit	

Module 3: Communicate Effectively and Efficiently

Mapped to ASC/N9812, v1.0

Terminal Outcomes:

- Use effective communication and interpersonal skills.
- Apply sensitivity while interacting with different genders and people with disabilities.

Duration: *<20:00>*	**Duration**: *<35:00>*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Explain the importance of complying with organizational requirements to share information with team members. • Discuss the ways to adjust the communication styles to reflect sensitivity towards gender and persons with disability (PwD). • Explain the importance of respecting personal space of colleagues and customers. • Describe the ways to manage and coordinate with team members for work integration. • State the importance of team goals over individual goals, keeping commitment made to team members, and informing them in case of delays. • Discuss the importance of following the organisation's policies and procedures • Discuss the importance of rectifying errors as per feedback and minimizing mistakes. • Discuss gender-based concepts, issues and legislation as well organization standards, guidelines, rights and duties of PwD. • Discuss the importance of PwD and gender sensitization to ensure that team shows sensitivity towards them. • State the importance of following organizational standards and guidelines related to PwD. • Recall the rights and duties at workplace with respect to PwD. • Outline organisation policies and procedures pertaining to written and verbal communication.	• Employ different means and methods of communication depending upon the requirement to interact with the team members. • Employ appropriate ways to maintain good relationships with team members and superiors. • Apply appropriate techniques to resolve conflicts and manage team members for smooth workflow. • Conduct training sessions to train the team members on proper reporting of completed work and receiving feedback. • Employ suitable ways to escalate problems to superiors as and when required. • Prepare a sample report on the progress and team performance . • Role play a situation on how to offer help to people with disability (PwD) if required at work.
Classroom Aids:	
Whiteboard/blackboard, marker/chalk, duster, computer or Laptop attached to LCD projector	
Tools, Equipment and Other Requirements	

Module 4: Manage shop floor operations and team

Mapped to ASC/N4106, v1.0

Terminal Outcomes:

- Demonstrate ways to implement process improvement techniques.
- Prepare shift rosters and production MIS reports.
- Perform various activities such as maintaining availability of material, arranging trainings and maintaining production data related to employee performance measurement and development.

Duration: *<60:00>*	**Duration**: *<120:00>*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Elucidate procedure of planning manpower shift and preparing shift rosters on day to day basis as per the organisational norms and guidelines. • Discuss ways to reduce production losses and wastages in the production and increase minimum rejection of components during shift operation. • List improvement areas in the production line and corrective measures for following the identified gaps. • Explain process improvement techniques, Kaizens, TQM, Poka Yoke etc. and their impact on the production line to rectify the failure and gaps in the production process. • Identify ways for analysing breakdown trends and current maintenance process and areas of improvement in it. • Discuss corrective measures for reducing the breakdown and improving the maintenance process. • Describe use of ERP system for maintaining and updation production line data. • Discuss the documents and reports needed to maintain and prepare related to production process. • Discuss the importance and ways of involving employees in various engagement and development activities such as trainings, meets, brainstorming sessions, safety drills etc. organised in the plant. • List different types of information such as production targets, new guidelines, new processes etc. to be shared with team.	• Prepare a plan for allocating manpower shifts based on the skills matrix. • Prepare shift rosters for the week and month based on the production plan to support the Shift In Charge/ Process head/ Shop head. • Apply appropriate ways for maintaining the information of leaves, IN-Out time and shift/ line overtime for the operators and helpers and sharing it with the concerned authorities. • Apply organisational specified procedures to send inventory requirements and follow up with the stores and purchase department for timely receipt of material. • Employ appropriate ways to maintain the movement and availability of required material, tools and equipment on shop floor within specified TAKT. • Demonstrate ways for using the resources and streamlining the activities effectively on shop floor. • Apply appropriate ways to communicate required information to other departments and resolving production related queries to achieve required production target and quality standards. • Role play a situation on how to implement ways to reduce losses and wastages and increase minimum rejection of components during shift operation. • Prepare MIS reports of daily and monthly production to match the production and target achieved and report to the production Incharge. • Apply appropriate ways to verify the correctness of production and material

• Discuss the importance of organising training sessions and making the team aware of the new processes, inputs and outputs. • Discuss organizational structure to be followed to escalate and resolve issues related to team personal grievances/ complaints etc. • List various grievance and problem solving tools utilized in an organisation.	movement related data entries in the system (manual/ ERP) for the line/ shift. • Prepare the preventive maintenance schedule for the shop/ line and execute it on time. • Employ ways to analyse the various data sheets and reports related to production, maintenance, manpower deployment etc. to support the In charge/ Engineer/ Shop Head. • Apply ways to analyse improvement areas in the production line and identify corrective measures for the identified gaps. • Show how to audit production process for capability of each operation. • Perform steps to prepare sample report on the non-compliances for the regulatory authorities. • Employ appropriate ways to implement Kaizens, TQM, Poka Yoke etc. in the production line. • Apply ways to analyse breakdown trends and current maintenance process and identify corrective measures for the identified gaps. • Perform steps to monitor and review the effectiveness of process improvement techniques and corrective actions on production and preparing reports for the regulatory authorities. • Role play a situation on how to encourage team members for suggesting process improvement measures and their implementation process. • Apply ways to conduct daily floor meeting/ morning meetings/ staff meetings and share information to team such as production targets, new guidelines, new processes etc. • Show how to organise training sessions for team to enhance their skills and knowledge. • Demonstrate organisational specified procedure to identify, escalate and resolve team problems/ work grievances/ complaints etc. • Role play a situation on how to counsel employees for any work related issues or any personal problems.
Classroom Aids:	
Whiteboard, marker pen, projector	

Tools, Equipment and Other Requirements
• Basic tool box, Work bench with vice • Sampling tools, sample rejection data • Case studies, shift planning document or software

Module 5: Supervise preparatory and machining activities

Mapped to ASC/N4105, v2.0

Terminal Outcomes:

- Identify tools and equipment required for machining and assembly operations.
- Perform the steps to carry out preparatory activities such as preparing plan, inspection of tools and equipment, selection of workpiece etc.
- Demonstrate various types of machining processes such as drilling, boring, turning etc.

Duration: *<30:00>*	**Duration**: *<90:00>*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Describe basic process followed for tool and die manufacturing. • Explain different types of machining processes. • Discuss operational fundamentals of conventional and CNC machine. • Discuss the information derived from the job orders, engineering drawings and SOP's. • Discuss how to take inputs from the master technician for production planning. • List jigs and fixtures, tools, equipment, accessories and measuring instruments required during the machining and assembling work. • Summarise the steps to be performed for checking the availability and functioning of tools, measuring instruments, equipment, and machines required. • Summarise the steps to be performed for setting of machining and assembly apparatus and their parameters as per the requirements. • Discuss the importance of maintaining machining and assembly parameters as per the Work Instructions (WI) and their impact on quality and quantity of output product. • Discuss the importance of selecting correct program in the CNC machine for machining operation as per the work instructions. • Discuss the importance of supervising the machining operations and mass production process of components. • Discuss the importance of monitoring process parameters during the machining and correcting them as per the	• Read the engineering drawing, Work Instructions, SOPs for identifying work requirements and selecting machining and assembling operations, equipment and apparatus. • Perform the steps to prepare plan and schedule for machining and assembling activities to meet the production target. • Role play a situation on how to give instructions to the tool room technicians about the processes needed to be performed for achieving the production target. • Apply appropriate ways to check the availability of tools, measuring instruments, equipment and machines required. • Demonstrate the standard operating procedure to use tools, measuring instruments, equipment and machines required during job. • Read the control plan/check sheet to check the quality of input material. • Show how to calibrate and clean the tools, measuring instruments and equipment. • Perform steps to check that machining and assembly apparatus is set as per the work instructions. • Role play a situation on how to guide the team to set the machining and assembly parameters as per the work instructions. • Show how to program the CNC machine with required process parameters, requirements and modify it as per the production requirements and WI. • Demonstrate how to machine the first component and inspect it against the required specifications.

requirements. • List the steps to be performed for observing and recording machine performance. • Discuss the documents and records needed to be prepared and maintained related to machining activities done.	• Demonstrate organizational specified procedure of all machining processes such as drilling, boring, turning etc. • Demonstrate how to correct the tool settings to meet the required quality output. • Perform steps to run the machine for mass production after first machined component meets the specified requirements. • Employ appropriate ways for checking the machine operations for any defects in the component. • Role play a situation to communicate the defects in the machine and its components to supervisor/ maintenance team for correction. • Read the measurement gauges to monitor the process parameters and maintain the quality standards. • Prepare a sample record of data related to the loss time in case of machine stops and breakdown. • Drat a sample report for the supervisors and maintenance team on loss time in case of machine stops and breakdown.
Classroom Aids:	
Whiteboard, marker pen, projector	
Tools, Equipment and Other Requirements	
• PPT's, teaching aids, drawing / blue print, work order • **Raw Materials:** Metal blocks • Work Table With Bench Vice • **Machining tools/ equipment**: Surface marking plate, cutting tools, threading, dies & guides, etc. • **Machines:** Conventional lathe and vertical milling machine with standard accessories and Production CNC machining center with ATC • **Measuring equipment**: Vernier calipers, micrometre, feeler gauges, bore gauge, slip gauge, thickness gauge, steel ruler, measuring tape, height, gauge, dial gauge, angle plate, set square compass etc. • **Consumables:** Oil stones, Emery, Dressing stone, File cord, Tool post packing, Spares for cutting tools, Carbide inserts, Grinding Wheels etc. • **Hand book**, job orders, work order, completion material requests, and Technical Reference Books. • **Safety materials**: Fire extinguisher, portable welding curtains, leather safety gloves, leather aprons, safety glasses, helmet, safety shoe and first-aid kit • **Cleaning material**: Wire brush (M.S.), cleaning agents, cleaning cloth, waste container, dust pan and brush set, liquid soap, hand towel	

Module 6: Supervise assembly and post-production activities

Mapped to ASC/N4105, v2.0

Terminal Outcomes:

- Demonstrate various assembly operations such as bolting, torqueing, tightening, fitting, greasing, hammering, sealing, clamping etc.
- Perform assembly of tool and die parts.
- Perform steps to carry out post-production activities.

Duration: *<60:00>*	**Duration**: *<50:00>*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Explain various assembling operations such as bolting, tightening, riveting, fastening, adhesive clamping, crimping etc. • Discuss the impact of various assembly operations on the product. • Illustrate the process flow of assembly operations. • List tools, measuring instruments and accessories required during assembling work. • Discuss the importance of supervising the assembly operations. • Outline the process of assembly of tool and die parts by using mechanical, pneumatic, hydraulic and electrical controlled assembly tools. • Describe finishing operations such as filing, shimming, grinding and polishing. • State the importance of following the TAKT time prescribed by the process excellence team. • Discuss the do's and don'ts of the manufacturing process as per SOPs/ work instructions. • Recall the tasks to be performed post-assembly. • Summarise the commonly occurring defects in the assembled tools and dies. • Discuss the impact of defects on the quality of assembled tools and dies. • List the steps to be performed for random sampling and quality check of finished products and reporting to the concerned person or authority. • List the steps to be performed for spotting press operation and nitriding operation. • Explain the process of evaluating the	• Demonstrate organizational specified procedure of all assembly operations such as bolting, riveting, tightening, wire stripping, crimping, soldering, high frequency welding etc. • Employ appropriate assembly method for assembling of tool and die parts by using mechanical, pneumatic, hydraulic and electrical controlled assembly tools. • Apply appropriate ways to monitor that technicians are using specified screws, nuts, clamps, rivets for fitting the required components in vehicle. • Show how to remove extra material on the tool and die. • Show how to guide the technicians during finishing operations to get flat and contoured surface on assembled tools and dies. • Apply appropriate ways to manage any irregularities e.g. power failure, rejection, tool breakage etc. during production. • Demonstrate steps to be performed for random sampling and quality inspection of finished products and reporting to the concerned person or authority for corrective action. • Demonstrate organizational specified procedure of spotting press operation and nitriding operation. • Show how to support technicians in trials of tools and dies for checking any abnormalities in functioning and doing changes in the tool/ die, if required. • Demonstrate how to check that finished tools and dies are segregated, tagged and stored as per organisational guidelines. • Show how to conduct minor maintenance

equipment specified parameters for no abnormalities. • Discuss the process of segregating, tagging and storing of damaged and ok workpieces as per organisational guidelines. • List machine maintenance and repairing activities needed to be after completion of work. • Discuss the documents and records needed to be prepared and maintained related to tool and die manufacturing and maintenance activities done. • Discuss the necessary precautions to avoid any hazard and accident during tool and die manufacturing activities.	and repairing activities of machine and its components. • Apply ways to check the functioning of machine after maintenance activities.
Classroom Aids:	
Whiteboard, marker pen, projector	
Tools, Equipment and Other Requirements	
• PPT's, teaching aids, drawing / blue print, work order • **Measuring and marking tools:** Steel tape, steel rule, vernier calliper, micrometre, compass, divider, scriber, T Square, bevel protractor, pin set, torque meter etc. • **Assembly tools and equipment:** Riveting machine, drilling machine, riveting guns, pneumatic guns, fasteners, rubber seals, soldering iron, jigs, fixtures, adhesives • **Components:** Bolts, nuts, screws, wires, fasteners, connectors, sealants, adhesive bonding material etc. • **Lifting devices:** Hoists, cranes, bins, part trolleys, pallet trucks • **Safety materials**: Fire extinguisher, portable welding curtains, leather safety gloves, leather aprons, safety glasses, helmet, safety shoe and first-aid kit • **Cleaning material**: Wire brush (M.S.), cleaning agents, cleaning cloth, waste container, dust pan and brush set, liquid soap, hand towel	

Annexure

Trainer Requirements

Trainer Prerequisites						
Minimum Educational Qualification	**Specialization**	**Relevant Industry Experience**		**Training Experience**		**Remarks**
		Years	***Specialization***	***Years***	***Specialization***	
ITI	Turner/Fitter/ Electrician	7	Turner/ Fitter/Electrician	1	Turner/ Fitter/Electrician	NA
M.E./ M.Tech	Mechanical/ Automobile	2	Mechanical/ Automobile	2	Mechanical/ Automobile	NA
Diploma	Mechanical/ Automobile	5	Mechanical/ Automobile	1	Mechanical/ Automobile	NA
B.E./ B.Tech	Mechanical/ Automobile	4	Mechanical/ Automobile	1	Mechanical/ Automobile	NA
B.E./ B.Tech	Mechanical/ Automobile	5	Mechanical/ Automobile	0	Mechanical/ Automobile	NA

Trainer Certification	
Domain Certification	**Platform Certification**
"Automotive Tool Room Lead Technician, ASC/Q4102, version 2.0". Minimum accepted score is 80%.	"Trainer, MEP/Q2601 v1.0" Minimum accepted score is 80%.

Assessor Requirements

Assessor Prerequisites						
Minimum Educational Qualification	**Specialization**	**Relevant Industry Experience**		**Training/Assessment Experience**		**Remarks**
		Years	***Specialization***	***Years***	***Specialization***	
ITI	Turner/ Fitter/Electrician	8	Turner/ Fitter/Electrician	1	Turner/ Fitter/Electrician	NA
M.E./ M.Tech	Mechanical/ Automobile	3	Mechanical/ Automobile	2	Mechanical/ Automobile	**NA**
Diploma	Mechanical/ Automobile	6	Mechanical/ Automobile	1	Mechanical/ Automobile	**NA**
B.E./ B.Tech	Mechanical/ Automobile	5	Mechanical/ Automobile	1	Mechanical/ Automobile	**NA**
B.E./ B.Tech	Mechanical/ Automobile	6	Mechanical/ Automobile	0	Mechanical/ Automobile	**NA**

Assessor Certification	
Domain Certification	**Platform Certification**
"Automotive Tool Room Lead Technician, ASC/Q4102, version 2.0". Minimum accepted score is 80%.	"Assessor; MEP/Q2701 v1.0" Minimum accepted score is 80%.

Assessment Strategy

1. Assessment System Overview:
    - Batches assigned to the assessment agencies for conducting the assessment on SDMS/SIP or email
    - Assessment agencies send the assessment confirmation to VTP/TC looping SSC
    - Assessment agency deploys the ToA certified Assessor for executing the assessment
    - SSC monitors the assessment process & records

2. Testing Environment:
    - Confirm that the centre is available at the same address as mentioned on SDMS or SIP
    - Check the duration of the training.
    - Check the Assessment Start and End time to be as 10 a.m. and 5 p.m.
    - If the batch size is more than 30, then there should be 2 Assessors.
    - Check that the allotted time to the candidates to complete Theory & Practical Assessment is correct.
    - Check the mode of assessment—Online (TAB/Computer) or Offline (OMR/PP).
    - Confirm the number of TABs on the ground are correct to execute the Assessment smoothly.
    - Check the availability of the Lab Equipment for the particular Job Role.

3. Assessment Quality Assurance levels / Framework:
    - Question papers created by the Subject Matter Experts (SME)
    - Question papers created by the SME verified by the other subject Matter Experts
    - Questions are mapped with NOS and PC
    - Question papers are prepared considering that level 1 to 3 are for the unskilled & semi-skilled individuals, and level 4 and above are for the skilled, supervisor & higher management
    - Assessor must be ToA certified & trainer must be ToT Certified
    - Assessment agency must follow the assessment guidelines to conduct the assessment

4. Types of evidence or evidence-gathering protocol:
    - Time-stamped & geotagged reporting of the assessor from assessment location
    - Centre photographs with signboards and scheme specific branding
    - Biometric or manual attendance sheet (stamped by TP) of the trainees during the training period
    - Time-stamped & geotagged assessment (Theory + Viva + Practical) photographs & videos

5. Method of verification or validation:
    - Surprise visit to the assessment location
    - Random audit of the batch
    - Random audit of any candidate

6. Method for assessment documentation, archiving, and access
    - Hard copies of the documents are stored
    - Soft copies of the documents & photographs of the assessment are uploaded / accessed from Cloud Storage
    - Soft copies of the documents & photographs of the assessment are stored in the Hard Drives

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

NOS	National Occupational Standard(s)
NSQF	National Skills Qualifications Framework
QP	Qualifications Pack
TVET	Technical and Vocational Education and Training
SOP	Standard Operating Procedure
WI	Work Instructions
PPE	Personal Protective equipment