Model Curriculum

QP Name: Telecom Field Operations Coordinator

QP Code: TEL/Q6202

Version: 4.0

NSQF Level: 5.0

Model Curriculum Version: 4.0

Telecom Sector Skill Council || 3rd Floor, Plot No 126, Sector – 44 Gurgaon – 122003
Email: tssc@tsscindia.com

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Training Parameters

Sector	**Telecom**
Sub-Sector	Network Managed Services
Occupation	Network Operation and Maintenance
Country	India
NSQF Level	5.0
Aligned to NCO/ISCO/ISIC Code	NCO-2015/3114.0701
Minimum Educational Qualification and Experience	Completed 2nd year of 3-year/ 4-years UG (B.Tech/B.E. in Electronics Engineering/ Electrical Engineering/ Telecommunication Engineering) OR Completed 2nd year of diploma (after 12th) in Electronics and Communication Engineering/ Telecommunication Engineering/ Network Management and Security/ Wireless and Mobile Communication OR 12th Grade pass with 3-year experience in telecom field operations OR Previous relevant Qualification of NSQF Level 4 with 3-year experience in telecom field operations OR Previous relevant Qualification of NSQF Level 4.5 with 1.5 years of experience in telecom field operations
Pre-Requisite License or Training	NA
Minimum Job Entry Age	NA
Last Reviewed On	08-05-2025
Next Review Date	30-04-2028
NSQC Approval Date	08-05-2025
QP Version	4.0
Model Curriculum Creation Date	14-03-2025
Model Curriculum Valid Up to Date	30-04-2028
Model Curriculum Version	4.0
Minimum Duration of the Course	630 Hours

Maximum Duration of the Course	630 Hours

Program Overview

This section summarises 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 to:

- Explain the key steps involved in coordinating telecom field operations, including installation, maintenance, and repair activities.
- Discuss the importance of monitoring network performance to ensure optimal service delivery and minimize downtime.
- Describe the process of identifying, analyzing, and resolving faults in telecom infrastructure and equipment.
- Elucidate the role of safety protocols, regulatory compliance, and best practices in ensuring secure and efficient telecom operations.
- Elucidate the role of sustainability practices in telecom operations and their impact on the environment.
- Discuss the Employability and Entrepreneurship 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 (Hours)	Practical Duration (Hours)	On-the-Job Training Duration (Mandatory) (Hours)	On-the-Job Training Duration (Recommended) (Hours)	Total Duration (Hours)
TEL/N6208: Undertake Site Acceptance Testing **NOS Version No.: 4.0** **NSQF Level: 5.0**	**40:00**	**80:00**	**30:00**	**00:00**	**150:00**
Module 1: Introduction to the sector and the job role of a Telecom Field Operations Coordinator	05:00	00:00	00:00	00:00	05:00
Module 2: Perform Site Acceptance and Compliance Testing	45:00	70:00	30:00	00:00	145:00
TEL/N6209: Perform Preventive and Corrective Maintenance at Radio Locations **NOS Version No.: 4.0** **NSQF Level: 5.0**	**30:00**	**60:00**	**30:00**	**00:00**	**120:00**

Module 3: Perform Preventive Maintenance at Radio Locations	15:00	30:00	15:00	00:00	60:00
Module 4: Perform Corrective Maintenance at Radio Locations	15:00	30:00	15:00	00:00	60:00
TEL/N6210: Perform Change Management at Radio Locations **NOS Version No.: 5.0** **NSQF Level: 5.0**	**30:00**	**30:00**	**30:00**	**00:00**	**90:00**
Module 5: Assess and Prepare for Change Management at Radio Locations	15:00	15:00	15:00	00:00	45:00
Module 6: Execute and Document Change Management at Radio Locations	15:00	15:00	15:00	00:00	45:00
TEL/N6500: Undertake Fault Rectification **NOS Version No.: 4.0** **NSQF Level: 5.0**	**30:00**	**30:00**	**30:00**	**00:00**	**90:00**
Module 7: Fault Identification and Rectification in BSS Networks	30:00	30:00	30:00	00:00	90:00
TEL/N6501: Undertake Configuration Changes, Upgrades and Node Back-up Activities **NOS Version No.: 4.0** **NSQF Level: 5.0**	**30:00**	**60:00**	**00:00**	**00:00**	**90:00**
Module 8: Manage Configuration Changes and Backup Processes	30:00	60:00	00:00	00:00	90:00
TEL/N9109: Follow Sustainable Practices in Telecom Infrastructure Management **NOS Version No.: 1.0** **NSQF Level: 4.0**	**10:00**	**20:00**	**00:00**	**00:00**	**30:00**
Module 9: Sustainability Practices in Telecom Infrastructure Management	10:00	20:00	00:00	00:00	30:00
TEL/N9104: Manage Work, Resources and Safety at workplace **NOS Version No.: 2.0** **NSQF Level: 5.0**	**10:00**	**20:00**	**00:00**	**00:00**	**30:00**

Module 10: Workplace Management, Safety, and Resource Optimization	10:00	20:00	00:00	00:00	30:00
DGT/VSQ/N0101: Employability Skills (30 Hours) **NOS Version No.: 1.0** **NSQF Level: 2**	**30:00**	**00:00**	**00:00**	**00:00**	**30:00**
Module 11: Employability Skills (30 Hours)	30:00	00:00	00:00	00:00	30:00
Total Duration	**210:00**	**300:00**	**120:00**	**00:00**	**630:00**

Module Details

Module 1: Introduction to the sector and the job role of a Telecom Field Operations Coordinator

Mapped to TEL/N6208, v4.0

Terminal Outcomes:

- Explain the importance of Telecom Sector.
- Discuss the roles and responsibilities of a Telecom Field Operations Coordinator.

Duration (in hours): 05:00	**Duration (in hours): 00:00**
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Describe the structure and significance of the telecom sector, highlighting its role in global and national connectivity. • Discuss the evolution of telecom technologies and their impact on communication infrastructure. • Explain the organizational hierarchy and key functions within a telecom service provider. • Describe the primary responsibilities of a Telecom Field Operations Coordinator, including installation, maintenance, and fault management. • Discuss the importance of coordinating with technical teams, customers, and management to ensure seamless operations. • Explain the role of industry standards and regulatory bodies in governing telecom operations. • Explain the key skills and competencies required for effective performance as a Telecom Field Operations Coordinator.	-
Classroom Aids	
Training Kit - Facilitator's Guide, Participant's Handbook, Presentations and Software, Whiteboard, Marker, Projector, Laptop, Video Films	
Tools, Equipment and Other Requirements	
Nil	

Module 2: Perform Site Acceptance and Compliance Testing

Mapped to TEL/N6208, v4.0

Terminal Outcomes:

- Explain the process of performing Site Acceptance Testing (SAT) and its importance in telecom operations.
- Demonstrate the steps involved in executing SAT, documenting results, and reporting non-compliance issues.

Duration (in hours): 45:00	Duration (in hours): 70:00
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Explain the purpose and steps of Site Acceptance Testing (SAT). • Identify the tools used in testing, like E1 tester, Ethernet tester, VSWR meter, power meter, and optical meter. • Describe different types of cables (RJ45, RS232, Hi-Speed USB) and their use in testing. • Explain the software needed for BTS and other network equipment. • Describe the role of equipment like Microwave, BTS, feeder cables, and fiber optics in network setup. • Explain the importance of backup systems like DG sets, PIU panels, transformers, SMPS, air conditioners, and battery banks. • Identify safety measures like grounding, weatherproofing, and proper electrical insulation. • Explain key network performance indicators like signal strength, latency, and interference levels. • List the steps for proper documentation and reporting of test results. • Describe best practices for testing, maintaining, and monitoring telecom sites.	• Demonstrate how to check the functionality of required test equipment such as E1 tester, Ethernet tester, VSWR meter, power meter, and optical meter. • Show how to ensure the compatibility of installed software versions on laptops and confirm readiness for testing. • Demonstrate how to inspect physical infrastructure for adherence to standards, including shelter condition, weatherproofing, grouting, cabling, earthing, and connector integrity. • Show how to conduct logical tests such as VSWR levels, alarm connectivity, and equipment connectivity per site AT checklist. • Demonstrate how to coordinate with field teams to complete testing of passive infrastructure, including antenna alignment, diesel generator functionality, SMPS condition, and battery backup performance. • Show how to validate network performance by measuring key parameters such as signal strength, latency, throughput, and redundancy mechanisms. • Demonstrate how to identify and document deviations from required specifications, flagging critical issues needing immediate resolution. • Show how to report test outcomes to relevant stakeholders, including BSS/BTS engineers, the NOC team, and project managers.

	• Demonstrate how to update site documentation with complete and accurate test records as per organizational standards.
Classroom Aids	
Training Kit - Facilitator's Guide, Participant's Handbook, Presentations and Software, Whiteboard, Marker, Projector, Laptop, Video Films	
Tools, Equipment and Other Requirements	
E1 tester, Ethernet tester, VSWR meter, power meter, optical meter, BTS configuration software, RJ45 cables, RS232 cables, Hi-Speed USB cables, laptops with testing tools, site acceptance checklists, network monitoring software, grounding and weatherproofing tools, multimeters, power analyzers, diesel generator monitoring tools, and safety gear (gloves, helmets, insulated boots).	

Module 3: Perform Preventive Maintenance at Radio Locations

Mapped to TEL/N6209, v4.0

Terminal Outcomes:

- Explain the importance of preventive maintenance in ensuring network performance.
- Demonstrate the steps to perform preventive maintenance and record findings.

Duration (in hours): 15:00	Duration (in hours): 30:00
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Explain the purpose of preventive maintenance and its role in maintaining network uptime. • Identify different maintenance schedules like monthly, quarterly, and annual checks. • Describe common equipment at radio locations, such as BTS, antennas, and power supply units. • List the tools and test equipment needed, like screwdrivers, pliers, multimeters, VSWR meters, and RF power meters. • Explain the importance of keeping records of maintenance activities and site conditions. • Describe safety protocols for working at radio locations, including handling equipment and ensuring personal safety.	• Show how to review the preventive maintenance schedule and site-specific checklists. • Demonstrate how to gather and inspect tools, test equipment, and spare parts before starting maintenance. • Show how to check equipment for physical damage, cable connections, and power supply stability. • Demonstrate how to clean filters, fans, and vents to prevent overheating. • Show how to check battery health, earthing connections, and perform necessary software or firmware updates. • Demonstrate how to test system performance after maintenance and ensure no alarms are triggered. • Show how to document maintenance activities, record test results, and report findings to the NOC and supervisor.
Classroom Aids	
Training Kit - Facilitator's Guide, Participant's Handbook, Presentations and Software, Whiteboard, Marker, Projector, Laptop, Video Films	
Tools, Equipment and Other Requirements	
Screwdrivers, pliers, multimeters, cable testers, VSWR meters, RF power meters, spare connectors, cables, power modules, cleaning tools (brushes, compressed air), laptops with diagnostic software, maintenance checklists, safety gloves, helmets, and insulated boots.	

Module 4: Perform Corrective Maintenance at Radio Locations

Mapped to TEL/N6209, v4.0

Terminal Outcomes:

- Explain the process of identifying and resolving faults at radio locations.
- Demonstrate corrective maintenance procedures and recordkeeping.

Duration (in hours): 15:00	Duration (in hours): 30:00
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Explain the importance of corrective maintenance in minimizing service disruptions. • Identify different types of faults and alarms, such as hardware failures, power outages, and link failures. • Describe diagnostic tools like E1 testers and spectrum analyzers and their uses in fault detection. • Explain procedures for replacing faulty components, applying software patches, and restoring service. • Discuss proper documentation and reporting protocols for corrective actions. • Explain escalation procedures for unresolved or complex faults.	• Show how to identify alarms from the NOC and assess fault severity. • Demonstrate the process of gathering fault history and planning corrective actions. • Show the use of diagnostic tools like E1 testers and spectrum analyzers to identify issues. • Demonstrate how to replace faulty components such as TRX modules and feeder cables. • Show how to apply software patches or reconfigure equipment as needed. • Demonstrate testing system performance post-maintenance and ensuring alarm clearance. • Show the process of recording corrective actions, updating fault logs, and reporting resolutions to the NOC and supervisor.
Classroom Aids	
Training Kit - Facilitator's Guide, Participant's Handbook, Presentations and Software, Whiteboard, Marker, Projector, Laptop, Video Films	
Tools, Equipment and Other Requirements	
E1 testers, spectrum analyzers, multimeters, screwdrivers, pliers, spare TRX modules, feeder cables, laptops with diagnostic software, safety gloves, voltage testers, helmets, insulated boots, maintenance checklists, and fault logs.	

Module 5: Assess and Prepare for Change Management at Radio Locations

Mapped to TEL/N6210, v5.0

Terminal Outcomes:

- Explain the process of assessing infrastructure upgrades and preparing for change management.
- Demonstrate the arrangement of tools, spares, and resources for implementing changes at radio locations.

Duration (in hours): 15:00	**Duration (in hours): 15:00**
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Explain the importance of change management in maintaining network performance and minimizing disruptions. • Identify the different types of activities involved in infrastructure upgrades. • Describe the process of validating change requests and assessing their criticality, dependencies, and impact on the network. • Explain the procedures for developing structured work plans, including pre-change checks and resource requirements. • Define the protocols for obtaining necessary permits and authorizations before initiating upgrades. • List the tools, login cables, and diagnostic equipment required for infrastructure upgrades. • Explain the procedures for managing spare parts, including handling, tracking, and returning defective components. • Identify potential risks, vulnerabilities, and security concerns associated with implementing system changes.	• Show how to validate change requests from relevant teams, such as NOC, change management, and network planning. • Demonstrate the process of categorizing infrastructure upgrades based on activity type and assessing their impact. • Show how to develop a structured work plan, considering criticality, dependencies, and resource requirements. • Demonstrate the process of obtaining necessary permits and authorizations before executing changes. • Show how to check the availability of login cables, diagnostic tools, and necessary spare hardware like TRX cards. • Demonstrate the coordination process with the logistics team for the procurement, repair, and return of faulty or obsolete equipment. • Show how to ensure compliance with organizational spare management and tracking procedures.
Classroom Aids	
Training Kit - Facilitator's Guide, Participant's Handbook, Presentations and Software, Whiteboard, Marker, Projector, Laptop, Video Films	
Tools, Equipment and Other Requirements	
Login cables (RJ-45, RS-232, Hi-Speed USB), TRX cards, diagnostic tools, laptops with configuration software, inventory management tools, spare management records, and safety equipment.	

Module 6: Execute and Document Change Management at Radio Locations

Mapped to TEL/N6210, v5.0

Terminal Outcomes:

- Explain the process of executing infrastructure changes and monitoring post-change performance.
- Demonstrate the documentation and reporting procedures after implementing changes at radio locations.

Duration (in hours): 15:00	Duration (in hours): 15:00
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Explain the importance of following approved work plans and industry best practices while executing change management activities. • Describe the process of real-time monitoring of key performance indicators (KPIs) during and after infrastructure changes. • Identify the steps for escalating anomalies or unexpected network behaviors during post-change monitoring. • Explain rollback procedures for reversing changes if service degradation crosses acceptable thresholds. • Define the importance of adhering to Service Level Agreements (SLAs) for completing changes and validating performance. • List the essential administrative tasks to be completed after implementing changes, such as site clearance and returning testing tools. • Explain the procedures for verifying post-change effectiveness by monitoring alarm status and coordinating with the NOC team. • Describe the process of documenting all activities, including performance snapshots, troubleshooting logs, and resolution timelines. • Identify communication protocols for notifying stakeholders about change status and obtaining necessary sign-offs. • Explain the requirements for updating network documentation, maintenance logs,	• Demonstrate the execution of change management activities according to approved work plans and best practices. • Show how to conduct real-time monitoring of KPIs during and after changes to assess network performance. • Demonstrate the process of identifying and escalating anomalies or unexpected network behaviors. • Show how to apply rollback procedures if changes cause unacceptable service degradation. • Demonstrate adherence to SLAs by ensuring timely completion of changes and performance validation. • Show the completion of administrative tasks post-change, including clearing the site and returning testing tools. • Demonstrate the verification of post-change effectiveness by monitoring alarms and coordinating with the NOC team. • Show how to document all activities, including performance comparisons, troubleshooting steps, and resolution timelines. • Demonstrate the proper communication of change status to stakeholders and obtaining necessary approvals or sign-offs. • Show how to update network documentation, maintenance logs, and spare inventory records following regulatory and organizational standards.

and spare inventory records as per regulatory standards.	
Classroom Aids	
Training Kit - Facilitator's Guide, Participant's Handbook, Presentations and Software, Whiteboard, Marker, Projector, Laptop, Video Films	
Tools, Equipment and Other Requirements	

Module 7: Fault Identification and Rectification in BSS Networks

Mapped to TEL/N6500, v4.0

Terminal Outcomes:

- Explain the process of monitoring network alarms and identifying faults in the Base Station Sub-system (BSS) network.
- Demonstrate fault diagnosis, rectification techniques, and post-rectification activities.

Duration (in hours): 30:00	Duration (in hours): 30:00
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Explain the functions and capabilities of Network Monitoring Systems (NMS) and related tools. • Describe the end-to-end ticketing process, including lifecycle tracking and resolution workflows. • Identify various types of alarms, their impact on network performance, and corresponding troubleshooting methodologies. • Explain advanced fault diagnosis techniques such as data analysis and predictive maintenance. • Describe the functionalities of passive infrastructure elements like DG sets, PIU panels, transformers, SMPS, air conditioners, and battery banks. • Define different network topology structures (e.g., ring, daisy chain) and their impact on fault localization and rectification. • Explain the importance of Maintenance Operation Protocols (MOPs) for reducing repeat faults. • Identify key characteristics and performance parameters of service networks such as GSM, WCDMA, and LTE. • Explain the interpretation and application of VSWR and E1 test results for fault localization. • Describe industry best practices for documentation, regulatory compliance, and data security.	• Demonstrate logging into the alarm management system using secure credentials. • Show how to monitor network alarms on the NMS and assess threshold levels. • Demonstrate generating service requests/tickets as per the priority matrix and escalating unresolved critical alarms. • Show how to verify fault resolutions by comparing current configurations against previous backup records and alarm logs. • Demonstrate coordination with the infrastructure NOC to identify passive infrastructure faults. • Show how to categorize alarms based on service impact analysis and take appropriate actions. • Demonstrate identifying root causes of alarms by following standardized troubleshooting protocols. • Show how to conduct advanced diagnostic tests, including remote analysis of active equipment. • Demonstrate evaluating fault rectification options and confirming the selected solution with supervisors if needed. • Show how to apply corrective measures like system resets based on fault severity. • Demonstrate dispatching field engineers and providing fault rectification instructions. • Show how to monitor and verify the fault resolution process executed by field engineers and technicians.

• List record-keeping standards and the consequences of poor documentation management.	• Demonstrate coordinating with the NOC team to confirm post-rectification alarm status. • Show the completion of post-maintenance activities, such as equipment return and site clearance. • Demonstrate notifying relevant stakeholders about test results and obtaining sign-offs. • Show how to maintain detailed logs, including fault rectification reports, maintenance records, and spare parts usage. • Demonstrate updating documentation according to organizational standards and providing necessary documents for audits and regulatory inspections.
Classroom Aids	
Training Kit - Facilitator's Guide, Participant's Handbook, Presentations and Software, Whiteboard, Marker, Projector, Laptop, Video Films	
Tools, Equipment and Other Requirements	
Network Monitoring System (NMS), diagnostic tools (VSWR meters, E1 testers), login cables, remote access software, spare parts (TRX cards, power modules), and safety equipment.	

Module 8: Manage Configuration Changes and Backup Processes

Mapped to TEL/N6501, v4.0

Terminal Outcomes:

- Explain how to assess, plan, and execute configuration changes, software upgrades, and node backup activities in the BSS network.
- Demonstrate post-change monitoring techniques, contingency planning, and proper documentation of change management activities.

Duration (in hours): 30:00	Duration (in hours): 60:00
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Explain standard operating procedures (SOPs) for change management, upgrades, and backup activities. • Describe incident escalation protocols for system failures, security breaches, and environmental hazards. • Identify key network elements (BSC, BTS, transmission links) and their functionalities. • Explain the operational aspects of passive infrastructure components such as DG sets, power systems, air conditioning, and battery backup systems. • Describe Network Monitoring System (NMS) functions for real-time fault detection and performance tracking. • Explain risks associated with unplanned changes, non-compliance with standard procedures, and improper backup management. • Identify industry best practices and technological advancements in BSS network upgrades and configuration management. • Explain cybersecurity measures to ensure network integrity during configuration changes. • Describe compliance requirements, including data privacy and telecommunications regulations. • Explain root cause analysis techniques for identifying and mitigating network failures.	• Demonstrate how to identify and verify change requirements based on maintenance plans and operational needs. • Show how to assess the urgency and impact of configuration changes. • Demonstrate developing a structured work plan, including resource allocation and approval workflows. • Show how to conduct a risk analysis to anticipate service outages and determine mitigation strategies. • Demonstrate notifying relevant stakeholders before initiating changes. • Show how to obtain approvals from customers and management for service-impacting changes. • Execute Changes and Monitor Post-Change Activities • Demonstrate implementing configuration changes, software upgrades, and firmware updates. • Show how to perform comprehensive node backups before and after making changes. • Demonstrate monitoring system performance and alarms post-change. • Show how to execute contingency plans and rollback procedures in case of failures. • Demonstrate ensuring compliance with SLAs and change management protocols. • Demonstrate collaborating with the NOC team to verify system stability and performance.

	• Show how to provide detailed reports and updates to stakeholders. • Demonstrate logging all change activities, findings, and resolutions in the system. • Show how to update and close tickets following proper documentation standards.
Classroom Aids	
Training Kit - Facilitator's Guide, Participant's Handbook, Presentations and Software, Whiteboard, Marker, Projector, Laptop, Video Films	
Tools, Equipment and Other Requirements	
Network Monitoring System (NMS), configuration management tools, diagnostic software, firmware upgrade kits, backup storage devices, and cybersecurity tools.	

Module 9: Sustainability Practices in Telecom Infrastructure Management

Mapped to TEL/N9109, v1.0

Terminal Outcomes:

- Explain sustainable practices for managing hazardous and e-waste at telecom sites.
- Demonstrate green energy and resource efficiency practices in telecom infrastructure management.

Duration (in hours): 10:00	Duration (in hours): 20:00
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Explain the e-waste management rules applicable to the telecom sector. • Describe Central Pollution Control Board (CPCB) guidelines for telecom site waste disposal. • Identify safety standards for battery handling and disposal, including lead-acid and lithium-ion batteries. • List recyclable telecom components and methods for minimizing telecom waste. • Elucidate techniques for energy optimization, such as smart cooling, LED lighting, and hybrid power systems. • Explain the role of renewable energy sources, like solar energy, in reducing telecom carbon footprint. • Describe best practices for managing telecom tower site waste and reducing fuel consumption in Diesel Generators (DG) sets. • Define water conservation principles and sustainable telecom site design. • Explain the importance of training telecom employees on environmental awareness and compliance.	• Show how to identify, segregate, and categorize e-waste and hazardous waste at telecom sites. • Demonstrate safe handling procedures for hazardous materials, including the use of protective gear. • Show the process of maintaining logs and records for disposed, recycled, or repurposed telecom waste. • Demonstrate energy-efficient practices, such as optimizing power usage and using smart cooling systems. • Show how to assist in adopting solar-powered telecom towers and integrating hybrid energy systems. • Demonstrate the reduction of packaging waste through the reuse of telecom materials and accessories. • Show how to conduct periodic environmental audits to ensure sustainability compliance. • Demonstrate guiding co-workers on eco-friendly practices and waste management policies.
Classroom Aids	
Training Kit - Facilitator's Guide, Participant's Handbook, Presentations and Software, Whiteboard, Marker, Projector, Laptop, Video Films	
Tools, Equipment and Other Requirements	

Protective gloves, safety goggles, e-waste segregation bins, hazardous waste containers, battery handling kits, energy-efficient lighting systems, digital multimeter, circuit testers, solar power monitoring tools, logbooks, and environmental audit checklists.

Module 10: Workplace Management, Safety, and Resource Optimization

Mapped to TEL/N9104, v2.0

Terminal Outcomes:

- Describe strategies for continuous skill development, self-direction, and team motivation.
- Discuss methods to promote critical thinking, problem-solving, and accountability in the workplace.
- Demonstrate adherence to quality standards, ensuring efficiency and productivity in work practices.

Duration (in hours): 10:00	Duration (in hours): 20:00
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Explain strategies to pursue skill advancement relevant to the industry. • Describe key performance indicators (KPIs) for task evaluation and improvement. • Explain feedback processes and formats to guide performance improvement. • Discuss the significance of setting timelines and goals for work allocation. • Describe the importance of quality and timely delivery of products and services. • Explain the layout of the workstation and equipment used in daily tasks. • Discuss the escalation matrix and its importance, especially in emergencies. • Explain techniques for time and cost management in workplace operations. • Describe workplace health and safety regulations and their implementation. • Explain different types of hazards and associated risks in the workplace. • Discuss the procedures for reporting breaches in health, safety, and security. • Describe methods for efficient resource and material management. • Explain common electrical problems and practices for conserving electricity.	• Show how to develop technical and personal skills for staying updated with industry advancements. • Show methods to train the team on adapting to new products, services, and technologies. • Show identification of opportunities for team-building workshops and motivational training. • Show techniques to guide the team in being accountable for timely completion of tasks. • Show problem-solving skills by analyzing workplace issues and providing appropriate solutions. • Show how to train the team to estimate the root cause of problems and validate solutions. • Show the implementation of practices to keep the work area clean and organized. • Show ways to maintain efficiency and productivity while performing assigned tasks. • Show supervision techniques to ensure work is done according to assigned requirements. • Show the process of creating schedules and rosters to ensure smooth workflow. • Show identification of organizational health, safety, and security policies and procedures. • Show how to instruct the team to report breaches in health, safety, and security.

	• Show handling of hazards like illness, accidents, fires, or natural calamities as per organizational procedures. • Show the process of reporting hazards outside individual authority and warning others who may be affected. • Show practices to optimize material usage, including water, in daily activities. • Show supervision of the team to ensure responsible use of workplace resources. • Show techniques to motivate the team for routine cleaning of tools, machines, and equipment. • Show methods to guide the team in optimizing energy usage in various processes. • Show periodic checks to ensure the proper functioning of machines and equipment. • Show guidance on reporting malfunctions and lapses in equipment maintenance.
Classroom Aids	
Training Kit - Facilitator's Guide, Participant's Handbook, Presentations and Software, Whiteboard, Marker, Projector, Laptop, Video Films	
Tools, Equipment and Other Requirements	
Safety gear, cleaning tools, energy-efficient equipment, maintenance checklists, and training materials for skill development and safety protocols.	

Module 11: Employability Skills (30 Hours)

Mapped to DGT/VSQ/N0101, v1.0

Duration: 30:00 Hours

Key Learning Outcomes

Introduction to Employability Skills Duration: 1 Hour

After completing this programme, participants will be able to:

1. Discuss the importance of Employability Skills in meeting the job requirements

Constitutional values - Citizenship Duration: 1 Hour

2. Explain constitutional values, civic rights, duties, citizenship, responsibility towards society etc. that are required to be followed to become a responsible citizen.

3. Show how to practice different environmentally sustainable practices

Becoming a Professional in the 21st Century Duration: 1 Hour

4. Discuss 21st-century skills.

5. Display a positive attitude, self-motivation, problem-solving, time management skills and continuous learning mindset in different situations.

Basic English Skills Duration: 2 Hours

6. Use appropriate basic English sentences/phrases while speaking

Communication Skills Duration: 4 Hours

7. Demonstrate how to communicate in a well-mannered way with others.

8. Demonstrate working with others in a team

Diversity & Inclusion Duration: 1 Hour

9. Show how to conduct oneself appropriately with all genders and PwD

10. Discuss the significance of reporting sexual harassment issues in time

Financial and Legal Literacy Duration: 4 Hours

11. Discuss the significance of using financial products and services safely and securely.

12. Explain the importance of managing expenses, income, and savings.

13. Explain the significance of approaching the concerned authorities in time for any exploitation as per legal rights and laws

Essential Digital Skills Duration: 3 Hours

14. Show how to operate digital devices and use the associated applications and features, safely and securely

15. Discuss the significance of using the internet for browsing, and accessing social media platforms, safely and securely

Entrepreneurship Duration: 7 Hours

16. Discuss the need for identifying opportunities for potential business, sources for arranging money and potential legal and financial challenges

Customer Service Duration: 4 Hours

17. Differentiate between types of customers

18. Explain the significance of identifying customer needs and addressing them

19. Discuss the significance of maintaining hygiene and dressing appropriately

Getting ready for Apprenticeship & Jobs Duration: 2 Hours

20. Create a biodata

21. Use various sources to search and apply for jobs

22. Discuss the significance of dressing up neatly and maintaining hygiene for an interview

23. Discuss how to search and register for apprenticeship opportunities

Module 12: On-the-Job Training

Mapped to Telecom Field Operations Coordinator

Mandatory Duration: 120:00	Recommended Duration: 00:00
Location: On-Site	

Terminal Outcomes

- Demonstrate the process of conducting Site Acceptance Testing (SAT) to verify equipment installation, configuration, and network performance.
- Show how to perform preventive and corrective maintenance at radio locations, including inspecting cables, connectors, and power supply units.
- Demonstrate the procedures for identifying and rectifying faults in telecom infrastructure to restore network connectivity and performance.
- Show how to execute configuration changes, software upgrades, and node backup activities with minimal service disruption.
- Demonstrate the process of implementing change management procedures, ensuring proper communication and documentation of changes.
- Show how to apply sustainable practices in telecom infrastructure management, optimizing energy use and reducing electronic waste.
- Demonstrate compliance with health, safety, and security protocols while handling equipment and performing field operations.
- Show how to manage work schedules and coordinate with teams to ensure timely maintenance, upgrades, and fault resolution.
- Demonstrate the use of diagnostic tools to monitor network performance and troubleshoot technical issues.
- Show how to document all maintenance, fault rectification, and configuration activities for accurate reporting and compliance.

Annexure

Trainer Requirements

Trainer Prerequisites						
Minimum Educational Qualification	**Specialisation**	**Relevant Industry Experience**		**Training Experience**		**Remarks**
		Years	***Specialization***	***Years***	***Specialization***	
B.E./B.Tech	Electronics/Telecom/IT and other relevant fields	6	Tower Maintenance			

Trainer Certification	
Domain Certification	**Platform Certification**
Certified for Job Role: "Telecom Field Operations Coordinator" mapped to QP: "TEL/Q6202, v4.0". 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, v3.0". The minimum accepted score as per MEPSC guidelines is 80%.

Assessor Requirements

Assessor Prerequisites						
Minimum Educational Qualification	**Specialization**	**Relevant Industry Experience**		**Training/Assessment Experience**		**Remarks**
		Years	***Specialization***	***Years***	***Specialization***	
B.E./B.Tech	Electronics/Telecom/IT and other relevant fields	6	Tower Maintenance			

Assessor Certification	
Domain Certification	**Platform Certification**
Certified for Job Role: "Telecom Field Operations Coordinator" mapped to QP: "TEL/Q6202, v4.0". Minimum accepted score is 80%.	Certified for the Job Role: "Assessor (VET and Skills)", mapped to the Qualification Pack: "MEP/Q2701, v3.0", with a minimum score of 80%.

Assessment Strategy

1. **Assessment System Overview:**
    - Batches assigned to the assessment agencies for conducting the assessment on SDSM/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 levels 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
    - Center 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

The trainee will be tested for the acquired skill, knowledge and attitude through formative/ summative assessment at the end of the course and as this NOS and MC is adopted across sectors and qualifications, the respective AB can conduct the assessments as per their requirements.

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 it 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
NCVET	National Council for Vocational Education and Training
QP	Qualification Pack
MC	Model Curriculum
NSQF	National Skills Qualification Framework
NSQC	National Skills Qualification Committee
NOS	National Occupational Standards
NCO	National Classification of Occupations
ES	Employability Skills
TSSC	Telecom Sector Skill Council
AT	Acceptance Test
VSWR	Voltage Standing Wave Ratio
SMPS	Switched-Mode Power Supply
BSS	Base Station Subsystem
BTS	Base Transceiver Station
NOC	Network Operations Centre
SAT	Site Acceptance Testing
DG	Diesel Generators
PIU	Power Interface Unit
PM	Preventive Maintenance
CM	Corrective Maintenance
SLA	Service Level Agreements
TRX	Transceiver
NMS	Network Management System
MOP	Maintenance Operation Protocols
CPCB	Central Pollution Control Board