Model Curriculum

QP Name: Wireless Network Technician

QP Code: TEL/Q4111

QP Version: 1.0

NSQF Level: 4

Telecom Sector Skill Council ||

Table of Contents

Training Parameters

Sector	Telecom
Sub-Sector	Network Managed Services
Occupation	Operations and Maintenance
Country	India
NSQF Level	4
Credits	20
Aligned to NCO/ISCO/ISIC Code	NCO-2015/7422.0802
Minimum Educational Qualification & Experience	12th Grade Pass OR Completed 2nd year of 3-year diploma after 10th (Diploma in Telecommunications/Electronics/ IT/AI/ Computer science/Industrial/Electrical etc. or a combination of these) OR Previous relevant Qualification of NSQF Level 3.5 with 1.5-year relevant experience OR Previous relevant Qualification of NSQF Level 3 with 3-year relevant experience
Minimum Level of Education for Training in School	12th Class
Pre-Requisite License or Training	
Minimum Job Entry Age	NA
Last Reviewed On	30-09-2025
Next Review Date	30-09-2028
NSQC Approval Date	30-09-2025
Version	1.0
Reference code on NQR	QG-04-TL-04423-2025-V1-TSSC
NQR Version	1.0
Minimum Duration of the Course	600 hours
Maximum Duration of the Course	600 hours

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.

- Interpret BSS performance reports, alarm details and tickets
- Plan for corrective actions to resolve complaints
- Perform maintenance operations
- Record the maintenance status
- Perform change activities and monitor the process
- Plan work effectively, implement safety practices and optimize use of resources
- Communicate, develop interpersonal skills and develop sensitization towards gender and persons with disability
- Evaluate the availability of hardware equipment at a specified site location
- Establish standards for designing a 5G network architecture
- Create a comprehensive design for spectrum allocation and 5G network architecture
- Implement 5G New Radio (NR) and Radio Access technologies

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
TEL/N4147: Perform Base Station System Support Operations NOS Version No. 1.0 NSQF Level 4	**20:00**	**10:00**	**15:00**		**45:00**
Module 1: Role and Responsibilities of a BSS Support Engineer	20:00	10:00	15:00		45:00
TEL/N4144: Analyse Performance Reports and Conduct Network Optimisation NOS Version No. 1.0 NSQF Level 4	**50:00**	**90:00**	**55:00**		**195:00**
Module 2: Analyse performance reports and customer complaints	10:00	35:00	20:00		65:00
Module 3: Perform Maintenance at Base Station Controller (BSC)	25:00	30:00	20:00		75:00
Module 4: Perform operational activities at radio sites	15:00	25:00	15:00		55:00
TEL/N4145: Integrate and Configure 5G Network Systems NOS Version No. 1.0 NSQF Level 4	**25:00**	**25:00**	**10:00**		**60:00**
Module 5: Introduction to the role of 5G System Integrator	25:00	25:00	10:00		60:00
TEL/N4146: Set Standards, Prepare Hardware, and Implement 5G Network NOS Version No. 1.0	**90:00**	**80:00**	**75:00**		**245:00**

NSQF Level 4					
Module 6: Set Standards for 5G Network Architecture	25:00	25:00	15:00		65:00
Module 7: Verify and Prepare Hardware Equipment for 5G Installation	20:00	15:00	15:00		50:00
Module 8: Design Spectrum and 5G Network Architecture	20:00	15:00	25:00		60:00
Module 9: Implement 5G New Radio (NR) and Radio Access	25:00	25:00	20:00		70:00
TEL/N6285: Maintain Workplace Safety, Resource Optimisation and Hygiene Standards NOS Version No. 1.0 NSQF Level 4	**05:00**	**10:00**			**15:00**
Module 10: Maintain Workplace Safety, Resource Optimisation and Hygiene Standards	05:00	10:00			15:00
TEL/N6287: Operational Skills NOS Version No. 1.0 NSQF Level 4	**05:00**	**10:00**			**15:00**
Module 11: Operational Skills	05:00	10:00			15:00
DGT/VSQ/N0101 - Employability Skills (30 hours) NOS Version No. – 1.0 NSQF Level – 2	**30:00**	**00:00**			**30:00**

Module 12: Employability Skills	30:00	00:00			30:00
Total Duration	**225:00**	**225:00**	**150:00**		**600:00**

Module Details

Module 1: Role and Responsibilities of a BSS Support Engineer

Mapped to TEL/N4147 & v1.0

Terminal Outcomes:

- Explain the role and responsibilities of a BSS Support Engineer.

Duration: *20:00*	**Duration**: *10:00*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Explain the role and responsibilities of a BSS support engineer. • Describe the various electrical and electronic components. • Discuss the list of the standard operating procedures (SOP) to be followed for use of tools and equipment and for performing service and minor repairs. • Discuss the documentation involved in the different processes of maintenance. • Discuss the safety, health and environmental policies and regulations for the workplace as well as for telecom sites in general.	• Demonstrate how to assist field engineers to identify and rectify faults at BTS locations. • Prepare standard checklists and schedules to be used by engineers and workers recommended by the operating companies (OPCOs). • Demonstrate the use of tools and equipment required for site maintenance.
Classroom Aids:	
Participant handbook, Training Kit (Trainer Guide, Presentations), Whiteboard, marker pen, computer or laptop attached to LCD projector, scanner, computer speakers	
Tools, Equipment and Other Requirements	

Module 2: Analyse Performance Reports and Customer Complaints

Mapped to TEL/N4144 & v1.0

Terminal Outcomes:

- Interpret BSS performance reports, alarm details and tickets
- Plan corrective actions to resolve given complaints

Duration: *10:00*	**Duration**: *35:00*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Discuss the important parameters to check network performance at a location. • Explain how to compare actual performance reports with standard reports to highlight deteriorating cell-site performance. • Discuss the specific maintenance activities to be performed regularly to address customer complaints. • Explain the importance of coordinating with the field time and infrastructure engineers. • Discuss the need of sharing good work practices of one organization zone with the employees of other zones.	• Analyse and interpret reports made by OSS to find common issues and faults. • Interpret the results of various logs such as computer and black box logs to identify faults. • Prepare a strategy to identify various faults using indicators or information available in BSS nodes. • Perform the steps of necessary tests to diagnose the cause and alarm severity. • Prepare a report of analysing real-time alarm data to be sent to field team for troubleshooting purposes. • Prepare a checklist to monitor the performance of field time as per given timelines
Classroom Aids:	
Participant handbook, Training Kit (Trainer Guide, Presentations), Whiteboard, marker pen, computer or laptop attached to LCD projector, scanner, computer speakers	
Tools, Equipment and Other Requirements	

Module 3: Perform Maintenance at Base Station Controller (BSC)

Mapped to TEL/N4144 & v1.0

Terminal Outcomes:

- Perform maintenance operations.
- Record the maintenance status

Duration: *25:00*	**Duration**: *30:00*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Discuss the factors to be considered to analyse the potential impact of maintenance plan. • Explain the importance of coordinating with infrastructure engineer and logistics team to repair passive infrastructure. • Discuss the ways to resolve customer complaints as per the given timelines. • Explain how to report unresolved issues to the higher authorities as per organizational structure. • Describe the factors to consider the effectiveness of maintenance and administrative process. • Explain the process of obtaining sign-off from all concerned parties after the completion of the maintenance activities.	• Prepare a complete maintenance work timely plan as per the fault service impact analysis. • Prepare a cost sheet to compare costs of different fault solutions. • Arrange required software and hardware as per the team use. • Conduct physical and logical maintenance tasks at BSC location. • Prepare a strategy to check the maintenance activities performed by infrastructure engineer team. • Demonstrate how to supervise maintenance activities to be performed by third party as per NOC team requirements. • Update required maintenance documents.
Classroom Aids:	
Participant handbook, Training Kit (Trainer Guide, Presentations), Whiteboard, marker pen, computer or laptop attached to LCD projector, scanner, computer speakers	
Tools, Equipment and Other Requirements	

Module 4: Perform Operational Activities at Radio sites

Mapped to TEL/N4144 & v1.0

Terminal Outcomes:

- Perform change activities and monitor the process
- Discuss how to ensure the effectiveness of change process

Duration: *15:00*	**Duration**: *25:00*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Discuss the relevant factors to be considered while planning maintenance activities. • Explain the importance of obtaining customer approval before starting maintenance activities. • Discuss the ways to confirm effectiveness of maintenance activities as per defined standards and guidelines.	• Prepare a maintenance plan as per given requests and timelines. • Employ appropriate techniques for monitoring and supervising hardware and software related upgrades and maintenance activities. • Prepare an alternative plan in case of service disruption as per the guidelines. • Demonstrate the process of obtaining backup of BSC configuration.
Classroom Aids:	
Participant handbook, Training Kit (Trainer Guide, Presentations), Whiteboard, marker pen, computer or laptop attached to LCD projector, scanner, computer speakers	
Tools, Equipment and Other Requirements	

Module 5: Introduction to the role of 5G System Integrator

Mapped to TEL/N4145 & v1.0

Terminal Outcomes:

- Discuss the job role of 5G System Integrator
- Explain the scope of work for 5G System Integrator

Duration: *25:00*	**Duration**: *25:00*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Describe the size and scope of the Telecom industry and its sub-sectors. • Discuss the role and responsibilities of a 5G System Integrator. • Identify various employment opportunities for a 5G System Integrator. • Discuss the organisational policies on workplace ethics, managing sites, quality standards, personnel management and public relations (PR). • Describe the process workflow in the organization and the role of 5G System Integrator. • List the various daily, weekly, monthly operations/activities that take place at the site under 5G System Integrator.	• Role play based on case studies, outlining the scope, responsibilities, and challenges of 5G System Integrator. • Analyse the requirements for the course and prepare for the pre- requisites of the course.
Classroom Aids:	
Participant handbook, Training Kit (Trainer Guide, Presentations), Whiteboard, Marker pen, Computer or Laptop attached to LCD projector, Scanner, Computer speakers	
Tools, Equipment and Other Requirements:	

Module 6: Set Standards for 5G Network Architecture

Mapped to NOS: TEL/N4146, v1.0

Terminal Outcomes:

- Discuss the significance of implementing new networking technologies and protocols.
- Discuss about network performance, scalability, and reliability.

Duration: 25:00	Duration: 25:00
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Recall the technical specifications for 5G network elements, including base stations, core network components, and user equipment. • Explain the principles and fundamentals of 5G technology, such as beamforming, massive MIMO, and network slicing. • Describe the ITU's IMT-2020 framework and the specific frequency bands designated for 5G deployment. • Identify the 3GPP standards that define the technical specifications for 5G network elements and protocols. • Discuss the service-based architecture (SBA) and network function virtualization (NFV) for service delivery in 5G networks. • Describe different authentication methods like SIM-based authentication, AKA, and EAP methods for securing subscribers. • Explain the techniques for planning network coverage and capacity, including cell placement and interference management. • Discuss encryption methods, secure key exchange, and authentication protocols for network security. • Describe the implementation of voice over 5G (VoNR), IoT connectivity, and multimedia services in 5G networks. • Explain QoS mechanisms like bearer control, flow control, and resource reservation in 5G networks.	• Design a 5G network architecture to support dynamic spectrum sharing between different operators and technologies. • Perform installation and configuration of base stations, RAN elements, and core network components based on network design. • Implement subscriber authentication and security mechanisms to ensure secure connectivity. • Conduct network planning activities to design the coverage and capacity of the 5G network. • Deploy network monitoring and analytics tools to continuously monitor network performance. • Identify and troubleshoot network issues, such as latency, packet loss, and throughput. • Implement Quality of Service (QoS) mechanisms to prioritize critical services and applications. • Evaluate the current capacity of the network infrastructure and identify areas where scalability is required. • Analyze traffic patterns and trends to understand the growth in network demand. • Develop interoperability standards to ensure seamless communication between different vendors' equipment and network elements. Verify if the existing hardware and equipment can support the increased traffic demands.

• Discuss regulatory compliance regarding telecommunications standards and spectrum allocation policies. • Identify emerging networking technologies and advancements in the field of 5G.	• Perform testing and optimization activities to verify the network's performance and finetune configuration parameters. • Integrate network types for seamless connectivity, including cellular, Wi-Fi, and satellite networks. • Utilize monitoring tools like SNMP, NetFlow, and Deep Packet Inspection (DPI) to assess network performance. • Analyze network performance metrics and make informed decisions for updates and optimizations.
Classroom Aids	
Participant handbook, Training Kit (Trainer Guide, Presentations), Whiteboard, Markers, Notebooks, and Pens, Laptop/Computer with an Internet connection, Speakers, Projector or Large screen.	
Tools, Equipment and Other Requirements	

Module 7: Verify and Prepare Hardware Equipment for 5G Installation

Mapped to NOS: TEL/N4146, v1.0

Terminal Outcomes:

- Demonstrate how to perform pre-installation analysis and preparation
- Discuss how to check equipment availability

Duration: 20:00	Duration: 15:00
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Recall 3GPP standards and specifications relevant to 5G network deployment. • Explain the principles and concepts of Multiple Input, Multiple Output (MIMO) technology. • Describe the functionality and technical requirements of passive equipment like antennas, feeders, and cables. • Discuss the functionality and technical requirements of active equipment such as gNodes and microwave link devices. • Summarize the procedures for validating and obtaining necessary licenses and permits for hardware installation. • Explain weatherproofing and protective measures to safeguard equipment from environmental elements. • Identify specific tools and equipment used for installation and configuration tasks. • Define the types of network cables, connectors, and interconnection standards used in 5G networks. • Describe grounding and lightning protection principles for equipment safety. • Discuss power supply and backup system requirements to support 5G hardware. • Explain mounting structures and hardware specifications for different installation scenarios. • Describe inventory management practices and techniques for equipment tracking. • Explain inspection techniques to identify damages or defects in hardware equipment.	• Demonstrate the ability to analyze 3GPP standards, budget, architectural, and other design documents for 5G network deployment. • Apply knowledge of MIMO antenna parameters to select appropriate configurations for 5G implementation. • Verify the availability of passive equipment and ensure its proper installation at the site. • Verify the availability of active equipment and ensure its proper installation at the site. • Validate the necessary licenses and permits for hardware installation and ensure compliance. • Inspect hardware equipment for weatherproofing and protective enclosures to meet environmental requirements. • Demonstrate the use of specialized equipment and tools for installation and configuration tasks. • Implement proper network cable and connector configurations for seamless interconnection. • Design and implement grounding and lightning protection systems for equipment safety. • Set up and test power supply and backup systems to support 5G hardware. Demonstrate the installation of mounting structures and hardware for secure antenna placement.

• Discuss health and safety regulations relevant to equipment installation and operation. • Summarize troubleshooting methodologies to address potential integration issues. • Describe the basics of network topology and architecture in 5G deployments. • Explain quality assurance and testing processes for hardware functionality and performance.	• Conduct a thorough inventory check and track hardware items as per the deployment plan. • Perform equipment inspection to identify any damages or defects before installation. • Follow health and safety regulations during equipment installation and operation. • Troubleshoot potential integration issues and resolve them effectively. • Design and plan network topology and architecture for efficient 5G deployment. • Execute quality assurance and testing processes to verify hardware functionality and performance.
Classroom Aids	
Participant handbook, Training Kit (Trainer Guide, Presentations), Whiteboard, Markers, Notebooks, and Pens, Laptop/Computer with an Internet connection, Speakers, Projector or Large screen.	
Tools, Equipment and Other Requirements	

Module 8: Design Spectrum and 5G Network Architecture

Mapped to NOS: TEL/N4146, v1.0

Terminal Outcomes:

- Illustrate the importance of spectrum utilization and 5G network design
- Elaborate the procedure of integration of network types for seamless connectivity.

Duration: 20:00	Duration: 15:00
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Define the principles of wireless communication, including radio frequency (RF) propagation, modulation techniques, and spectral efficiency. • Explain the 3GPP standards and specifications for 5G networks, including frequency bands and channel access methods. • Describe the regulatory guidelines and spectrum allocation policies governing the use of wireless frequency bands for telecommunications. • Analyze the principles of radio wave propagation and its impact on coverage, interference, and capacity planning in wireless networks. • Apply techniques for spectrum analysis and measurement to assess spectrum availability and interference levels. • Utilize methods for frequency planning and resource allocation to meet the diverse requirements of 5G services and applications. • Evaluate network architecture and design principles for dynamic spectrum sharing and efficient coexistence of different operators and technologies. • Explain advanced spectrum management techniques, such as cognitive radio, spectrum sensing, and dynamic spectrum access. (KU8) • Interpret spectrum licensing and frequency coordination processes to comply with regulatory requirements and avoid interference. • Describe network slicing concepts and how to tailor virtual network instances for different services and user groups.	• Define the principles of wireless communication, including radio frequency (RF) propagation, modulation techniques, and spectral efficiency. • Explain the 3GPP standards and specifications for 5G networks, including frequency bands and channel access methods. • Describe the regulatory guidelines and spectrum allocation policies governing the use of wireless frequency bands for telecommunications. • Analyze the principles of radio wave propagation and its impact on coverage, interference, and capacity planning in wireless networks. • Apply techniques for spectrum analysis and measurement to assess spectrum availability and interference levels. • Utilize methods for frequency planning and resource allocation to meet the diverse requirements of 5G services and applications. • Evaluate network architecture and design principles for dynamic spectrum sharing and efficient coexistence of different operators and technologies. • Explain advanced spectrum management techniques, such as cognitive radio, spectrum sensing, and dynamic spectrum access. • Interpret spectrum licensing and frequency coordination processes to comply with regulatory requirements and avoid interference. • Describe network slicing concepts and how to tailor virtual network instances for different services and user groups.

• Understand the principles of network integration and interworking between different types of networks, including cellular, Wi-Fi, and satellite. • Discuss handover mechanisms and seamless mobility management across heterogeneous network environments. • Analyze quality of service (QoS) mechanisms and traffic engineering techniques for efficient resource allocation and prioritization. • Examine the role of Fully Qualified Domain Name (FQDN) in the 5G core network for efficient communication between network functions and services. • Explore security considerations and authentication mechanisms for seamless connectivity and roaming between integrated networks. • Understand evolving trends and developments in wireless communication technologies and spectrum management practices.	• Understand the principles of network integration and interworking between different types of networks, including cellular, Wi-Fi, and satellite. • Discuss handover mechanisms and seamless mobility management across heterogeneous network environments. • Analyze quality of service (QoS) mechanisms and traffic engineering techniques for efficient resource allocation and prioritization. • Examine the role of Fully Qualified Domain Name (FQDN) in the 5G core network for efficient communication between network functions and services. • Explore security considerations and authentication mechanisms for seamless connectivity and roaming between integrated networks. • Understand evolving trends and developments in wireless communication technologies and spectrum management practices.
Classroom Aids	
Participant handbook, Training Kit (Trainer Guide, Presentations), Whiteboard, Markers, Notebooks, and Pens, Laptop/Computer with an Internet connection, Speakers, Projector or Large screen.	
Tools, Equipment and Other Requirements	

Module 9: Implement the 5G New Radio (NR) and Radio Access

Mapped to NOS: TEL/N4146, v1.0

Terminal Outcomes:

- Discuss the importance of regularly updating the database
- Demonstrate 5G radio access detection

Duration: 25:00	Duration: 25:00
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Describe the technical specifications and best practices for implementing robust network access control mechanisms in 5G networks to prevent unauthorized access and irregular data resources. • Explain the purpose and functions of firewalls and intrusion detection/prevention systems (IDS/IPS) in monitoring and filtering incoming and outgoing traffic in 5G networks. • Discuss the principles and benefits of content filtering mechanisms in blocking access to specific websites, domains, or IP addresses associated with foreign or irregular data resources. • Summarize the concepts and capabilities of traffic analysis tools and anomaly detection systems for monitoring network traffic patterns and identifying irregular or suspicious behavior in 5G networks. • Compare and contrast the utilization of deep packet inspection (DPI) techniques to analyze packet contents and identify foreign or irregular data resources based on specific protocols, signatures, or patterns in 5G networks. • Explain the importance of regular updates and patches for all network components, including routers, switches, firewalls, and security systems, to ensure the latest security measures are in place in 5G networks. • Describe the continuous monitoring and analysis of network traffic, security logs, and system events to detect and respond to any attempts to access or distribute foreign or irregular data resources in 5G networks.	• Show how to implement network access control mechanisms using suitable tools and equipment to secure the 5G system from unauthorized access and irregular data resources. • Deploy firewalls and intrusion detection/prevention systems (IDS/IPS) to monitor and filter network traffic and assess their effectiveness in mitigating threats in 5G networks. • Utilize content filtering mechanisms to block access to specific websites, domains, or IP addresses associated with foreign or irregular data resources in a practical network environment. • Employ traffic analysis tools and anomaly detection systems to monitor and analyze network traffic patterns for irregular or suspicious behavior in a simulated 5G network scenario. • Configure and operate specialized monitoring equipment to capture and analyze 5G NR physical channels and signals in a laboratory setting. • Conduct real-time monitoring of 5G NR physical channels and signals using monitoring equipment to capture dynamic changes and fluctuations in network performance. • Analyze resource allocation and scheduling mechanisms for downlink transmission in a practical 5G network setup. Perform frequency analysis on captured signals to identify the frequency range of PSS and SSS signals in a simulated 5G network.

• Discuss the principles and concepts of 5G NR Physical Channels and Signals and their significance in 5G network monitoring. • Explain the acquisition and utilization of specialized monitoring equipment capable of analyzing 5G NR physical channels and signals for real-time monitoring and analysis. • Summarize the steps involved in monitoring different 5G NR physical channels, such as the downlink and uplink channels, control channels, synchronization channels, and reference signals, to ensure proper functioning and performance. • Describe the process of conducting real-time monitoring of the 5G NR physical channels and signals to capture dynamic changes and fluctuations in the network. • Explain the methods for analyzing resource allocation and scheduling mechanisms used for downlink transmission in 5G networks. • Discuss the identification and configuration of BWP Configuration in 5G networking for efficient resource utilization and management. • Explain the role of Physical Layer Procedures in 5G networks and their impact on network performance and efficiency. • Describe the procedures for Initial Access and Cell Search in 5G networks and their significance in maintaining network connectivity and coverage. • Discuss the operations and procedures involved in PSS and SSS Detection in 5G networks for cell identification and synchronization. • Explain the process of capturing received signals and performing frequency analysis to identify the frequency range where the PSS and SSS signals are expected to be present in 5G networks. • Describe the implementation of error handling mechanisms to account for cases where the PSS or SSS signals are weak, corrupted, or not detected correctly in 5G networks.	• Demonstrate the process of synchronizing received signals with the expected timing and frame structure of the 5G system using monitoring equipment in a laboratory environment. • Apply suitable ways to implement error handling mechanisms to address weak, corrupted, or undetected PSS or SSS signals in a simulated 5G network. • Use appropriate techniques to install and rectify analog and digital beamforming in a practical 5G network configuration. • Inspect and configure beamforming settings to optimize beamforming performance in 5G networks.

• Discuss the continuous validation and verification of the accuracy and reliability of the PSS and SSS detection process in 5G networks. • Illuminate on the implementation of 5G in an industrial 4.0 setting, such as manufacturing, production, transportation, and warehousing, and assess its impact on operations and efficiency. • Elaborate how to implement 5G in various sectors, such as agriculture, entertainment, smart education, and public safety, and evaluate its suitability for different applications and services.	

Classroom Aids

Participant handbook, Training Kit (Trainer Guide, Presentations), Whiteboard, Markers, Notebooks, and Pens, Laptop/Computer with an Internet connection, Speakers, Projector or Large screen.

Tools, Equipment and Other Requirements

Module 10: Maintain workplace safety, Resource Optimization, and Hygiene Standards

Mapped to NOS: TEL/N6285, v1.0

Terminal Outcomes:

- Plan work effectively, implement safety practices and optimize use of resources

Duration: 05:00	**Duration: 10:00**
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• List the importance of following the standard operating procedures of the company w.r.t. privacy, confidentiality and security. • List the key performance indicators for the new tasks. • Identify the opportunities for team building workshops and motivational trainings. • List and explain work requirements to be followed by the team. • Identify the issues with and handle them. • Discuss correct way to show emotions at workplace. • Describe the importance of timely completion of tasks. • Explain the importance of escalation matrix. • Explain the importance of providing and receiving feedback constructively. • Analyse ways to optimize usage of resources. • List the importance, cause and effect of greening of jobs. • Identify different types of hazards such as illness, accidents, fires etc. List the causes of risks and potential hazards in a work area and ways to prevent them. • List the steps to report accident and health related issues as per SOP. • Explain the concept of waste management. • List the methods of waste disposal. • Identify the different categories of waste for the purpose of segregation.	• Demonstrate techniques to save on cost and time. • Demonstrate routine cleaning of tools, equipment and machines to ensure team follows the same. • Use resources such as water judiciously. • Check for malfunctions in equipment and report as per SOP. • Report any breaches in safety and security to the concerned person. • Illustrate ways to keep work area clean such as mopping spills and leaks, cleaning grease stains etc. • Check for spills and leaks and plug the same. • Demonstrate segregation of types of hazardous waste. • Illustrate steps to minimise waste. • Illustrate proper waste disposal procedures and how to dispose-off hazardous waste. • Illustrate ways to find exact cause of a problem and validate the same in case done by a team member.

• Differentiate between recyclable and nonrecyclable waste. • List electronic waste disposal procedures.	
Classroom Aids	
Participant handbook, Training Kit (Trainer Guide, Presentations), Whiteboard, Markers, Notebooks, Pens, Laptop/Computer with an Internet connection, Speakers, Projector or Large screen.	
Tools, Equipment and Other Requirements	

Module 11: Operational skills

Mapped to NOS: TEL/N6287, v1.0

Terminal Outcomes:

- Communicate effectively and develop interpersonal skills.
- Develop sensitivity towards differently abled people.

Duration: 05:00	Duration: 10:00
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Identify roles and responsibilities and understand organisation's policies. • List organisational guidelines for dress code, time schedules, language and other soft skill aspects. • List the different methods of communication. • Explain the importance of effective communication and interpersonal skills. • Analyse the common reasons for interpersonal conflicts and ways of managing them effectively. • Identify types of information needed by colleagues and its importance. • Identify the need for implementing standards, guidelines and practices pertaining to gender sensitivity, including work ethics and workplace etiquettes. • Explain the work ethics, workplace etiquettes as well as standards and guidelines for all genders and PwD. • List health and safety requirements for persons with disability. • List the rights, duties and benefits available at workplace for person with disability. • Identify the process of recruiting people with disability for a specific job. • Analyse the specific ways to help persons with disability overcome the challenges.	• Demonstrate how to interact with superiors in terms of escalating problems, reporting work completion and receiving feedback. • Apply team building skills to assist colleagues in maximizing effectiveness and efficiency of carrying out tasks. • Demonstrate appropriate communication skills and etiquettes while interacting with others. • Resolve conflicts with colleagues and adhere to commitment. • Demonstrate ideal workplace ethics while interacting with colleagues with respect to sharing information, co-ordinating work and showing respect. • Follow organisation's policy for working with team members. • Illustrate importance of team goals over individual goals. • Use inclusive language irrespective of the gender/ disability of the person. • Demonstrate appropriate behaviour towards all genders and differently abled people.
Classroom Aids	
Participant handbook, Training Kit (Trainer Guide, Presentations), Whiteboard, Markers, Notebooks, and Pens, Laptop/Computer with an Internet connection, Speakers, Projector or Large screen.	

Tools, Equipment and Other Requirements

Module 12: DGT/VSQ/N0101: Employability Skills (30 Hours)

Duration: 30:00

Key Learning Outcomes

Introduction to Employability Skills Duration: 1 Hour

After completing this programme, participants will be able to:

1. Outline the importance of Employability Skills for the current job market and future of work
2. List different learning and employability related GOI and private portals and their usage
3. Research and prepare a note on different industries, trends, required skills and the available opportunities

Constitutional values - Citizenship Duration: 1 Hour

4. 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
5. Demonstrate how to practice different environmentally sustainable practices

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

6. Discuss relevant 21st century skills required for employment
7. Highlight the importance of practicing 21st century skills like Self-Awareness, Behavior 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
8. Create a pathway for adopting a continuous learning mindset for personal and professional development

Basic English Skills Duration: 2 Hours

9. Show how to use basic English sentences for everyday conversation in different contexts, in person and over the telephone
10. Read and understand text written in basic English
11. Write a short note/paragraph / letter/e -mail using correct basic English

Career Development & Goal Setting Duration: 1 Hour

12. Create a career development plan
13. Identify well-defined short- and long-term goals

Communication Skills Duration: 3 Hours

14. Demonstrate how to communicate effectively using verbal and nonverbal communication etiquette
15. Write a brief note/paragraph on a familiar topic
16. Explain the importance of communication etiquette including active listening for effective communication
17. Role play a situation on how to work collaboratively with others in a team

Diversity and Inclusion Duration: 1 Hour

18. Demonstrate how to behave, communicate, and conduct appropriately with all genders and PwD
19. Discuss the significance of escalating sexual harassment issues as per POSH act

Financial and Legal Literacy Duration: 4 Hour

20. Discuss various financial institutions, products, and services
21. Demonstrate how to conduct offline and online financial transactions, safely and securely and check passbook/statement
22. Explain the common components of salary such as Basic, PF, Allowances (HRA, TA, DA, etc.), tax deductions
23. Calculate income and expenditure for budgeting
24. Discuss the legal rights, laws, and aids

Essential Digital Skills Duration: 3 Hours

25. Describe the role of digital technology in day-to-day life and the workplace
26. Demonstrate how to operate digital devices and use the associated applications and features, safely and securely
27. Demonstrate how to connect devices securely to internet using different means
28. Follow the dos and don'ts of cyber security to protect against cyber crimes
29. Discuss the significance of displaying responsible online behavior while using various social media platforms
30. Create an e-mail id and follow e- mail etiquette to exchange e -mails
31. Show how to create documents, spreadsheets and presentations using appropriate applications
32. utilize virtual collaboration tools to work effectively

Entrepreneurship Duration: 7 Hours

33. Explain the types of entrepreneurship and enterprises
34. Discuss how to identify opportunities for potential business, sources of funding and associated financial and legal risks with its mitigation plan
35. Describe the 4Ps of Marketing-Product, Price, Place and Promotion and apply them as per requirement
36. Create a sample business plan, for the selected business opportunity

Customer Service Duration: 4 Hours

37. Classify different types of customers
38. Demonstrate how to identify customer needs and respond to them in a professional manner
39. Discuss various tools used to collect customer feedback
40. Discuss the significance of maintaining hygiene and dressing appropriately

Getting ready for apprenticeship & Jobs Duration: 2 Hours

41. Draft a professional Curriculum Vitae (CV)
42. Use various offline and online job search sources to find and apply for jobs
43. Discuss the significance of maintaining hygiene and dressing appropriately for an interview
44. Role play a mock interview
45. List the steps for searching and registering for apprenticeship opportunities

Module 13: On-the-Job Training

Mapped to QP: TEL/Qxxxx, v1.0

Mandatory Duration: 150:00	Recommended Duration: 00:00
Location: On-Site	

Terminal Outcomes

1. Examine the reports made by OSS to find common issues and faults.
2. Interpret the results of various logs.
3. Develop a strategy to identify various faults in BSS nodes.
4. Conduct tests to diagnose the cause and alarm severity.
5. Create a report analyzing real-time alarm data to be sent to the field team for troubleshooting purposes.
6. Create a complete maintenance work schedule.
7. Formulate a cost sheet to compare the costs of different fault solutions.
8. Ensure that required software and hardware is available as per the team use.
9. Perform physical and logical maintenance tasks.
10. Observe maintenance activities to be performed by a third party.
11. Revise required maintenance documents as per the changes.
12. Plan maintenance activities as per given requirements and timelines.
13. Monitor and supervise hardware and software-related upgrades and maintenance activities.
14. Set up an alternative plan for possible service disruption as per the guidelines.
15. Ensure proper backup is obtained of BSC configuration.
16. Implement robust network access control mechanisms on the field to secure the 5G system from unauthorized access and irregular data resources.
17. Deploy firewalls and intrusion detection/prevention systems (IDS/IPS) on-site to monitor and filter network traffic in real-world scenarios.
18. Perform installation and configuration of base stations, RAN elements, and core network components based on network design at actual deployment sites.
19. Conduct network planning activities on the field to design the coverage and capacity of the 5G network in real-world environments.
20. Integrate different network types, including cellular, Wi-Fi, and satellite networks, to ensure seamless connectivity on-site.
21. Utilize monitoring tools like SNMP, NetFlow, and Deep Packet Inspection (DPI) to assess network performance and troubleshoot issues in practical settings.
22. Analyze network performance metrics during on-site testing and optimization activities to verify the network's performance and fine-tune configuration parameters.

23. Verify if the existing hardware and equipment can support the increased traffic demands at real deployment sites.

24. Demonstrate the ability to inspect hardware equipment and identify damages or defects before installation while on the field.

25. Implement Quality of Service (QoS) mechanisms on-site to prioritize critical services and applications and ensure a reliable user experience in actual network conditions.

26. Deploy firewalls and intrusion detection/prevention systems (IDS/IPS) on-site to monitor and filter network traffic and assess their effectiveness in real-world scenarios.

27. Configure and operate specialized monitoring equipment to capture and analyze 5G NR physical channels and signals in a practical network environment.

28. Conduct real-time monitoring of 5G NR physical channels and signals using monitoring equipment to capture dynamic changes and fluctuations in network performance on-site.

29. Analyze resource allocation and scheduling mechanisms for downlink transmission in a practical 5G network setup during fieldwork.

30. Perform frequency analysis on captured signals to identify the frequency range of PSS and SSS signals in a real-world 5G network environment.

31. Demonstrate the process of synchronizing received signals with the expected timing and frame structure of the 5G system using monitoring equipment in the field.

32. Apply suitable techniques to install and rectify analog and digital beamforming on-site in a 5G network configuration.

33. Inspect and configure beamforming settings to optimize beamforming performance in 5G networks while working on the field.

Annexure

Trainer Requirements

Trainer Prerequisites						
Minimum Educational Qualification	**Specialization**	**Relevant Industry Experience**		**Training Experience**		**Remarks**
		Years	***Specialization***	***Years***	***Specialization***	
Graduate	Electronics and Communication /Telecom/ Information Technology/ Computer Science and other relevant fields.	2	Wireless	2	Wireless	Eligible for ToT

Trainer Certification	
Domain Certification	**Platform Certification**
Certified for Job Role: "Wireless Network Technician" mapped to QP: "TEL/Q4111, v1.0". Minimum accepted score is 80%.	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 Experience**		**Remarks**
		Years	***Specialization***	***Years***	***Specialization***	
Graduate	Electronics and Communication /Telecom/ Information Technology/ Computer Science and other relevant fields.	2	Wireless	2	Wireless	Eligible for ToA

Assessor Certification	
Domain Certification	**Platform Certification**
Certified for Job Role: "Wireless Network Technician" mapped to QP: "TEL/Q4111, v1.0". 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%.

References

Glossary

Sector	Sector is a conglomeration of different business operations having similar business and interests. It may also be defined as a distinct subset of the economy whose components share similar characteristics and interests.
Sub-sector	Sub-sector is derived from a further breakdown based on the characteristics and interests of its components.
Occupation	Occupation is a set of job roles, which perform similar/ related set of functions in an industry.
Job role	Job role defines a unique set of functions that together form a unique employment opportunity in an organisation.
Occupational Standards (OS)	OS specify the standards of performance an individual must achieve when carrying out a function in the workplace, together with the Knowledge and Understanding (KU) they need to meet that standard consistently. Occupational Standards are applicable both in the Indian and global contexts.
Performance Criteria (PC)	Performance Criteria (PC) are statements that together specify the standard of performance required when carrying out a task.
National Occupational Standards (NOS)	NOS are occupational standards which apply uniquely in the Indian context.
Qualifications Pack (QP)	QP comprises the set of OS, together with the educational, training and other criteria required to perform a job role. A QP is assigned a unique qualifications pack code.
Unit Code	Unit code is a unique identifier for an Occupational Standard, which is denoted by an 'N'
Unit Title	Unit title gives a clear overall statement about what the incumbent should be able to do.
Description	Description gives a short summary of the unit content. This would be helpful to anyone searching on a database to verify that this is the appropriate OS they are looking for.
Scope	Scope is a set of statements specifying the range of variables that an individual may have to deal with in carrying out the function which have a critical impact on quality of performance required.

Knowledge and Understanding (KU)	Knowledge and Understanding (KU) are statements which together specify the technical, generic, professional and organisational specific knowledge that an individual needs in order to perform to the required standard.
Organisational Context	Organisational context includes the way the organisation is structured and how it operates, including the extent of operative knowledge managers have of their relevant areas of responsibility.
Technical Knowledge	Technical knowledge is the specific knowledge needed to accomplish specific designated responsibilities.
Core Skills/ Generic Skills (GS)	Core skills or Generic Skills (GS) are a group of skills that are the key to learning and working in today's world. These skills are typically needed in any work environment in today's world. These skills are typically needed in any work environment. In the context of the OS, these include communication related skills that are applicable to most job roles.
Electives	Electives are NOS/set of NOS that are identified by the sector as contributive to specialization in a job role. There may be multiple electives within a QP for each specialized job role. Trainees must select at least one elective for the successful completion of a QP with Electives.
Options	Options are NOS/set of NOS that are identified by the sector as additional skills. There may be multiple options within a QP. It is not mandatory to select any of the options to complete a QP with Options.

Acronyms and Abbreviations

NOS	National Occupational Standard(s)
NSQF	National Skills Qualifications Framework
QP	Qualifications Pack
TVET	Technical and Vocational Education and Training
PC	Performance Criteria
SSC	Sector Skill Council
AA	Assessment Agency
ToT	Training of Trainers
ToA	Training of Assessors
VTP	Vocational Training Partner
TC	Training Center
SME	Subject Matter Expert