



Model Curriculum

QP Name: Tower Technician

QP Code: TEL/Q4100

QP Version: 2.0

NSQF Level: 4

Model Curriculum Version: 1.0

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Training Parameters

Sector	Telecom
Sub-Sector	Passive Infrastructure
Occupation	Operation and Maintenance – Passive Infrastructure
Country	India
NSQF Level	4
Aligned to NCO/ISCO/ISIC Code	NCO-2015/7422.3001
Minimum Educational Qualification and Experience	12 th Class
Minimum Level of Education for Training in School	10 th Class
Pre-Requisite License or Training	NA
Minimum Job Entry Age	18 Years
Last Reviewed On	28/09/2020
Next Review Date	28/09/2025
NSQC Approval Date	TBD
QP Version	2.0
Model Curriculum Creation Date	28/09/2020
Model Curriculum Valid Up to Date	28/09/2025
Model Curriculum Version	1.0
Minimum Duration of the Course	400 Hours, 0 Minutes
Maximum Duration of the Course	400 Hours, 0 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 will be able to:

- Perform preventive and corrective maintenance at the tower
- Manage site operation and site administration
- Optimize resources, work efficiently and adhere to safety standards
- Interact effectively with others while being sensitive of gender and persons with disabilities

Compulsory Modules

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

NOS and Module Details	Theory Duration	Practical Duration	On-the-Job Training Duration (Mandatory)	On-the-Job Training Duration (Recommended)	Total Duration
Bridge Module(s)	04:00	00:00	00:00	00:00	04:00
Module 1: Role and Responsibilities of a Tower Technician	04:00	00:00	00:00	00:00	04:00
TEL/N4101– Maintain the Tower Site and Report Periodically NOS Version No. 1.0 NSQF Level 4	68:00	96:00	00:00	00:00	164:00
Module 2: Preventive and Corrective Maintenance at the Tower	68:00	96:00	00:00	00:00	164:00
TEL/N4102– Manage Site Operation Safety and Hygienically NOS Version No. 1.0 NSQF Level 4	60:00	92:00	00:00	00:00	152:00
Module 3: Manage Safe and Hygiene Site Operation	60:00	92:00	00:00	00:00	152:00
TEL/N9101- Organize Work and Resources as Per Health and Safety Standard NOS Version No. 1.0 NSQF Level 4	16:00	24:00	00:00	00:00	40:00
Module 4: Optimize Resources and Work Effectively and safely	16:00	24:00	00:00	00:00	40:00
TEL/N9102 – Interact effectively with Team Members and Customers NOS Version No. 1.0	16:00	24:00	00:00	00:00	40:00



Module 5: Communication and Interpersonal Skills	16:00	24:00	00:00	00:00	40:00
Total Duration	164:00	236:00	00:00	00:00	400:00

Module Details

Module 1: Role and Responsibilities of a Tower Technician

Bridge Module

Terminal Outcomes:

- Describe the role and responsibilities of a Tower Technician
- Explain the scope of work for a Tower technician

Duration: 04:00	Duration: 00:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none"> • Discuss the size and scope of the Telecom industry and Passive infrastructure sub-sector • Outline the course objectives and outcomes • Identify the roles and responsibilities of a Tower Technician • Discuss the career progression of a Tower Technician in the Telecom industry • Explain the basics of telecom and the terminologies used in the work process 	<ul style="list-style-type: none"> • NA
Classroom Aids	
Whiteboard, Markers, Duster, Projector, Laptop, Presentation	
Tools, Equipment and Other Requirements	
NA	

Module 2: Preventive and Corrective Maintenance at the Mapped to TEL/N4138 v 1.0

Terminal Outcomes:

- Perform preventive and corrective maintenance activities
- Complete the documentation process Outcome 3

Duration: 68:00	Duration: 96:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none"> • Discuss the functions of various electrical/electronic components and tools/equipment used at the tower site • Discuss the importance and implications of maintenance activities at the tower site • Describe fault analysis procedures and safety measures for different tools and mechanical equipment • Distinguish between preventive and corrective maintenance • Explain the processes of preventive maintenance and corrective maintenance • Interpret the standard operating procedures while performing preventive and corrective maintenance and the escalation matrix • Discuss commonly occurring hazards while handling the battery bank, AC (access concentrator), DG (diesel generator), PIU (power interface unit), SMPS (switched mode power supply), shelter, etc. at the tower site; along with related/appropriate precautions to avoid them • List the do's and don'ts while installing a DG (Diesel Generator) and avoid common mistakes that occur during the process 	<ul style="list-style-type: none"> • Identify different tools and equipment required for preventive and corrective maintenance activities at the tower • Perform discharge tests and equalization charging to remove the faulty cell from the battery bank • Demonstrate Boost charging of the cell • Inspect the Battery Bank, Diesel Generator, Air Conditioner, PIU (Power Interface Unit), and SMPS (Switched Mode Power Supply) to analyse for premature ageing and faults • Perform the preventive and corrective maintenance of a DG, AC, PIU, SMPS, Tower and shelter • Analyse the site uptime and compare with the site downtime • Demonstrate the analyses and repair of recurring faults at the site • Identify and fill requisite checklists for corrective and preventive maintenance • Draft a report to escalate any faults or issues to the supervisor/authority
Classroom Aids	
Training kit (Trainer guide, Presentations), Whiteboard, Markers, Duster, Computer, Projector, Participant Handbook	
Tools, Equipment and Other Requirements	
PIU, PMU, Battery Bank, AC Unit, SMPS, DG set, Tester, Multi-meter, Electrical tools, Megger, Service Level Agreement, Related SOPs, etc.	

Module 3: Manage Safe and Hygiene Site Operation

Mapped to TEL/N4102 v 1.0

Terminal Outcomes:

- Manage Site Operation and site administration
- Maintain safety and hygiene at the site

Duration: 60:00	Duration: 92:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none"> • Distinguish between various features and functions of different power equipment. Understand three phase electric power supply and methods to measure it • Outline the fundamentals of electric wiring • Understand the functioning of NOC (Network Operational Centre) and TOC (Telecom Operations Control) • Describe various methods for monitoring civil and mechanical installation at the tower site • Identify and describe the components and various aspects of distribution panel • Discuss various types of alarms and the procedures to examine them • Explain the functionalities and working of the sensors deployed on the site • Adhere to the standards and follow the check list while performing inspection of the site/regular site visit • Identify and interpret various floor markings, shadow board display and labels • State the importance of certifying the service vendors for quality work in time 	<ul style="list-style-type: none"> • Demonstrate using and maintaining various power equipment • Perform electric wiring • Demonstrate an inspection of all the civil and mechanical installations at the site • Show multiple techniques to identify the faulty alarms and take corrective measures • Perform the maintenance of AC (Access Concentrator), DG (Distributed generation), PIU (Power interface unit), SMPS (Switch Mode Power Supply) and battery bank • Demonstrate, as to how reading of the electricity bill can be captured and perform measuring and recording the fuel consumption • Perform various site management activities • Record all test readings and document the results/findings in proper formats
Classroom Aids	
Training kit (Trainer guide, Presentations), Whiteboard, Markers, Duster, Computer, Projector, Participant Handbook	
Tools, Equipment and Other Requirements	
PIU, PMU, SPSM Battery Bank, AC Unit, Tester, multi meter and electrical tools, Megger	

Module 4: Organize Work and Resources as per Health and Safety Standards

Mapped to TEL/N9101 v 1.0

Terminal Outcomes:

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

Duration: 16:00	Duration: 24:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none"> List the recent skills and technologies prevalent in the telecom industry Discuss some commonly occurring problems with their causes and solutions State the importance of keeping the workplace clean, safe and tidy Outline the organizational structure to assign duties and responsibilities to each team member List different types of hazards and the procedure to report it to the supervisor List the precautionary steps one needs to follow while handling hazardous materials State the importance of participating in fire drills and other safety workshops Discuss the significance of conforming to basic hygiene practices such as washing hands, using alcohol-based hand sanitizers List the different methods of cleaning, disinfection, sanitization etc Define self-quarantine or self-isolation Explain the path of disease transmission Discuss organizational hygiene and sanitation guidelines and ways of reporting breaches/gaps if any Explain the ways to optimize usage of resources Discuss various methods of waste management and its disposal List the different categories of waste for the purpose of segregation Differentiate between recyclable and non-recyclable waste 	<ul style="list-style-type: none"> Prepare a time schedule to complete the tasks on the given time Demonstrate the use of safety equipment such as goggles, gloves, ear plugs, shoes, etc. Demonstrate the correct postures while working and handling hazardous materials at the workplace Demonstrate how to evacuate the workplace in case of an emergency Show how to sanitize and disinfect one's work area regularly Demonstrate the correct way of washing hands using soap and water Demonstrate the correct way of sanitizing hands using alcohol-based hand rubs Display the correct way of wearing and removing PPE such as face masks, hand gloves, face shields, PPE suits, etc. Demonstrate warning labels, symbols and other related signages Perform basic checks to identify any spills and leaks and that need to be plugged /stopped Demonstrate different disposal techniques depending upon different types of waste Employ different ways to clean and check if equipment/machines are functioning as per requirements and report malfunctioning, if observed Employ ways for efficient utilization of material and water Use energy efficient electrical appliances and devices to ensure energy conservation

- State the importance of using appropriate color dustbins for different types of waste
- Discuss the common sources of pollution and ways to minimize it

Classroom Aids

White board/ black board marker / chalk, Duster, Computer or Laptop attached to LCD projector

Tools, Equipment and Other Requirements

Personal Protection Equipment: Safety glasses, Head protection, Rubber gloves, Safety footwear, Warning signs and tapes, Fire extinguisher and First aid kit

Module 5: Communication and Interpersonal Skills

Mapped to TEL/N9102 v 1.0

Terminal Outcomes:

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

Duration: 16:00	Duration: 24:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none"> • Discuss the importance of following the standard operating procedures of the company w.r.t. priority, confidentiality and security • Outline the organizational structure to receive work instruction and report issues to the supervisor • Discuss the importance of having timely discussions with all genders to avoid repeated errors • State the importance of co-ordinating and resolving conflicts with the team members to achieve smooth work flow • Discuss about the different types of disabilities with their respective issues • State 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 • Describe the rights, duties and benefits available at workplace for person with disability • Explain the process of recruiting people with disability for a specific job • Discuss the specific ways to help people with disability to overcome the challenges 	<ul style="list-style-type: none"> • Use different modes of communication as per requirement and need • Prepare a sample report of the commonly occurring errors and their solutions • Use inclusive language irrespective of the gender/ disability of the person • Demonstrate appropriate behaviour towards all genders and differently abled people • Prepare a list of institutes and government schemes that help PwD in overcoming challenges • Demonstrate the ideal behaviour with a PwD in an organization
Classroom Aids	
Whiteboard and Markers, Chart paper and sketch pens, LCD Projector and Laptop for presentations	
Tools, Equipment and Other Requirements	
Sample of escalation matrix, organisation structure	

Annexure

Trainer Requirements

Trainer Prerequisites						
Minimum Educational Qualification	Specialization	Relevant Industry Experience		Training Experience		Remarks
		Years	Specialization	Years	Specialization	
ITI/Diploma	Electronics/Telecom/IT and other relevant field	2	Telecom	0		Eligible for ToT program

Trainer Certification	
Domain Certification	Platform Certification
Job Role: "Tower Technician Level 4" "TEL/Q4100" version "2.0", Minimum accepted score is 80%	Job Role: "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/Diploma	Electronics/Telecom/IT and other relevant field	2	Telecom	0		Eligible for ToA program

Assessor Certification	
Domain Certification	Platform Certification
Job Role: "Tower Technician Level 4" "TEL/Q4100" version "2.0", Minimum accepted score is 80%	Job Role: "Assessor" "MEP/Q2701 v1.0", Minimum accepted score is 80%

Assessment Strategy

This section includes the processes involved in identifying, gathering and interpreting information to evaluate the learner on the required competencies of the program.

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 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
- 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

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

Term	Description
QP	Qualification Pack
NSQF	National Skills Qualification Framework
NSQC	National Skills Qualification Committee
NOS	National Occupational Standards
AC	Air Conditioner
DG	Diesel Generator
PIU	Power Interface Unit
SMPS	Switch Mode Power Supply
BB	Battery Bank
IPMS	Integrated Power Management System
OPCO	Operating Company
PM	Preventive Maintenance
OPEX	Operating Expenditure
PPE	Personal Protective Equipment
RCA	Root Cause Analysis
PwD	Persons with Disabilities
CRM	Customer Relationship Management
EB	Electricity Board
RFS	Radio Frequency Services
NOC	Network Operating Centre
SRN	Service Request Number



Model Curriculum

QP Name: RF (Radio Frequency) Site Surveyor

QP Code: TEL/Q4103

QP Version: 2.0

NSQF Level: 4

Model Curriculum Version: 1.0



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Training Parameters

Sector	Telecom
Sub-Sector	Passive Infrastructure
Occupation	Operation and Maintenance – Passive Infrastructure
Country	India
NSQF Level	4
Aligned to NCO/ISCO/ISIC Code	NCO-2015/7422.1901
Minimum Educational Qualification and Experience	12 th Class
Minimum Level of Education for Training in School	10 th Class
Pre-Requisite License or Training	NA
Minimum Job Entry Age	18 Years
Last Reviewed On	18/03/2021
Next Review Date	18/03/2026
NSQC Approval Date	TBD
QP Version	2.0
Model Curriculum Creation Date	18/03/2021
Model Curriculum Valid Up to Date	18/03/2026
Model Curriculum Version	1.0
Minimum Duration of the Course	400 Hours, 0 Minutes
Maximum Duration of the Course	400 Hours, 0 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 will be able to:

- Perform Radio Frequency site survey activities
- Determine the height and direction antenna
- Perform the activities for estimate the tower height
- Apply appropriate activities to conduct Line of Site survey
- Describe how to optimize resources, work efficiently and adhere to safety standards
- Interact effectively with others while being sensitive of gender and persons with disabilities

Compulsory Modules

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

NOS and Module Details	Theory Duration	Practical Duration	On-the-Job Training Duration (Mandatory)	On-the-Job Training Duration (Recommended)	Total Duration
Bridge Module	04:00	00:00	00:00	00:00	04:00
Module 1: Role and Responsibilities of a RF (Radio Frequency) Site Surveyor	04:00	00:00	00:00	00:00	04:00
TEL/N4115– Perform Survey of Allocated Site NOS Version No. 2.0 NSQF Level 4	68:00	96:00	00:00	00:00	164:00
Module 2: Perform the Site Survey Activities	68:00	96:00	00:00	00:00	164:00
TEL/N4116– Perform Line of Site Survey (LOS) NOS Version No. 2.0 NSQF Level 4	60:00	92:00	00:00	00:00	152:00
Module 3: Perform Line of Site Survey Activities	60:00	92:00	00:00	00:00	152:00
TEL/N9101- Organize Work and Resources as Per Safety Standard NOS Version No. 1.0 NSQF Level 4	16:00	24:00	00:00	00:00	40:00

Module 4: Optimize Resources and Work Effectively and safely	16:00	24:00	00:00	00:00	40:00
TEL/N9102 – Communicate effectively with Team Members and Customers NOS Version No. 1.0	16:00	24:00	00:00	00:00	40:00
Module 5: Communication and Interpersonal Skills	16:00	24:00	00:00	00:00	40:00
Total Duration	164:00	236:00	00:00	00:00	400:00

Module Details

Module 1: Role and Responsibilities of a RF (Radio Frequency) Site Surveyor

Bridge Module

Terminal Outcomes:

- Describe the role and responsibilities of a RF (Radio Frequency) Site Surveyor

Duration: 04:00	Duration: 00:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none"> Discuss the size and scope of the Telecom industry and Passive Infrastructure sub-sector. Identify the roles and responsibilities of a RF (Radio Frequency) Site Surveyor Discuss the career progression of a RF (Radio Frequency) Site Surveyor in the Telecom industry. Explain the fundamentals and concept of telecommunication and the terminologies used in the work process. 	
Classroom Aids	
Whiteboard, Markers, Duster, Projector, Laptop, Presentation	
Tools, Equipment and Other Requirements	
NA	

Module 2: Perform Site Survey Activities

Mapped to TEL/N4115 v 2.0

Terminal Outcomes:

- Explain appropriate tools and technology required for the smooth workflow
- Perform the steps to identify the site location
- Perform the procedure to estimate the height and direction of the antenna
- Perform tower height estimation activities
- Demonstrate how to complete the documentation process

Duration: 68:00	Duration: 96:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none"> • Discuss the functions and features of various survey tools/equipment used for RF survey. • State the specifications and use of a Search Area Map (SAM). • Explain various types of clutter, its implication on site performance and procedure to measure clutter information. • Elaborate the procedure to identify and understand signal blockage/ transmission affecting agents (e.g. large water body, power line etc.). • State the significance of identifying physical location of the nominals on the site and locating other optional locations. • Discuss the importance of identifying the owners and recording ownership details for the proposed site. • Explain the principles of RF (Radio Frequency) propagation • Describe the procedure to calculate azimuth for the coverage. 	<ul style="list-style-type: none"> • Demonstrate the operation and usage of different tools and equipment like GPS, compass, binocular, laser meter, camera, etc. required to survey the site location. • Apply professional efficiency to locate the proposed site and interpret the information given in a SAM (Search Area Map). • Demonstrate how to use MapInfo Software. • Perform the steps to document GPS data and record proposed options at the given nominals. • Demonstrate the procedure to capture images in the proposed antenna azimuth for coverage. • Demonstrate the procedure to estimate the required antenna height and orientation based on clutter. • Apply appropriate practices to interpret and record the clutter and hotspot information. • Apply professional skills to mark the proposed tower on the rough sketch of the building. • Perform the steps to capture AMSL (Above Mean Sea Level) data. • Show how to estimate the height for the proposed tower and verify the proposed height if already available. • Perform the steps to record the proposed height and Advanced Semi-

	conductor Material Lithography (ASML) data as per specified format.
Classroom Aids	
Training kit (Trainer guide, Presentations), Whiteboard, Markers, Duster, Computer, Projector, Participant Handbook	
Tools, Equipment and Other Requirements	
GPS device, Camera, Binoculars, Compass, Laptop, Search Area Map (SAM), Laser meter, Measuring tape (50m), MapInfo Software	

Module 3: Perform Line of Site Survey Activities

Mapped to TEL/N4116 v 2.0

Terminal Outcomes:

- Perform the procedure of physical site survey for LOS
- Demonstrate how to complete all relevant documentation

Duration: 60:00	Duration: 92:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none"> • Discuss the significance of wearing proper Personal Protective Equipment (PPE) while performing the survey. • Distinguish between various features and functions of Line of Site survey tools and equipment. • Discuss the basic concepts of path budget. • Discuss the importance of calculating azimuth, frequency, and elevation. • Describe the components of LOS path profile. • State the significance of capturing multiple images in the direction of the far site at different zooming levels. • Explain various types of obstacles and their implications and reflective potential. • State the significance of using LOS survey template to fill all required data. 	<ul style="list-style-type: none"> • Apply appropriate procedure to ensure availability of various equipment used to conduct LOS survey. • Demonstrate the operating procedure of radio link design and planning tools • Perform the steps to calculate path budget. • Demonstrate the procedure to calculate azimuth, elevation, frequency, polarization and target received signal level. • Perform the steps to carry out LOS survey. • Apply appropriate practices to observe adequate Fresnel zone clearance for each path object. • Perform the steps of analysing on-fourth points to identify potential obstructions. • Demonstrate the procedure of microwave path performance calculations and topographic mapping. • Demonstrate the techniques to capture images of the site surroundings every 45-degree starting from 0 to 215-degrees. • Apply appropriate practices to verify the Line of Site trajectory. • Perform the steps of recording latitude and longitude of the site as well as terrain data of the building, obstruction and surrounding.
Classroom Aids	
Training kit (Trainer guide, Presentations), Whiteboard, Markers, Duster, Computer, Projector, Participant Handbook	
Tools, Equipment and Other Requirements	
Compass, Signal analyser, Personal Protective Equipment (PPE) kit, GPS, Camera, Forms and formats of the reports, Camera	

Module 4: Organize Work and Resources as per Health and Safety Standards

Mapped to TEL/N9101 v 1.0

Terminal Outcomes:

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

Duration: 16:00	Duration: 24:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none"> List the recent skills and technologies prevalent in the telecom industry. Discuss the commonly occurring problems with their causes and solutions. State the importance of keeping the workplace clean, safe and tidy. List different types of hazards and the procedure to report it to the supervisor. List the precautionary steps one needs to follow while handling hazardous materials. State the importance of participating in fire drills and other safety workshops. Discuss the significance of conforming to basic hygiene practices such as washing hands, using alcohol-based hand sanitizers. List the different methods of cleaning, disinfection, sanitization, etc Discuss the importance of self-quarantine or self-isolation. Explain the path of disease transmission. Discuss organizational hygiene and sanitation guidelines and ways of reporting breaches/gaps, if any. Explain the ways to optimize usage of resources. Discuss various methods of waste management and disposal. List the different categories of waste for the purpose of segregation. Differentiate between recyclable and non-recyclable waste. State the importance of using appropriate color dustbins for different types of waste. 	<ul style="list-style-type: none"> Prepare a time schedule to complete the tasks on the given time. Demonstrate the use of safety equipment such as goggles, gloves, ear plugs, shoes, etc. Demonstrate the correct postures while working and handling hazardous materials at the workplace. Demonstrate how to evacuate the workplace in case of an emergency. Show how to sanitize and disinfect one's work area regularly. Demonstrate the correct way of washing hands using soap and water. Demonstrate the correct way of sanitizing hands using alcohol-based hand rubs. Display the correct way of wearing and removing PPE such as face masks, hand gloves, face shields, PPE suits, etc. Demonstrate warning labels, symbols and other related signages. Perform basic checks to identify any spills and leaks and that need to be plugged /stopped. Demonstrate different disposal techniques depending upon different types of waste. Employ different ways to clean and check if equipment/machines are functioning as per requirements and report malfunctioning, if observed. Demonstrate ways for efficient utilization of material and water.

<ul style="list-style-type: none"> • Discuss the common sources of pollution and ways to minimize it. 	
Classroom Aids	
White board/ black board marker / chalk, Duster, Computer or Laptop attached to LCD projector	
Tools, Equipment and Other Requirements	
Personal Protection Equipment: Safety glasses, Head protection, Rubber gloves, Safety footwear, Warning signs and tapes, Fire extinguisher and First aid kit	

Module 5: Communication and Interpersonal Skills

Mapped to TEL/N9102 v 1.0

Terminal Outcomes:

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

Duration: 16:00	Duration: 24:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none"> • Discuss the importance of following the standard operating procedures of the company w.r.t priority, confidentiality and security. • Explain the standard procedure of communication and escalations of issues at the workplace. • Discuss the importance of timely rectification of issues. • State the importance of co-ordinating and resolving conflicts with the team members to achieve smooth workflow. • Discuss about the different types of disabilities with their respective issues. • List health and safety requirements for persons with disability. • Describe the rights, duties and benefits available at workplace for person with disability. • Explain the process of recruiting people with disability for a specific job. • Discuss the specific ways to help people with disability to overcome the challenges. 	<ul style="list-style-type: none"> • Use different modes of communication as per requirement and need. • Prepare a sample report of the commonly occurring errors and their solutions. • Demonstrate the use of gender and PwD (Person with Disability) inclusive language. • Prepare a list of institutes and government schemes that help PwD in overcoming challenges. • Demonstrate the ideal behaviour with a PwD in an organization.
Classroom Aids	
Whiteboard and Markers, Chart paper and sketch pens, LCD Projector and Laptop for presentations	
Tools, Equipment and Other Requirements	
Sample of escalation matrix, organisation structure	

Annexure

Trainer Requirements

Trainer Prerequisites						
Minimum Educational Qualification	Specialization	Relevant Industry Experience		Training Experience		Remarks
		Years	Specialization	Years	Specialization	
ITI/Diploma	Electronics/Telecom/IT and other relevant fields	2	Telecom	0	NA	Eligible for ToT Program

Trainer Certification	
Domain Certification	Platform Certification
Job Role: "RF (Radio Frequency) Site Surveyor Level 4" "TEL/Q4103" version 2.0, Minimum accepted score is 80%	Job Role: "Trainer", "MEP/Q2601, v 1.0", 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/Diploma	Electronics/Telecom/IT and other relevant fields	2	Telecom	0	NA	Eligible for ToA Program

Assessor Certification	
Domain Certification	Platform Certification
Job Role: “RF (Radio Frequency) Site Surveyor Level 4” “TEL/Q4103” version 2.0, Minimum accepted score is 80%	Job Role: “Assessor” “MEP/Q2701, v 1.0”, Minimum accepted score is 80%

Assessment Strategy

This section includes the processes involved in identifying, gathering and interpreting information to evaluate the learner on the required competencies of the program.

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 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
- 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

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

Term	Description
QP	Qualification Pack
NSQF	National Skills Qualification Framework
NSQC	National Skills Qualification Committee
NOS	National Occupational Standards
AC	Air Conditioner
DG	Diesel Generator
PIU	Power Interface Unit
TVET	Technical and Vocational Education and Training
AMSL	Above Mean Sea Level
BTS	Base Transceiver Station
OPCO	Operating Company
GPS	Global Positioning System
RF	Radio Frequency
PPE	Personal Protective Equipment
OHS	Organizational Health and Safety
PwD	Persons with Disabilities
SHE	Safety Health and Environment
SAM	Search Area Map
RFS	Radio Frequency Services
NOC	Network Operating Centre