





Model Curriculum

QP Name: Internet Support Technician

QP Code: TEL/Q4301

QP Version: 1.0

NSQF Level: 4

Model Curriculum Version: 1.0

Telecom Sector Skill Council Estel House, 3rd Floor, Plot No: - 126, Sector 44 Gurugram, Haryana 122001





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Training Parameters Skill India



Sector	Telecom
Sub-Sector	Passive Infrastructure
Occupation	Customer Service – Passive Infrastructure
Country	India
NSQF Level	4
Aligned to NCO/ISCO/ISIC Code	NCO-2015/3114.0804
Minimum Educational Qualification & Experience	Completed 2nd year of UG OR Pursuing 2nd year of UG and continuous education OR Completed 2nd year of diploma (after 12th) OR Pursuing 2nd year of 2-year diploma after 12th OR 12th pass with 1-year Vocational Education & training (NTC or NAC or CITS) OR Completed 3-year diploma after 10th with 1 year of relevant experience OR 12th Grade pass with 2 years of relevant experience OR 10th Grade pass with 4 years of relevant experience
Pre-Requisite License or Training	NA
Minimum Job Entry Age	17 Years
Last Reviewed On	15/02/2023
Next Review Date	15/08/2023
NSQC Approval Date	15/02/2023
QP Version	1.0
Model Curriculum Creation Date	15/02/2023
Model Curriculum Valid Up to Date	15/08/2023
Model Curriculum Version	1.0
Minimum Duration of the Course	210 Hours, 0 Minutes
Maximum Duration of the Course	210 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 should have acquired the listed knowledge and skills.

- Install cable/system wiring and equipment at customer premises
- Configure equipment and establish Broadband connectivity
- Troubleshoot and rectify the faults

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	Total Duration
TEL/N0111 – Lay cable/system wiring andinstall equipment at customer premises NOS Version No. 4.0NSOF Level 4	10:00	20:00	30:00
Module 1: Install cable/system wiring and equipment at customerpremises	10:00	20:00	30:00
TEL/N0112 – Configure customer premises equipment and establish Broadband connectivity	10:00	20:00	30:00
NOS Version No. 4.0NSQF Level 4			
Module 2: Configure equipment and establish Broadband connectivity	10:00	20:00	30:00
TEL/N6400– Splice Optical Fiber	10:00	20:00	30:00
NOS Version No. 4.0NSQF Level 4			
Module 3: Prepare for	10:00	20:00	30:00
Splicing Operations forNew Installation			
Sub-Total	30:00	60:00	90:00
DGT/VSQ/N0104 Employability Skills (120 Hours	120:00		
Total Duration			210:00





Module Details

Module 1: Install Cable/System Wiring and Equipment at Customer Premises Mapped to TEL/N0111

Terminal Outcomes:

• Install cable/system wiring and equipment at customer premises

Duration: 10:00	Duration: 20:00			
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes			
 Describe the various activities needed to be carried out prior to the installation procedure. State the various cabling norms pertaining to laying of the cables. Identify the cables, wire sizes and colors and connectors required as per customer requirements. Explain the process of crimping, splicing and soldering of cables. Analyse the work requirements received from the supervisor to plan visit to a site/customer premises for installation and carry required tools and equipment. Discuss the importance of conducting postinstallation tests after laying down cables and installing modem, router and switch. Explain the role of a UPS, its components and its installation and repair process. State the importance of following defined procedures/work instructions issued as per SHE & OSH guidelines. Explain the importance of maintaining and updating installation and test results, updated plans, installation documents and customer signoffs. Discuss the importance of escalating and reporting incidents and/or emergencies. 	 Demonstrate how to identify different types of cables, wires and connectors. Perform splicing, crimping and soldering of cables. Perform cable connectorisation. Prepare a list of probing questions to analyse the requirements of customers. Inspect indoor and outdoor cable route using a variety of techniques. Apply basic techniques to check that the equipment installation location is near power point and has proper signal coverage. Demonstrate how to install cable wiring. Using the tools and equipment required for installation procedures. Demonstrate the variety of techniques to test the cable and joints for transmission loss and strength. Install equipment such as modem, router and/or switch and UPS. Apply basic techniques to perform checks for voltage, current and earthing, and battery in case of a defective UPS. Demonstrate how to repair a defective UPS. Calculate sample equipment load and compare it with UPS rating. Dispose the installation waste and restore work site to its original state, clean of debris and waste. 			
Lanton white board marker projector				
LANION, WHILE NUALU, HIALKEL, NUUELLUL				

Tools, Equipment and Other Requirements

Types of cables (OFC, UTP, STP, Twisted Pair etc.) and connectors (RJ-45, RJ-11 etc.), crimping tools, soldering tools and splicing tools, signal level meters /OTDR, voltmeter, digital multimeter, digital clamp meter, signal tester, electrical drill, ladder, spanner, screwdriver set, nut driver set, bolt remover, cutter, angle finder, Wiring layout, Instruction manual, Service Manual/ User Manuals, Customer Registration, Program Authentication Form, Customer Feedback form





Module 2: Configure Equipment and Establish Broadband Connectivity Mapped to TEL/N0112

Terminal Outcomes:

- Establish broadband connectivity of CPE with service provider gateway and end user device
- Record configuration setting and testing steps for customer

Duration: 10:00	Duration: 20:00		
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes		
 Summarize the concepts of network topologies, broadband network elements, gateways, TCP/IP, IP address, subnet masks, Ethernet address, MAC address, IPv4, IPv6 wires and their application in broadband connectivity. Explain the process of configuring the customer premises equipment. Recall basic commands at command line access and command prompt to be able to test and verify connectivity. Describe the usage of basic commands like ping and ipconfig and acceptable round-trip time for IP packets process, and other such commands typically used for confirming connectivity. Discuss the process of establishing broadband connectivity of CPE with service provider gateway and end user device and LAN/WiFi connectivity with CPE. State the process to analyse test results of connectivity and throughput parameters to detect any issues/errors in connectivity. Describe the process of performing speed test and recording the data throughputs to show to the customer about successful installation and connectivity among devices. State the importance of explaining the basic troubleshooting steps to customers for quick resolution of common issues. 	 Connect the laptop/PC, smart/IP TV and other customer device to the CPE and establish connectivity using appropriate (more than one) techniques/methods. Execute the basic commands like ping and ipconfig. Access CPE settings using default login credentials. And configure CPE as per the base setting (IP, gateway, mask etc.) Demonstrate how to verify that all cables and connectors are plugged in properly. Analyse test results for connectivity andthroughput parameters using multiple approaches Apply basic techniques to configure end user device to establish LAN / Wi- Fi connectivity with CPE. Demonstrate the tests and data records required after connecting a CPE including but not limited to: Using common commands such as ping to configure end-user devices to the CPE Perform speed test to verify against specifications Record all test results and verify connectivity across end- user devices 		
Classroom Aids:			
Laptop, white board, marker, projector			

Tools, Equipment and Other Requirements

Types of cables (OFC, UTP, STP, Twisted Pair etc.) and connectors (RJ-45, RJ-11 etc.), crimping tools, soldering tools and splicing tools, signal level meters /OTDR, voltmeter, digital multimeter, digital clamp meter, signal tester, electrical drill, ladder, spanner, screwdriver set, nut driver set, bolt remover, cutter, angle finder, Wiring layout, Instruction manual, Service Manual/ User Manuals, Customer Registration, Program Authentication Form, CustomerFeedback form





Module 3: Prepare for Splicing Operations for New Installation Mapped to TEL/N6400

Terminal Outcomes:

- Manage tools and spares
- Prepare the cable for splicing for new installation

Duration: 10:00	Duration: 20:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
 Discuss the characteristics of Optical Fiber, (like refraction, polarization, attenuation, dispersion, etc.) Explain the uses of various optical equipment (spool, joint closure, connectors, splicer and cleaver), optical test equipment (Optical Time Domain Reflectometer (OTDR), power meter, etc.), and other tools and equipment, like joint kits, pigtails, patch cords, FDF (Fiber Distribution Frame), ODB (Optical Distribution Box) connector, protection sleeves and heat shrink, etc. Describe fault analysis procedures and safety measures for different tools and mechanical equipment Discuss the importance of calibrating the test equipment Explain the color coding of optical fiber cable Discuss the steps of preparing the cable for splicing for new installation 	 Identify the tools and equipment required for optical fiber splicing Demonstrate the operations of various tools and equipment required for optical fiber splicing Inspect Optical Time Domain Reflectometer (OTDR), Power Meter, Joint Closure, Connectors, Splicer, Cleaver, and other mechanical tools/equipment for any fault and calibration status Employ appropriate practices to find out sheath damage in the cable and secure the cable to avoid the damage Demonstrate the steps to prepare the cable for splicing for new installation
Classroom Aids	

Training kit (Trainer guide, Presentations), Whiteboard, Markers, Duster, Computer, Projector, Participant Handbook

Tools, Equipment and Other Requirements

Optical cable test equipment (Optical Time Domain Reflectometer (OTDR), power meter, etc.), Optical equipment (Spool, Joint closure, Connectors, Splicer and Cleaver), Joint kits, Pigtails, Patch cords, FDF (Fiber Distribution Frame), ODB (Optical Distribution Box) Connector, Protection sleeves and Heat shrink, RCC (Reinforced Cement Concrete) joint chambers, Cable drum

Module 4: DGT/VSQ/N0104 Employability Skills (120 hours)

Mapped to Internet Support Technician

Mandatory Duration: 120:00

S.N o.	Module Name	Module Name Key Learning Outcomes						
4	Introduction to	Outline the importance of Employability Skills for the	<u> </u>					
1.	Employability Skills	current job market and future of work	3					
		 List different learning and employability related GOI and 						
		private portals and their usage						
		• Research and prepare a note on different industries, trends,						
		required skills and the available opportunities						
	Constitutional	• Explain the constitutional values, including civic rights and						
	values - Citizenship	duties, citizenship, responsibility towards society etc. that						
2.		are required to be followed to become a responsible citizen	3					
		• Discuss the role of personal values and ethics such as						
		honesty, integrity, caring and respecting others, etc. in						
		personal and social development						
		 Identify and practice different environmentally sustainable 						
		practices						
	Becoming a	Discuss relevant 21st century skills required for employment						
	Professional in the	Highlight the importance of practicing 21st century skills like						
3.	21st Century	Salf-Awareness Rehavior Skills time management critical and	5					
	Zist century	adaptive thinking, problem colving, creative thinking, cosial and						
		adaptive triffking, problem-solving, creative triffking, social and						
		cultural awareness, emotional awareness, learning to learn etc.						
		in personal or professional life						
		 Create a pathway for adopting a continuous learning mindset 						
		for personal and professional development						
4.	Basic English Skills	Use appropriate grammar and sentences while	20					
		interacting with others						
		Read English text with appropriate articulation						
		 Role plays a situation on how to talk appropriately to a 						
		customer in English, over the phone or in person						
		 Write a brief note/paragraph / letter/e -mail using 						
		correct English						
5	Career	Create a career development plan	5					
5.	Development &	 Identify well-defined short- and long-term goals 	J					
	Goal Setting							
	Communication	Demonstrate how to communicate effectively using verbal						
6.	Skills	and nonverbal communication etiquette	10					
		• Write a brief note/paragraph on a familiar topic						
		• Explain the importance of communication etiquette including						
		active listening for effective communication						
		Role play a situation on how to work collaboratively with						
		others in a team						
	Diversity &	• Exhibit how to behave, communicate, and conduct oneself						
_	Inclusion	appropriately with all genders and PwD	_					
7.		 Discuss the POSH Act and its significance 	5					
	Financial and Legal	Discuss various financial institutions, products, and						
	Literacy	services						
	,	 Demonstrate how to conduct offline and online 						
8		financial transactions safely and securely and check	10					
0.		nasshook/statement	10					
		Evaluation the common components of colory such as						
		Explain the common components of soldry such as Basic DE Allowances (HPA TA DA ata) tay						
		daductions						
		Coloulate income and successful to the desition						
		Calculate income and expenditure for budgeting						
		 Discuss the legal rights, laws, and aids 						

9.	Essential Digital Skills	 Describe the role of digital technology in day-to-day life and the workplace Demonstrate how to operate digital devices and use the associated applications and features, safely and securely Demonstrate how to connect devices securely to internet using different means Follow the dos and don'ts of cyber security to protect against cyber crimes Discuss the significance of displaying responsible online behavior while using various social media platforms Create an e-mail id and follow e- mail etiquette to exchange e -mails Show how to create documents, spreadsheets and presentations using appropriate applications utilize virtual collaboration tools to work effectively 	20
10.	Entrepreneurship	 Describe the types of entrepreneurship and enterprises Discuss the process of identifying opportunities for potential business and relevant regulatory and statutory requirements Describe the 4Ps of Marketing-Product, Price, Place and Promotion and apply them as per requirement Create a sample business plan, for the selected business opportunity Discuss various sources of funding and identify associated financial and legal risks with its mitigation plan 	14
11.	Customer Service	 Describe different types of customers Role plays a situation on how to identify customer needs and respond to them in a professional manner Explain various tools used to collect customer feedback Discuss the significance of maintaining hygiene and dressing appropriately 	5
12	Getting ready for apprenticeship & Jobs	 Draft a professional Curriculum Vitae (CV) Use various offline and online job search sources such as employment exchanges, recruitment agencies, and job portals respectively Demonstrate how to apply to identified job openings using offline /online methods as per requirement Discuss how to prepare for an interview Role plays a mock interview List the steps for searching and registering for apprenticeship opportunities 	20

LIST OF TOOLS & EQUIPMENT FOR EMPLOYABILITY SKILLS					
S No.	Name of the Equipment	Quantity			
1.	Computer (PC) with latest configurations – and Internet connection				
	with standard operating system and standard word processor and	As required			
	worksheet software (Licensed)	Astequiled			
	(all software should either be latest version or one/two version below)				
2.	UPS	As required			
3.	Scanner cum Printer	As required			
4.	Computer Tables	As required			
5.	Computer Chairs	As required			
6.	LCD Projector	As required			
7.	White Board 1200mm x 900mm	As required			
Note: Above Tools & Equipment not required, if Computer LAB is available in the institute.					





Annexure

Trainer Requirements (Internet Support Technician)

Trainer Prerequisites						
Minimum Educational	Specialization	Relevant Industry Experience		Training Experience		Remarks
Qualification		Years	Specialization	Years	Specialization	
Diploma	Science/Electronics/ Telecom/IT and other related domains	2	Optical Fiber/ Broadband Domain	0	NA	Eligible for ToT program
Graduate	Science/Electronics/ Telecom/IT and other relevant domains	1	Optical Fiber/ Broadband Domain	0	NA	Eligible for ToT program

Trainer Certification				
Domain Certification Platform Certification				
Job Role: "Internet Support Technician Level 4" "TEL/Q4301 v1.0", Minimum accepted score is 80%	Job Role: "Trainer", "MEP/Q2601 v2.0", Minimum Accepted score is 80%			





Assessor Requirements (Internet Support Technician)

Assessor Prerequisites							
Minimum Educational Qualification	Specialization	Relevant Industry Experience		RelevantTrainingIndustryExperienceExperience		Remarks	
		Years	Specialization	Years	Specialization		
Diploma	Science/Electronics/ Telecom/IT and other related domains	2	Optical Fiber/ Broadband Domain	0	NA	Eligible for ToA program	
Graduate	Science/Electronics/ Telecom/IT and other relevant domains	1	Optical Fiber/ Broadband Domain	0	NA	Eligible for ToA program	

Assessor Certification				
Domain Certification	Platform Certification			
Job Role: "Internet Support Technician Level 4" "TEL/Q4301 v1.0", Minimum accepted score is 80%	Job Role: "Assessor" "MEP/Q2701 v2.0", Minimum accepted score is 80%			





Trainer Requirements (Employability Skills 120 hours) Trainer Prerequisites

Minimum Educational Qualification	Specialization	Relevant Industry Experience		Training Experience		Remarks
		Years	Specializati on	Years	Specialization	
MBA/ BBA / Any Graduate/ Diploma in any discipline with Two years' experience. (Must have studied English/ Communication Skills and Basic Computer at 12th / Diploma level and above)	short term ToT Course in Employability Skills from DGT institutes.					
Graduate/CITS	Any discipline			2	Teaching experience	Prospective ES trainer should:
Current ITI trainers or Existing Social Studies Instructors Certified current EEE trainers (155 hours) Certified Trainer	Employability Skills Training (3 days full- time course done between 2019-2022) from ManagementSSC (MEPSC) Qualification Pack:					 have good communication skills be well versed in English have digital skills have attention to detail be adaptable have willingness to learn
	Trainer (MEP/Q0102)					lean
		Tra	iner Certific	ation		
Domain Certification				Platform Certification		
Certified in 120-hou a minimum score o	ur Employability NOS (2 f 80%	022), witl	h NA			





Master Trainer Requirements (Employability Skills 120 hours)

Master Trainer Prerequisites						
Minimum Educational Qualification	Specialization	Relevant Industry Experience		Training Experience		Remarks
		Years	Specialization	Years	Specialization	
Graduate/CITS	Any discipline			3	Employability Skills curriculum training experience with an interest to train as well as orient other peer trainers	 Prospective ES Master trainer should: have good communication skills be well versed in English have basic digital skills
Certified Master Trainer	Qualification Pack: Master Trainer (MEP/Q2602			3	EEE training of Management SSC (MEPSC) (155 hours)	 have attention to detail be adaptable have willingness to learn be able to grasp concepts fast and is creative with teaching practices and likes sharing back their learning with others
Master Trainer Certification						
Domain Certification					Platform Certificat	ion
Certified in 120-ho a minimum score c	ur Employability NC of 90%.)S (2022)	, with NA			





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 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

Assessment Strategy (Employability Skills 120 hours)

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 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.







AC	Air Conditioner
DG	Diesel Generator
PIU	Power Interface Unit
SMPS	Switch Mode Power Supply
BB	Battery Bank
IPMS	Integrated Power Management System
ОРСО	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
ES	Employability Skills