Model Curriculum

QP Name: Telecom Grameen Udhyami

QP Code: TEL/Q4302

Version: 1.0

NSQF Level: 4

Model Curriculum Version: 1.0

Telecom Sector Skill Council || 3rd Floor, Plot No 126, Sector – 44
Gurgaon - 122003

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Training Parameters

Sector	Telecom
Sub-Sector	Passive Infrastructure
Occupation	Customer Service - Passive Infrastructure
Country	India
NSQF Level	4
Aligned to NCO/ISCO/ISIC Code	NCO-2015/7422.2201
Minimum Educational Qualification and Experience	Grade 12th Pass (All Streams) **OR** Completed 2nd year of 3-year diploma (after 10th) **OR** Pursuing 2nd year of 3-year regular Diploma (after 10th) **OR** 11th Grade Pass with 1-year relevant experience **OR** 10th Grade Pass with 2-year relevant experience **OR** Previous relevant Qualification of NSQF Level 3.0 with 3 years relevant experience
Pre-Requisite License or Training	NA
Minimum Job Entry Age	17 Years
Last Reviewed On	31-Aug-2023
Next Review Date	31-Aug-2026
NSQC Approval Date	31-Aug-2023
QP Version	1.0
Model Curriculum Creation Date	31-Aug-2023
Model Curriculum Valid Up to Date	31-Aug-2026
Model Curriculum 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 to:

- Install cable/system wiring and equipment at customer premises.
- Apply knowledge and skills to install and troubleshoot various components of broadband infrastructure.
- Perform coordinating activities for cable laying and pulling.
- Perform efficient protective and corrective maintenance procedures.
- Demonstrate proficiency in installing and configuring WiFi Access Point equipment's.
- Follow procedures for outside plant cable installation.
- Prepare cables for splicing.
- Install passive FTTH/X components.
- Construct FTTH/X cabling inside the building
- Implement appropriate maintenance procedures to ensure the reliability and performance of optical fiber networks.
- Apply technical knowledge to repair and restore functionality to handsets.
- List the entrepreneurial activities performed by the Telecom Grameen Udhyami.

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 TrainingDuration (Recommended)	Total Duration
Bridge Module	**15:00**	**15:00**	**00:00**	**-**	**30:00**
Module 1: Introduction to the role of a Telecom Grameen Udhyami	15:00	15:00	00:00	-	30:00
CON/N0602 Handle hand and power tools relevant to construction electrical works NOS Version No. 3.0 NSQF Level 3	**15:00**	**15:00**	**00:00**	**-**	**30:00**
Module 2: Handle hand and power tools relevant to construction electrical works	15:00	15:00	00:00	-	30:00
TEL/N4122–Wiring and installing equipment at different sites	**30:00**	**30:00**	**30:00**	**-**	**90:00**

NOS Version No. 5.0 NSQF Level 4					
Module 3: Pre-requisites of Wiring and Wi-Fi backhaul equipment	30:00	30:00	30:00	-	90:00
TEL/N6400– Splice Optical Fiber NOS Version No. 5.0 NSQF Level 3	**30:00**	**20:00**	**10:00**	**-**	**60:00**
Module 4: Prepare for Splicing Operations for New Installation	30:00	20:00	10:00	-	60:00
TEL/N4201 - In-building FTTH/X Cabling NOS Version No. 4.0 NSQF Level 3	**30:00**	**20:00**	**10:00**	**-**	**60:00**
Module 5: In-building FTTH/X Cabling	30:00	20:00	10:00	-	60:00
TEL/N0112 – Configure customer premises equipment and establish Broadband connectivity NOS Version No. 5.0 NSQF Level 4	**30:00**	**30:00**	**30:00**	**-**	**90:00**
Module 6 - Configure equipment and establish Broadband connectivity	30:00	30:00	30:00	-	90:00
TEL/N0113 – Troubleshoot and rectify faults NOS Version No. 4.0 NSQF Level 4	**30:00**	**20:00**	**10:00**	**-**	**60:00**
Module 7: Troubleshoot and rectify faults	30:00	20:00	10:00	-	60:00
TEL/N2213: Repair and test handsets NOS Version No. 3.0 NSQF Level 4	**30:00**	**30:00**	**30:00**	**-**	**90:00**
Module 8: Repairing Handsets	30:00	30:00	30:00	-	90:00
TEL/N4141: Provide techpreneurial Solutions in the Village NOS Version No. 1.0 NSQF Level- 4	**20:00**	**10:00**	**00:00**		**30:00**
Module 9 - Grameen Udhyami initiative and entrepreneurial activities	20:00	10:00	00:00	-	30:00
DGT/VSQ/N0102: Employability Skills (60 Hours) NOS Version No. 1.0 NSQF Level- 4	**60:00**	**00:00**	**00:00**	**-**	**60:00**
Module 10: DGT/VSQ/N0102: Employability Skills (60 Hours)	60:00	00:00	00:00	-	60:00
Total Duration	**290:00**	**190:00**	**120:00**	**-**	**600:00**

Module Details

Module 1: Introduction to the role of a Telecom Grameen Udhyami

Bridge Module

Terminal Outcomes:

- Discuss the job role of Telecom Grameen Udhyami.
- Explain the scope of work for Telecom Grameen Udhyami.
- Demonstrate the role and responsibilities of FTTH/X Installer.

Duration: 15:00	Duration: 15:00
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
- Describe the size and scope of the Telecom industry and its various sub-sectors. - Explain the fundamentals and concept of telecommunication and the terminologies used in the work process. - Explain the role and responsibilities of Telecom Grameen Udhyami. - List the various daily, weekly, monthly operations/activities that take place under a Telecom Grameen Udhyami. - Discuss the career progression of a Telecom Grameen Udhyami in the Telecom industry. - Explain the role of Telecom Grameen Udhyami in encouraging entrepreneurial mindset in the village - 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 broadband technician in the process. - Recall the fundamentals of optical fiber and their applications. - Summarize the history of optical fiber. - Solve the challenges faced during handling of fiber optics. - Illustrate on working principle of optical	- Evaluate case studies outlining the role, responsibilities, and challenges for a Telecom Grameen Udhyami. - Analyse the requirements for the course and prepare an action/learning plan for updating skills as per the pre-requisites of the course. - Prepare for the role of an Optical fiber splicer by visiting a work site and interacting with others. - Demonstrate how to installing cables inside of homes and businesses or servicing and outdoor lines at a communications company. - Demonstrate how to utilize all varieties of cable construction equipment, cable and safety test equipment, and all types of splicing activity. - Preventive maintenance activities and ensuring effective fault management in case of fault occurrence. - Perform coordinating activities for installation and commissioning of Optical Fibre Cable (OFC) as per the route plan. - Performing handset repair including hardware and software components. - Performing testing the handset for adequacy. - Post repair and maintaining inventory levels of the hardware components.

fiber communication system.

- Compare optical fiber performance parameters like attenuation, bending, dispersion, cut-off wavelength and modified diameter

- Explain the various fiber geometric parameters (core, clad and buffer).

- Infer the importance of cable jackets, strength members and moisture/ water blocking compounds.

- Identify the roles and responsibilities of an Optical Fiber Splicer.

- Identify the various electrical and electronic components and their specifications.

- Discuss the scope/future and industry of the Wi-Fi broadband.

- Explain complex technical issues to customers in a non-technical, simple to understand manner.

- Provide repair and replacement estimates to customers.

- Explain the processes and technologies used in installation of Wi-Fi broadband.

- State the safety, health and environmental policies and regulations for the workplace as well as for telecom sites in general.

Classroom Aids

Training Kit - Trainer Guide, Presentations, Whiteboard, Marker, Projector, Laptop, Video Films

Tools, Equipment and Other Requirements

Documents of standard operating procedures, code of conduct, checklists, installation and troubleshooting tools/equipment's, status report

Module 2: Handle hand and power tools relevant to construction electrical works
Mapped to CON/N0602, v.3.0

Terminal Outcomes:

- Use appropriate hand, power tools and electrical devices/ components

Duration: *15:00*	Duration: *15:00*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
- Explain basic principle of electrical current flow and fundamental concept of alternate and direct current, voltage, resistance, temperature, cross section of conductors, etc. - Explain Ampere's law, Ohm's law, and electromagnetic field. - Explain the application of tester, mustimeter, digital ammeter etc. - Interpret wiring symbols, SLDs, manufacturer's guidelines and electrical specifications - Discuss use of various electrical hand and power tools such as pliers, crimping tools, electrical drill machines, cutting machines etc. during electrical wiring of house/ building. - Explain type of electrical devices like starters, relays and circuit breakers, their power ratings, working principles and use in circuits. - Describe features of switches, fuses, resistors and various circuit protecting devices and their use in electrical circuits and connections. - Discuss about the electrical measuring/ testing tools and devices such as voltage tester, earth tester, mustimeter, digital ammeter, meggers, tong tester, etc.	- Demonstrate how to check proper and safe working of hand and power tools. - Perform fitting of conduits, cables wiring, fixing of electrical fixtures, electrical connection termination at power outlets, etc. using hand and power tools. - Measure size and dimension of wires, conduits as per electrical installation/ maintenance work requirement using measuring instruments - Perform basic inspections of electrical circuits/ wiring using electrical devices like ammeter, voltmeter, meggers, multi-meter, tong tester, earth tester, etc. - Install electrical components like starter, circuit breakers, relays, etc. - Perform maintenance of electrical tools, devices post use as per manufacturer's guidelines.
Classroom Aids:	
Computer, printer, projector, white board/ flip chart, marker and duster	
Tools, Equipment and Other Requirements	
Pliers, Screw Drivers (set), Crimping tools, Wire strippers, Neon tester, Ammeter, Voltmeter, Wattmeter, Ohmmeter, Digital Multimeter, Megger, Tong tester, Measuring tape, Spirit level Marking tools, Drilling machine, Cutting machine, Chasing machine, Electrical socket (set), Tungsten bulb/ CFL/FSL bulb, Halogen lamp, wall socket, Simple switchboard, Mains breaker switch, Earth Leakage Circuit Breaker (ELCB), Miniature Circuit Breaker (MCB), Helmet, Face shield, Safety goggles, Safety shoes, Safety belt, Insulated rubber gloves, Ear plugs, Particle masks, Reflective jackets, Safety message boards, Fire extinguishers, Sand buckets	

Module 3: Pre-requisites of Wiring and Wi-Fi backhaul equipment
Mapped to TEL/N4122, v5.0

Terminal Outcomes:

- Prepare to install the Wi-Fi system
- Complete documentation and clean-up worksite

Duration: **30:00**	Duration: **30:00**
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
- Define work-orders and job sheets, their significance and parameters. - Discuss overall organisational policies, standards, values and processes. - List the different types of cables, connectors, tools and equipment required for installation. - Distinguish between different processes for cable laying and feeder cable laying. - Explain different electrical principles, safety measures to be considered while turning on the Wi-Fi system. - Explain the importance of providing satisfactory customer service and taking customer feedback. - Discuss necessary documentation required for installation and different payment modes. - State the safety norms to be followed and emergency contacts. - Explain escalation matrix for reporting identified incidents, trouble sand/emergencies, e.g., system failures, fire and power failures.	- Collect and infer work-order or job-sheet from the supervisor - Perform steps for obtaining cables/ equipment from the company. - Demonstrate effective communication. - Walk through the steps of Wi-Fi system installation. - Match connectors to the correct type of cable for installation. - Demonstrate the installation and usage of cable termination between equipment and antenna. - Test the cable and joints for transmission loss and strength. - Demonstrate how to write and record appropriate technical forms, activity logs.
Classroom Aids:	
Laptop, white board, marker, projector	
Tools, Equipment and Other Requirements	
Cables and equipment, Wi-Fi backhaul, Service Manual/ User Manuals, Program Authentication Form, Customer Feedback form, Personal Protection Equipment: safety glasses, head protection, warning signs and tapes	

Module 4: Prepare for Splicing Operations for New Installation
Mapped to TEL/N6400, v5.0

Terminal Outcomes:

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

Duration: 30:00	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 5: In-building FTTH/X Cabling
Mapped to TEL/N4201, v4.0

Terminal Outcomes:

- Demonstrate cable installation through cable trays (horizontal/vertical)
- cable installation through conduits
- cable installation through false ceiling
- terminations at ONT and TO

Duration: 30:00	Duration: 20:00
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
- Distinguish fiber optic cable types and characteristics for in-building deployments - Classify fiber handling practices (bend radius) - Describe the fiber cable components (strength members, cable sheath, core, cladding etc.) - Explain the fusion splicing - Understand the VLF principal and testing features - Describe the importance and use of fiber pulling tools/equipment (fish tape) - Explain the importance and relevance of managing cable slack and cable management - Record the documentation practices	- Identify optical fiber types and characteristics for in-building deployments - Measure the bend radius of fiber cable and fusion splicing - Test the VLF principal and use of fiber pulling tools/equipment (fish tape) - Inspect the sites and identify the cabling path from outdoor fiber landing point to ONT installation point - Calculate the horizontal and vertical cable length to manage the cable slack - Measure the pre-existing load and post-installation load compliance of the cable trays - Lay the fiber along the identified tray tracks using appropriate cable pulling method - Tie the fiber along the cable tray - Demonstrate fiber pulling through conduits using appropriate tools (like fish tape) and technique (strength member) - Secure excess fiber at the termination point - Demonstrate cable installation through conduits on false ceiling - Illustrate fiber termination at Optical Network Terminal (ONT) & Telecommunication Outlet (TO) - Configure the ONT after providing power supply - Test ONT using IP network - Operate Visual Fault Locator (VFL) for the installed fiber run - Test the live fiber using fiber detection meter

	• Record the test values

Classroom Aids:

White board/ black board marker / chalk, duster, computer or Laptop attached to LCD projector

Tools, Equipment and Other Requirements

Fiber cables, Fish tape, ONT, Cable trays, VFL, Fiber detection meter
Personal Protection Equipment: safety glasses, head protection, rubber gloves, safety footwear, warning signs and tapes, fire extinguisher and first aid kit

Module 6: Configure Equipment and Establish Broadband Connectivity
Mapped to TEL/N0112, v5.0

Terminal Outcomes:

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

Duration: **30:00**	Duration: **30:00**
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 7: Troubleshoot and Rectify Faults
Mapped to TEL/N0113, v4.0

Terminal Outcomes:

- Troubleshoot and rectify cable, connectors and CPE faults
- Troubleshoot and repair clients' broadband service
- Complete documentation and clean-up work site

Duration: 30:00	Duration: 20:00
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
- Discuss transmission, broadcasting, switching and operation of telecommunication systems. - Explain electromagnetic interference (EMI) and its impact on. - Describe the functioning of circuit boards and processors. - Discuss the parameters used to identify cause of fault, No Service or service degradation. - Outline the process of testing cables using signal level meters/OTDR. - Explain how to repair and replace faulty connectors/damaged cable. - Describe the process of performing re-connectorisation/ crimping of cable pairs with connector. - Describe and detail the troubleshooting process for common CPE faults, signal loss and continuity and common network issues. - Explain how to monitor and repair system, drop, and in-house signal leakage and maintain records of all the troubleshooting activities undertaken for fault isolation and repairs/replacements. - Discuss how to interpret CPE data and other output of the device. - Discuss the process of restoring any changes made to the worksite during fault repair.	- Demonstrate the process to identify cause of fault or service degradation. - Employ appropriate techniques to test cables using signal level meters/OTDR. - Apply basic techniques to repair and replace faulty connectors/damaged cable - Perform the steps of re-connectorisation/ crimping of cable pairs with connector. - Demonstrate how to connect CPE to laptop/CPU/portable device, run diagnostics to find the issue, install the CPE access software, access the CPE through browser/software application and finally verify the functionality. - Apply basic techniques to re-configure/ reset the CPE to correct settings. - Apply appropriate techniques for troubleshooting typical problems between customer equipment and the optical node, common problems such as signal loss and interference, and network/connectivity problems using ping test, trace routes and speed test. - Record all test readings and document the results/findings in proper formats. - Demonstrate how to monitor, repair and record system, drop, and in-house signal leakage.

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, Customer Feedback form.

Terminal Outcomes:

- Demonstrate how to diagnose and categorize faults in hardware or software of the handset.
- Employ proper techniques for preparing for handset repair.
- Perform the steps for repairing the handset and testing its functionality.
- Carry out various post-repair activities.

Duration: 30:00	Duration: 30:00
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
- Identify the faulty handheld devices from the customer care executives or front-end executives. - Explain how to assist the supervisor in analysing the requirements, issues and functionality problems reported by the customer/front-end team. - Discuss the importance of following timelines and repair commitments as specified in the Service Level Agreement (SLA). - Explain how to plan and prioritize activities related to delivery timeline and issues under supervision. - Describe how to diagnose the fault and check if it is a hardware or software related issue. - Identify the root cause of the fault to determine if any part requires replacement. - List components available at the store or needs to be ordered from the regional service centre. - State all the options for rectifying the fault under supervisor's guidance. - List the parts to be replaced/repaired from the store/inventory keeper. - List the tools and equipment required for repair/replacement of parts. - Explain calibration process as per the handset manufacturer. - Explain the use of lead-free soldering tools. - Describe the process of sending the repaired handset/replaced defective part to the authorized personnel. - State all Electrostatic Discharge (ESD) precautions.	- Perform step to inspect the repair table and area for cleanliness. - Demonstrate how to dismantle handset and remove the components/parts as per organizational guidelines/procedures. - Show how to assist the supervisor in repairing the handset using authorized tools and equipment. - Illustrate how to replace components and parts as per the instructions received by supervisor. - Employ appropriate ways to insert the parts properly and verify they are contained within the body. - Demonstrate how to assemble the handset properly using appropriate tools and appropriate procedure. - Demonstrate how to escalate any emergency situation/unresolved issues to the supervisor. - Employ ways to assist supervisors in checking that the repairs conform to the quality targets in terms of bounce and repeat repair percentages, first time fix etc. - Perform steps to rectify software faults such as correction/upgradation, software replacement etc. under supervision. - Demonstrate how to test the effectiveness of the repair using appropriate testing equipment. - Employ appropriate ways to check that the fault has been rectified without any collateral damage to the handset. - Perform steps for usage of Ultimate Multi Tool (UMT) dongle for flashing.

- Discuss the importance of backing up all user data using authorized mechanism and medium.
- Explain the importance of documenting all the necessary details.
- Describe the procedure of receiving/returning all tools and spare components to the store.
- Explain how to inform all relevant personnel about the completion of the repair activity.
- Explain various flashing tools, Real Time Transmission (RT TX) Cable, etc. for flashing and International Mobile Equipment Identity (IMEI) repairing tools.
- Identify the cost of repair and verify if it is within Beyond Economic Repair (BER)
- Explain ways to ensure that no damage is caused to the components while repairing.
- Explain the formation of alternating and direct Current.
- Describe the various Diode-Function, Symbol, Denoting letter, Identification of Solid Transistor-Basics, Types, Symbol, PNP and NPN.
- State the concepts of Embedded Multi-Media Card (EMMC) chip off, Re-balling and Soldering.

- Illustrate how to install/uninstall licensed and authorised software's to resolve issues.
- Demonstrate how to use instruments such as a multi-meter to identify and repair faults in Charging Section, etc.
- Perform steps to resolve display related issues by using OCA Lamination Machine, etc.
- Employ proper ways of using troubleshooting devices such as F Finder Dongle, etc.
- Implement necessary methods to test the functioning of hardware after repairing.
- Employ ways to ensure that adequate soldering is used for fixing the component.
- Illustrate steps to flash handsets online /offline, use of Miracle Box, Z3X Box for Samsung and setting up of creak Box to spot process disruptions and delay.

Classroom Aids:

Laptop with software like MS Office and Internet, White board, Marker, Projector

Tools, Equipment and Other Requirements

Mobile handset, various flashing tools such as Samsung, MediaTek, Qualcomm etc. Real Time Transmission (RT TX) Cable, EDL Cable etc. for flashing, multi-meter, hot air gun, screwdriver, PCB Assembly, Glue, Magnifying Glass, SMD Tester, Software, Adhesive and Soldering Equipment.

Terminal Outcomes:
- Elaborate the concept of techpreneurial business set up in rural area.
- Explain how to Provide Telecom and Basic IT Solutions
- Show how to install UPS and check the electrical parameters

Duration: 20:00	Duration: 10:00
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
- Analyze the specific needs and demands for telecom and hardware solutions in a village - Develop a comprehensive business plan, including services, target market, finances, and marketing strategies - Identify the suitable location and describe the necessary infrastructure required to set up a techpreneurial business - Explain the process of obtaining necessary permits and licenses for the business - Define the purpose and benefits of organizing workshops to promote digital literacy in the village - List the services involved in comprehensive telecom solutions, including SIM card sales, mobile recharge, top-up, and post-paid bill payment - Explain the concept of internet connectivity solutions, such as broadband or wireless connections, for homes and businesses - Elaborate the procedure to set up public Wi-Fi hotspots in central locations, ensuring proper installation and network security - Describe the importance of expert hardware and software repair and troubleshooting services for various devices - Identify ways to collaborate with government officials and NGOs to set up a village information center, including computer setup and internet connectivity - Explain how to coordinate with healthcare providers to set up and manage telemedicine centers, ensuring proper equipment and connectivity - Discuss how to assist in the installation and maintenance of security measures like CCTV cameras, ensuring proper	- Demonstrate the correct procedure to install and configure internet connectivity solutions, such as broadband or wireless connections, in homes and businesses - Show how to configure and establish local area networks (LANs) in offices and homes, enabling file sharing and communication - Show how to install and provide support for software applications, remove viruses and malware, and perform data backup and recovery - Provide personalized advice and consultation services to individuals and businesses on technology-related matters, addressing their specific needs - Perform measurements and analysis of voltage, current, and earthing to ensure correct UPS installation - Demonstrate the process to route the power supply through the UPS and handle power supplies with necessary precautions - Conduct periodic maintenance of the UPS system, including battery checks and replacement, as needed

- functioning and coverage
- Explain the role of technology advice and consultation services in helping individuals and businesses make informed decisions
- Identify various types of UPS and batteries used in them
- Explain the consequences of not maintaining the UPS regularly
- Outline the importance of providing technology-related advice and consultation to individuals and businesses.

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

Tools, Equipment and Other Requirements
Mobile Phones and Tablets, Internet Connectivity, Router and Networking Equipment, Telecom Services Tools, Hardware Repair Kit, Software Tools, Multimeter, Clamp meter, Earth tester, Wiring diagrams, Screwdrivers (flathead and Phillips), Pliers (needle-nose and lineman's), Wire strippers, Cable cutters, Cable ties, Electrical tape, Wire connectors, Terminal blocks, Voltage tester, Insulation tester, UPS units (for practical demonstrations), Batteries (for battery replacement practice), Protective gloves, Safety glasses, Safety shoes, Ladder or step stool (for accessing UPS installations), Personal protective equipment (PPE), Toolbox or tool kit for storage and organization and first aid kit..

Module 10: DGT/VSQ/N0102: Employability Skills (60 Hours)

Mandatory Duration: 60:00

Location: On-Site

S.No.	Module Name	Key Learning Outcomes	Duration(hours)
1.	Introduction to Employability Skills	• Discuss the Employability Skills required for jobs in various industries • List different learning and employability related GOI and private portals and their usage	1.5 Hours
2.	Constitutional values - Citizenship	• 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 • Show how to practice different environmentally sustainable practices.	1.5 Hours
3.	Becoming a Professional in the 21st Century	• Discuss importance of relevant 21st century skills. • Exhibit 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. • Describe the benefits of continuous learning.	2.5 Hours
4.	Basic English Skills	• Show how to use basic English sentences for everyday conversation in different contexts, in person and over the telephone • Read and interpret text written in basic English • Write a short note/paragraph / letter/e -mail using basic English	10 Hours
5.	Career Development & Goal Setting	• Create a career development plan with well-defined short- and long-term goals	2 Hours
6.	Communication Skills	• Demonstrate how to communicate effectively using verbal and nonverbal communication etiquette. • Explain the importance of active listening for effective communication • Discuss the significance of working collaboratively with others in a team	5 Hours
7.	Diversity & Inclusion	• Demonstrate how to behave, communicate, and conduct oneself appropriately with all genders and PwD	2.5 Hours

		• Discuss the significance of escalating sexual harassment issues as per POSH act.	
8.	Basic English Skills	• Show how to use basic English sentences for everyday conversation in different contexts, in person and over the telephone • Read and interpret text written in basic English • Write a short note/paragraph / letter/e -mail using basic English	10 Hours
9.	Career Development & Goal Setting	• Create a career development plan with well-defined short- and long-term goals	2 Hours
10.	Communication Skills	• Demonstrate how to communicate effectively using verbal and nonverbal communication etiquette. • Explain the importance of active listening for effective communication • Discuss the significance of working collaboratively with others in a team	5 Hours
11.	Diversity & Inclusion	• Demonstrate how to behave, communicate, and conduct oneself appropriately with all genders and PwD • Discuss the significance of escalating sexual harassment issues as per POSH act.	2.5 Hours
12.	Financial and Legal Literacy	• Outline the importance of selecting the right financial institution, product, and service • Demonstrate how to carry out offline and online financial transactions, safely and securely • List the common components of salary and compute income, expenditure, taxes, investments etc. • Discuss the legal rights, laws, and aids	5 Hours
13.	Essential Digital Skills	• Describe the role of digital technology in today's life • Demonstrate how to operate digital devices and use the associated applications and features, safely and securely • Discuss the significance of displaying responsible online behavior while browsing, using various social media platforms, e-mails, etc., safely and securely • Create sample word documents, excel sheets and presentations using basic features • Utilize virtual collaboration tools to work effectively	10 Hours
14.	Entrepreneurship	• Explain the types of entrepreneurship and enterprises • Discuss how to identify opportunities for potential business, sources of funding and	7 Hours

		• associated financial and legal risks with its mitigation plan • 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	
15.	Customer Service	• Describe the significance of analyzing different types and needs of customers • Explain the significance of identifying customer needs and responding to them in a professional manner. • Discuss the significance of maintaining hygiene and dressing appropriately	5 Hours
16.	Getting Ready for apprenticeship & Jobs	• Create a professional Curriculum Vitae (CV) • Use various offline and online job search sources such as employment exchanges, recruitment agencies, and job portals respectively • Discuss the significance of maintaining hygiene and confidence during an interview • Perform a mock interview • List the steps for searching and registering for apprenticeship opportunities	8 Hours

LIST OF TOOLS & EQUIPMENT FOR EMPLOYABILITY SKILLS		
Sl No.	Name of the Equipment	Quantity
1.	Computer (PC) with latest configurations – and Internet connection with standard operating system and standard word processor and worksheet software (Licensed) (all software should either be latest version or one/two version below)	As required
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.		

Module 11: On-the-Job Training
Mapped to Telecom Grameen Udhyami (TEL/Q4302 v1.0)

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

Terminal Outcomes
1. Perform voltage, current, and earthing checks in electrical installations.
2. Plan and execute the installation activities for a UPS, including selecting the installation location, preparing the site, and mounting the UPS.
3. Analyze basic wiring diagrams and install UPS wiring accordingly, ensuring correct connection of input and output circuits.
4. Install a UPS following the manufacturer's instructions, including connecting the battery, input power, and load devices.
5. Route the power supply through a UPS, ensuring proper cable management and secure connections.
6. Calculate the equipment load and determine the suitable UPS rating based on the connected devices.
7. Demonstrate proper precautions while handling power supplies, including wearing appropriate personal protective equipment (PPE) and following safety guidelines.
8. Replace the battery in a defective UPS, following the manufacturer's recommended procedures for battery replacement.
9. Perform cable verification by checking cable running length within permissible limits for continuity and throughput.
10. Configure Customer Premise Equipment (CPE) with base settings (IP, gateway, mask, etc.) and establish connectivity by connecting end-user devices to the CPE and configuring them for LAN/WiFi connectivity.
11. Use diagnostic tools such as OTDR, power meter, and signal level meters to analyze connectivity, signal loss, and cable performance.
12. Troubleshoot and repair connectivity issues between customer equipment and the optical node, including identifying and replacing faulty connectors or damaged cables.
13. Conduct network troubleshooting using ping tests, trace routes, and speed tests to diagnose and resolve connectivity issues.
14. Perform fusion or mechanical splicing and protect splices using splice protectors.
15. Install structured wiring (interior and exterior) from the Point of Presence (PoP) to customer premises, ensuring proper cable routing and termination.
16. Configure Wi-Fi backhaul equipment with base settings and establish connectivity, measuring VSWR/return loss for proper functionality.
17. Perform OTDR tests on optical fiber cables to locate faults accurately and measure power loss.
18. Coordinate excavation, cable pulling, and jointing activities at the site following standard processes.
19. Analyze test results for connectivity and throughput parameters to ensure successful establishment of connectivity.
20. Practice handling faulty handheld devices, diagnosing faults, replacing components, and performing repairs under supervision.
21. Clean and maintain the repair bench/table and return tools and equipment to the store after completing repair activities.

Annexure

Trainer Requirement (Telecom Grameen Udhyami)

Trainer Prerequisites					
Minimum Educational Qualification	Specialization	Relevant Industry Experience		Training Experience		Remarks
		Years	Specialization	Years	Specialization	
Science Graduate	Science/Electronics /Telecom/IT and other relevant domains	1	Active Networks/5G Network Domain	0	NA	Eligible for ToT program

Trainer Certification	
Domain Certification	Platform Certification
Job Role "**Telecom Grameen Udhyami**", "TEL/Q4302, v1.0", Minimum accepted score is 80%	Trainer is certified for the job role **"Trainer (VET & SKILLS)"**; mapped to Qualification Pack: - "MEP/Q2601, V2.0" with minimum 80% of score.

Assessor Requirements (Telecom Grameen Udhyami)

Assessor Prerequisites						
Minimum Educational Qualification	Specialization	Relevant Industry Experience		Training/Assessment Experience		Remarks
		Years	*Specialization*	*Years*	*Specialization*	
Graduate	Science/Electronics /Telecom/IT and other relevant domains	1	Active Networks/IoT Domain	0	NA	Eligible for ToA program

Assessor Certification	
Domain Certification	**Platform Certification**
Job Role "**Telecom Grameen Udhyami**", "TEL/Q4302,v1.0", Minimum accepted score is 80%	Assessor is certified for the job role **"Assessor (VET & SKILLS)"**; mapped to Qualification Pack: - "MEP/Q2701, V2.0" with minimum 80% of score.

Trainer Requirements (Employability Skills 60 hours)

Trainer Prerequisites						
Minimum Educational Qualification	Specialization	Relevant Industry Experience		Training Experience		Remarks
		Years	Specialization	Years	Specialization	
Graduate/CITS	Any discipline			2	Teaching experience	Prospective ES trainer should: • have good communication skills • be well versed in English • have digital skills • have attention to detail • be adaptable • have willingness to learn
Current ITI trainers	Employability Skills Training (3 days full-time course done between 2019-2022)					
Certified current EEE trainers (155 hours)	from Management SSC (MEPSC)					
Certified Trainer	Qualification Pack: Trainer (MEP/Q0102)					

Trainer Certification	
Domain Certification	Platform Certification
Certified in 90-hour Employability NOS (2022), with a minimum score of 80% OR Certified in 120-hour Employability NOS (2022), with a minimum score of 80%	NA

Master Trainer Requirements (Employability Skills 60 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 trainer should: • have good communication skills • be well versed in English • have digital skills • have attention to detail • be adaptable • have willingness to learn
Certified Master Trainer	Qualification Pack: Master Trainer (MEP/Q2602			3	EEE training of Management SSC (MEPSC) (155 hours)	

Master Trainer Certification	
Domain Certification	**Platform Certification**
Certified in 90-hour Employability NOS (2022), with a minimum score of 90%. OR Certified in 120-hour Employability NOS (2022), with a minimum score of 90%	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.
   - The 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.
   - An assessor must be ToA certified & the trainer must be ToT Certified.
   - The 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:
   - A surprise visit to the assessment location.
   - A 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 HardDrives.

Assessment Strategy (Employability Skills 60 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 tobe known and/or understood in order to accomplish a task or to solve a problem.
Key Learning Outcome	A key learning outcome is a statement of what a learner needs to know, understand and be able to do in order to achieve the terminal outcomes. Aset 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 atask. 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, understandand be able to do upon the completion of the training.
Terminal Outcome	The 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 ofterminal outcomes help to achieve the training outcome.

Acronyms and Abbreviations

Term	Description
NOS	National Occupational Standard (s)
NSQF	National Skills Qualifications Framework
OJT	On-the-job Training
QP	Qualifications Pack
PwD	People with Disability
PPE	Personal Protective Equipment