Qualification Pack

Telecom Grameen Udhyami

QP Code: TEL/Q4302

Version: 1.0

NSQF Level: 4

Contents

TEL/Q4302: Telecom Grameen Udhyami

Brief Job Description

The individual in this job role is responsible for installing, configuring, and testing CPE (modem, routers, and switches) for broadband access, Wi-Fi backhaul equipment, Wi-Fi access points, and Optical Fiber Cables (OFCs). The individual will also repair handsets for hardware and software issues and conduct post-repair/service testing. Additionally, they can undertake power supply checks and UPS installation at service provider/customer premise.

Personal Attributes

This individual must have good communication skills with a clear diction, regional language proficiency, strong customer service focus and pleasant personality. They should be self-motivated, should be able to apply practical judgment to successfully perform the assigned responsibilities. The individual should also be of working in high-pressure situations in field which may consists of difficult terrain.

Applicable National Occupational Standards (NOS)

Compulsory NOS:

1. [CON/N0602: Handle hand and power tools relevant to construction electrical works](#)

2. [TEL/N4122: Wiring and installing equipment at different sites](#)

3. [TEL/N6400: Splice Optical Fiber](#)

4. [TEL/N4201: In-building FTTH/X cabling](#)

5. [TEL/N0112: Configure customer premises equipment and establish Broadband connectivity](#)

6. [TEL/N0113: Troubleshoot and rectify faults](#)

7. [TEL/N2213: Repair and test handsets](#)

8. [TEL/N4141: Provide Techpreneurial Solutions in the Village](#)

9. [DGT/VSQ/N0102: Employability Skills (60 Hours)](#)

Qualification Pack (QP) Parameters

Sector	Telecom
Sub-Sector	Passive Infrastructure

Occupation	Customer Service - Passive Infrastructure
Country	India
NSQF Level	4
Credits	20
Aligned to NCO/ISCO/ISIC Code	NCO-2015/7422.2201
Minimum Educational Qualification & Experience	12th grade Pass (All Streams) OR Completed 2nd year of the 3-year diploma after 10 OR 10th grade pass (Pursuing 2nd year of 3-year regular Diploma (after 10th) OR 11th grade pass with 1 Year of experience OR 10th grade pass with 2 Years of experience OR Previous relevant Qualification of NSQF Level (3.0) with 3 Years of experience
Minimum Level of Education for Training in School	8th Class
Pre-Requisite License or Training	NA
Minimum Job Entry Age	17 Years
Last Reviewed On	NA
Next Review Date	31/08/2026
NSQC Approval Date	31/08/2023
Version	1.0
Reference code on NQR	QG-04-TL-00929-2023-V1-TSSC
NQR Version	1

CON/N0602: Handle hand and power tools relevant to construction electrical works

Description

This unit describes the knowledge and the skills required to select and use hand,power tools and electrical devices relevant to construction electrical works

Scope

The scope covers the following :

- Handle hand/power tools for electrical works.

Elements and Performance Criteria

Handle hand/power tools for electrical works.

To be competent, the user/individual on the job must be able to:

PC1. perform basic checks on power tools prior to use

PC2. handle hand/power tools for establishing/ terminating electrical connections as per requirement

PC3. use appropriate tools to trace out short circuits/faults and leakages in electrical wiring

PC4. use measuring instruments to measure size and dimension of wires, conduits as per electrical installation or maintenance work requirement

PC5. use hand/ power tools to cut, and bend wire and conduit as per electrical installation or maintenance work requirement

PC6. use appropriate tools to splice wires by stripping insulation from terminal leads and twisting wires together

PC7. use appropriate hand/power tools to thread conduit ends, connect couplings, and fabricate and secure conduit support brackets

PC8. use appropriate electrical measuring devices like ammmeter, voltmeter,meggers etc.to examine electrical units for power interruptions/ continuity

PC9. use electrical devices such as starters, circuit breakers, relays as per equipment/ wiring installation rating or current rating

PC10. use diagnostic devices like multi-meter, tong tester, earth tester or similar devices to install, repair power connections

PC11. perform maintenance and upkeep of relevant tools and devices after use

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. standard practices for electrical works

KU2. safety rules and regulations for handling required electrical tools, equipment, and materials

KU3.   importance of personal protection including the use of related safety gears & equipment in accordance with organizational norms

KU4.   service request procedures for tools, materials and equipment as per organizational norms

KU5.   single line diagram (SLD), and schematics, wiring diagrams of electrical connections including wiring symbols

KU6.   manufacturers guidelines/ specifications for use of hand and power tools and measuring devices

KU7.   how to use hand, power tools to carry out required activities

KU8.   how to use electrical measuring and diagnostic devices to undertake required tests to install and maintain electrical circuits

KU9.   basic principles of electrical current flow, fundamental terms like resistance, temperature, cross-section of conductor and their relations

KU10. basic concept of AC and DC

KU11. electrical theory such as Ohms law, Amperes law, electromagnetic field and its effects

KU12. types of wires, cables based on their insulation and their respective uses in LV electrical works

KU13. features of resistors, switches, fuses and various circuit protection devices

KU14. selection, use and maintenance of electrical measuring devices like digitalmultimeter, earth tester, megger, tong tester etc.

KU15. operating characteristics and application of electrical test equipment

KU16. method to trace out short circuit, power interruption/ continuity usingdiagnostic tools/devices

Generic Skills (GS)

User/individual on the job needs to know how to:

GS1.   write in at least two languages, preferably the local language at the site and basic English

GS2.   read SLDs, work, and safety-related instructions/signboards in one or more languages, preferably in the local language of the site

GS3.   speak in one or more language, preferably one of the local language at site

GS4.   listen attentively to instructions communicated by supervisors

GS5.   communicate orally and efficiently with team members

GS6.   resolve any conflict within the teammates

GS7.   analyze the safety aspect of the workplace

GS8.   plan work to achieve productivity as per the direction /close supervision of superiors

GS9.   ensure work is done within time and as per desired quality based on instructions provided by superiors

GS10. evaluate the complexity of the tasks

GS11. identify any violation of safety norms during the work

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Handle hand/power tools for electrical works.	**30**	**70**	**-**	**-**
PC1. perform basic checks on power tools prior to use	-	-	-	-
PC2. handle hand/power tools for establishing/ terminating electrical connections as per requirement	-	-	-	-
PC3. use appropriate tools to trace out short circuits/faults and leakages in electrical wiring	-	-	-	-
PC4. use measuring instruments to measure size and dimension of wires, conduits as per electrical installation or maintenance work requirement	-	-	-	-
PC5. use hand/ power tools to cut, and bend wire and conduit as per electrical installation or maintenance work requirement	-	-	-	-
PC6. use appropriate tools to splice wires by stripping insulation from terminal leads and twisting wires together	-	-	-	-
PC7. use appropriate hand/power tools to thread conduit ends, connect couplings, and fabricate and secure conduit support brackets	-	-	-	-
PC8. use appropriate electrical measuring devices like ammmeter, voltmeter,meggers etc.to examine electrical units for power interruptions/ continuity	-	-	-	-
PC9. use electrical devices such as starters, circuit breakers, relays as per equipment/ wiring installation rating or current rating	-	-	-	-
PC10. use diagnostic devices like multi-meter, tong tester, earth tester or similar devices to install, repair power connections	-	-	-	-
PC11. perform maintenance and upkeep of relevant tools and devices after use	-	-	-	-
NOS Total	**30**	**70**	**-**	**-**

National Occupational Standards (NOS) Parameters

NOS Code	CON/N0602
NOS Name	Handle hand and power tools relevant to construction electrical works
Sector	Construction
Sub-Sector	Real Estate and Infrastructure construction
Occupation	Construction Electrical Works
NSQF Level	3
Credits	1
Version	3.0
Last Reviewed Date	31/08/2023
Next Review Date	31/08/2026
NSQC Clearance Date	31/08/2023

TEL/N4122: Wiring and installing equipment at different sites

Description

This OS unit is about cable/system wiring and installation of Wi-Fi backhaul equipment (5 GHz) along with antenna at different sites as well as Wi-Fi access points (2.4 GHz) as per the surveyed plan. Cables include OFC, UTP/STP, Co-axial cable and feeder cable for connecting the Wi-Fi backhaul equipment (5 GHz) with antenna on mast tower.

Scope

The scope covers the following :

- Prepare and install the system
- Complete documentation and clean-up worksite

Elements and Performance Criteria

Prepare and install the system

To be competent, the user/individual on the job must be able to:

PC1. interact with the superiors to understand the job requirements

PC2. plan access to sites for installation/testing activities as per the schedule

PC3. collect required tools, equipment and materials for a given work

PC4. match cable type including feeder cable and connectors to installation environment/site requirements as per the plan

PC5. check cable length for continuity

PC6. verify that the cable running length is free of electrical hazards and outdoors/indoors obstructions

PC7. liase with local authorities especially for outdoor cabling

PC8. select suitable location for equipment installation at different site adhering to cabling norms and signal coverage

PC9. ensure structured wiring from PoP to different sites

PC10. install neat wiring and clipping at all points up to the equipment

PC11. use proper cable terminators/connectors

PC12. install proper feeder cable termination between equipment and antenna

PC13. test the cable/joints for transmission loss and strength, re-terminate if loss exceeds prescribed limits

PC14. install equipment following electrical safety principles and manufacturer's instructions

PC15. arrange proper earthing to power-up the system

Complete documentation and clean-up worksite

To be competent, the user/individual on the job must be able to:

PC16. remove/dispose installation waste properly

PC17. restore worksite to customer satisfaction

PC18. update records with details of installation and test results

PC19. complete all installation documents and collect necessary payments if any

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. policies, standards and procedures to conduct lead generation activities

KU2. impact of not following defined procedures/work instructions issued as per guidelines

KU3. risk of working above the ground level on mast/towers

KU4. cabling types (OFC, UTP, STP, Twisted Pair etc.) and connectors (RJ-45, RJ- 11 etc.) as well as feeder cable and connectors

KU5. reasons of compliance/technical issues in Customer Enrolment Forms (CEFs)

KU6. structured cabling norms (pertaining to laying the cables)

KU7. process of cable laying, feeder cable laying and connectorisation

KU8. escalation matrix for reporting identified incidents, troubles and/ or emergencies e.g. system failures, fire and power failures

KU9. safety norms to be followed when climbing mast/tower

KU10. process of obtaining cables/equipment from company and keeping them in safe conditions at sites

KU11. formats for filling technical forms/activity logs

KU12. payment options and procedures

Generic Skills (GS)

User/individual on the job needs to know how to:

GS1. write records as per given format

GS2. read and understand manuals, work orders, health and safety instructions, memos, reports etc

GS3. interact respectfully with supervior/peers

GS4. communicate in the local language with the customers

GS5. work efficiently and effectively

GS6. work systematically with required attention to detail and adherence to all safety requirements

GS7. maintain proper etiquette in front of the customers

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Prepare and install the system	**23**	**44**	**-**	**7**
PC1. interact with the superiors to understand the job requirements	-	1	-	-
PC2. plan access to sites for installation/testing activities as per the schedule	1	2	-	-
PC3. collect required tools, equipment and materials for a given work	1	2	-	1
PC4. match cable type including feeder cable and connectors to installation environment/site requirements as per the plan	1	2	-	1
PC5. check cable length for continuity	1	2	-	1
PC6. verify that the cable running length is free of electrical hazards and outdoors/indoors obstructions	2	3	-	-
PC7. liase with local authorities especially for outdoor cabling	2	3	-	1
PC8. select suitable location for equipment installation at different site adhering to cabling norms and signal coverage	2	3	-	-
PC9. ensure structured wiring from PoP to different sites	2	3	-	1
PC10. install neat wiring and clipping at all points up to the equipment	2	3	-	-
PC11. use proper cable terminators/connectors	2	4	-	-
PC12. install proper feeder cable termination between equipment and antenna	2	4	-	1
PC13. test the cable/joints for transmission loss and strength, re-terminate if loss exceeds prescribed limits	2	4	-	1
PC14. install equipment following electrical safety principles and manufacturer's instructions	2	4	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC15. arrange proper earthing to power-up the system	1	4	-	-
Complete documentation and clean-up worksite	**7**	**16**	**-**	**3**
PC16. remove/dispose installation waste properly	2	4	-	1
PC17. restore worksite to customer satisfaction	1	4	-	1
PC18. update records with details of installation and test results	2	4	-	-
PC19. complete all installation documents and collect necessary payments if any	2	4	-	1
NOS Total	**30**	**60**	**-**	**10**

National Occupational Standards (NOS) Parameters

NOS Code	TEL/N4122
NOS Name	Wiring and installing equipment at different sites
Sector	Telecom
Sub-Sector	Passive Infrastructure
Occupation	Operations and Maintenance - Passive Infrastructure
NSQF Level	4
Credits	3
Version	5.0
Last Reviewed Date	31/08/2023
Next Review Date	31/08/2026
NSQC Clearance Date	31/08/2023

TEL/N6400: Splice Optical Fiber

Description

This OS unit is about preparing and carrying out efficient optical splicing.

Scope

The scope covers the following :

- Ensure availability of tools and spares
- Prepare cable for splicing for new installation
- Carry out maintenance of the laid Optical Fiber Cables (OFCs)
- Perform splicing operations

Elements and Performance Criteria

Ensure availability of tools and spares

To be competent, the user/individual on the job must be able to:

PC1. ensure availability of optical cable test equipment (Optical Time Domain Reflectometer (OTDR), power meter, etc.)

PC2. confirm availability of optical equipment (spool, joint closure, connectors, splicer and cleaver)

PC3. check availability of joint kits, pigtails, patch cords, FDF (Fiber Distribution Frame), ODB (Optical Distribution Box) connector, protection sleeves and heat shrink

PC4. send faulty equipment to the logistics team for repair or replacement

PC5. ensure availability of RCC (Reinforced Cement Concrete) joint chambers with covers and adequate sand as per specifications

PC6. confirm availability of one spare cable drum for emergency replacement of laid cables

PC7. ensure calibration status of the equipment to be perform (e.g. splicing machine, OTDR, power meter, cleaver)

Prepare cable for splicing for new installation

To be competent, the user/individual on the job must be able to:

PC8. identify exact location and fiber/fiber group for which the splicing is to be done as per network route and connectivity plan

PC9. inspect cable for sheath damage visually

PC10. dismantle/install the fiber joint box/splitter box carefully

PC11. ensure maintenance of minimum bend ratios as per manufacturer specifications to prevent cable damage and signal degradation

PC12. secure cable in accordance with the industry practices to avoid cable and sheath damage

PC13. determine appropriate fibers to be joined based on color coding and sequence

PC14. identify an appropriate place for the joint chamber location

PC15. clean fiber as per manufacturer specifications

Carry out maintenance of the laid Optical Fiber Cables (OFCs)

To be competent, the user/individual on the job must be able to:

PC16. identify the route/fiber and location where splicing/maintenance needs to be done in coordination with Fiber Technician/Operation and Maintenance (O&M) team

PC17. arrange outage exclusion time (maintenance window timeline) for the fiber and route in consultation with O&M team

PC18. visit the site to identify the exact location and fiber/fiber group for which the splicing is to be done

PC19. expose the fiber fault point (by digging for trenched fiber, or opening manholes etc., as required

PC20. inspect cable for sheath damage visually

PC21. dismantle/install the fiber joint box/splitter box carefully

PC22. ensure to maintain minimum bend ratios as per manufacturer specifications to prevent cable damage and signal degradation

PC23. secure cable in accordance with the industry practice to avoid cable and sheath damage

PC24. determine appropriate fibers to be joined based on color coding and sequence

PC25. identify an appropriate place for the joint chamber location

PC26. clean the fiber as per manufacturer specifications

Perform splicing operations

To be competent, the user/individual on the job must be able to:

PC27. strip cables at areas where splicing has to be performed

PC28. cleave fiber with a precision cleaver

PC29. inspect cleaved fiber ends with magnifier to ensure appropriateness

PC30. insert fiber strands to the fusion machine in accordance with the product/equipment specifications in case of fusion splicing

PC31. align fibers together by a precision-made sleeve and place the prepared fiber in mechanical splicing kit in case of mechanical splicing

PC32. use proper splice protectors like heat shrink splice protectors to protect the splice

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. spare part management process

KU2. repair and return process for faulty equipment

KU3. characteristics of Optical fiber like refraction, polarization, attenuation and dispersion

KU4. characteristics of wavelength bands in optical fiber

KU5. signal strength and quality Key Performance Indicators (KPIs) of OFCs

KU6. color coding of fiber optic cable

KU7. principles of optical transport media

KU8. types of OFC connectors

KU9. functioning of optical equipment like cleaver, mechanical and fusion splicing kit, protection sleeves, fiber stripper, fiber reinforced plaster during splicing and jointing

KU10. alignment errors during splicing of optical fibers like Lateral, Axial, Angular and Poor end finish

KU11. procedure for sealing joints, heat shrinking/multi-diameter seals/mechanical seals etc

Generic Skills (GS)

User/individual on the job needs to know how to:

GS1. fill up standard technical forms and activity logs

GS2. maintain proper records in the prescribed format

GS3. communicate with supervisor and peers

GS4. communicate in the local language (preferably)

GS5. maintain effective working relationships

GS6. use resources efficiently and effectively

GS7. execute tasks in a high-pressure environment

GS8. be flexible and accept changes in job requirements, schedules, or work environments

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Ensure availability of tools and spares	**11**	**19**	**-**	**2**
PC1. ensure availability of optical cable test equipment (Optical Time Domain Reflectometer (OTDR), power meter, etc.)	1	2	-	1
PC2. confirm availability of optical equipment (spool, joint closure, connectors, splicer and cleaver)	1	3	-	-
PC3. check availability of joint kits, pigtails, patch cords, FDF (Fiber Distribution Frame), ODB (Optical Distribution Box) connector, protection sleeves and heat shrink	2	3	-	1
PC4. send faulty equipment to the logistics team for repair or replacement	2	3	-	-
PC5. ensure availability of RCC (Reinforced Cement Concrete) joint chambers with covers and adequate sand as per specifications	2	3	-	-
PC6. confirm availability of one spare cable drum for emergency replacement of laid cables	1	2	-	-
PC7. ensure calibration status of the equipment to be perform (e.g. splicing machine, OTDR, power meter, cleaver)	2	3	-	-
Prepare cable for splicing for new installation	**9**	**16**	**-**	**3**
PC8. identify exact location and fiber/fiber group for which the splicing is to be done as per network route and connectivity plan	1	3	-	-
PC9. inspect cable for sheath damage visually	1	2	-	1
PC10. dismantle/install the fiber joint box/splitter box carefully	1	2	-	-
PC11. ensure maintenance of minimum bend ratios as per manufacturer specifications to prevent cable damage and signal degradation	1	2	-	1

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC12. secure cable in accordance with the industry practices to avoid cable and sheath damage	1	2	-	1
PC13. determine appropriate fibers to be joined based on color coding and sequence	3	1	-	-
PC14. identify an appropriate place for the joint chamber location	1	3	-	-
PC15. clean fiber as per manufacturer specifications	-	1	-	-
Carry out maintenance of the laid Optical Fiber Cables (OFCs)	**10**	**13**	**-**	**3**
PC16. identify the route/fiber and location where splicing/maintenance needs to be done in coordination with Fiber Technician/Operation and Maintenance (O&M) team	1	1	-	-
PC17. arrange outage exclusion time (maintenance window timeline) for the fiber and route in consultation with O&M team	1	1	-	-
PC18. visit the site to identify the exact location and fiber/fiber group for which the splicing is to be done	1	1	-	1
PC19. expose the fiber fault point (by digging for trenched fiber, or opening manholes etc., as required	1	1	-	-
PC20. inspect cable for sheath damage visually	1	3	-	1
PC21. dismantle/install the fiber joint box/splitter box carefully	1	1	-	1
PC22. ensure to maintain minimum bend ratios as per manufacturer specifications to prevent cable damage and signal degradation	1	1	-	-
PC23. secure cable in accordance with the industry practice to avoid cable and sheath damage	-	1	-	-
PC24. determine appropriate fibers to be joined based on color coding and sequence	2	1	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC25. identify an appropriate place for the joint chamber location	1	1	-	-
PC26. clean the fiber as per manufacturer specifications	-	1	-	-
Perform splicing operations	**5**	**7**	**-**	**2**
PC27. strip cables at areas where splicing has to be performed	1	1	-	-
PC28. cleave fiber with a precision cleaver	1	1	-	1
PC29. inspect cleaved fiber ends with magnifier to ensure appropriateness	-	1	-	1
PC30. insert fiber strands to the fusion machine in accordance with the product/equipment specifications in case of fusion splicing	1	2	-	-
PC31. align fibers together by a precision-made sleeve and place the prepared fiber in mechanical splicing kit in case of mechanical splicing	1	1	-	-
PC32. use proper splice protectors like heat shrink splice protectors to protect the splice	1	1	-	-
NOS Total	**35**	**55**	**-**	**10**

National Occupational Standards (NOS) Parameters

NOS Code	TEL/N6400
NOS Name	Splice Optical Fiber
Sector	Telecom
Sub-Sector	Network Managed Services
Occupation	Operations and Maintenance - Passive Infrastructure
NSQF Level	3
Credits	2
Version	5.0
Last Reviewed Date	31/08/2023
Next Review Date	31/08/2026
NSQC Clearance Date	31/08/2023

TEL/N4201: In-building FTTH/X cabling

Description

This OS unit is about in-building installation of fiber cables for FTTH/X deployment and the end termination at ONT (Optical Network Terminal). The start point is from the OSP (outside plant) fiber landing point in the building. The in-building routing can be through pre-existing/installed horizontal/vertical cable trays through building ducts or paths and/or through pre-existing/installed conduits, up to the ONT termination and further up to the Telecommunication Outlet (TO) in the customer premise.

Scope

The scope covers the following :

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

Elements and Performance Criteria

Cable installation through cable trays (horizontal/vertical)

To be competent, the user/individual on the job must be able to:

PC1.   inspect the site as per building lay-out plan

PC2.   identify the cabling path from the outdoor fiber landing point (in the building premises) up to the intended ont installation point (this to include both the cable tray as well as conduit runs)

PC3.   calculate the horizontal and vertical cable length, accounting for the slack to be maintained

PC4.   ascertain the pre-existing load and post installation load compliance of the cable trays

PC5.   ascertain and account for existing cable services on the cable trays (power cables, other data/voice cables etc.)

PC6.   lay the fiber along the identified tray tracks using appropriate cable pulling method

PC7.   secure the fiber along the cable tray ensuring proper slack management (especially for the vertical run)

Cable installation through conduits

To be competent, the user/individual on the job must be able to:

PC8.   demonstrate fiber pulling through conduit using appropriate technique and tools (pulling through strength member and using correct tools like fish tape)

PC9.   demonstrate proper coiling and securing of excess fiber (approx. 3 meter) at the termination end

Cable installation through false ceiling

To be competent, the user/individual on the job must be able to:

PC10.   demonstrate cable installation through false ceiling, using figure 8 method

PC11.   demonstrate cable installation through conduits on false ceiling

Terminations at ONT and TO

To be competent, the user/individual on the job must be able to:

PC12. demonstrate fiber termination and connectorisation at ONT

PC13. demonstrate fiber termination at TO

PC14. demonstrate powering and configuring of ONT

PC15. test installed ONT using IP network

PC16. undertake VFL (Visual Fault Locator) for the installed fiber run

PC17. test the live fiber using fiber detection meter

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. risk and impact of not following defined procedures/work instructions

KU2. escalation matrix for reporting identified incidents, troubles and/ or emergencies e.g. system failures, fire and power failures

KU3. types of documentation in organization and importance of the same

KU4. records to be maintained and implications of non-maintenance of the same

KU5. knowledge of spare management and repair & return process for faulty equipment

KU6. Safety Health and Environment (SHE) and Occupational Health and Safety (OHS) guidelines and regulations as per company norms

KU7. fiber optic cable types and characteristics for in-building deployments

KU8. basic knowledge of electrical and electronic components

KU9. fiber handling practices (bend radius)

KU10. fiber cable components (strength members, cable sheath, core, cladding etc.)

KU11. fusion splicing

KU12. VLF principal and testing features

KU13. importance and use of fiber pulling tools/equipment (fish tape)

KU14. importance and relevance of managing cable slack and cable management

KU15. documentation practices

Generic Skills (GS)

User/individual on the job needs to know how to:

GS1. read and interpret necessary documents

GS2. read and understand manuals, requirement documents, operational health and safety instructions, memos, reports etc.

GS3. read and comprehend/understand material specifications

GS4. communicate with colleagues, peers and supervisor

GS5. liaise and coordinate with third party vendors/other stakeholders

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Cable installation through cable trays (horizontal/vertical)	**10**	**22**	**-**	**3**
PC1. inspect the site as per building lay-out plan	-	4	-	-
PC2. identify the cabling path from the outdoor fiber landing point (in the building premises) up to the intended ont installation point (this to include both the cable tray as well as conduit runs)	2	5	-	1
PC3. calculate the horizontal and vertical cable length, accounting for the slack to be maintained	5	-	-	-
PC4. ascertain the pre-existing load and post installation load compliance of the cable trays	2	1	-	1
PC5. ascertain and account for existing cable services on the cable trays (power cables, other data/voice cables etc.)	-	4	-	-
PC6. lay the fiber along the identified tray tracks using appropriate cable pulling method	1	3	-	1
PC7. secure the fiber along the cable tray ensuring proper slack management (especially for the vertical run)	-	5	-	-
Cable installation through conduits	**4**	**9**	**-**	**1**
PC8. demonstrate fiber pulling through conduit using appropriate technique and tools (pulling through strength member and using correct tools like fish tape)	2	5	-	1
PC9. demonstrate proper coiling and securing of excess fiber (approx. 3 meter) at the termination end	2	4	-	-
Cable installation through false ceiling	**4**	**10**	**-**	**2**
PC10. demonstrate cable installation through false ceiling, using figure 8 method	2	5	-	1
PC11. demonstrate cable installation through conduits on false ceiling	2	5	-	1

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Terminations at ONT and TO	**12**	**19**	**-**	**4**
PC12. demonstrate fiber termination and connectorisation at ONT	3	5	-	1
PC13. demonstrate fiber termination at TO	-	5	-	1
PC14. demonstrate powering and configuring of ONT	2	3	-	-
PC15. test installed ONT using IP network	2	2	-	1
PC16. undertake VFL (Visual Fault Locator) for the installed fiber run	3	2	-	1
PC17. test the live fiber using fiber detection meter	2	2	-	-
NOS Total	**30**	**60**	**-**	**10**

Qualification Pack

National Occupational Standards (NOS) Parameters

NOS Code	TEL/N4201
NOS Name	In-building FTTH/X cabling
Sector	Telecom
Sub-Sector	Passive Infrastructure
Occupation	Network (Passive) Installation
NSQF Level	3
Credits	2
Version	4.0
Last Reviewed Date	31/08/2023
Next Review Date	31/08/2026
NSQC Clearance Date	31/08/2023

TEL/N0112: Configure customer premises equipment and establish Broadband connectivity

Description

This OS unit describes the knowledge, understanding and skills required for an individual to configure CPE, connect it with service provider gateway and end user device and then record configuration settings and testing steps for the customer.

Scope

The scope covers the following :

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

Elements and Performance Criteria

Configure CPE

To be competent, the user/individual on the job must be able to:

PC1. connect up laptop/PC, smart/ip TV and other customer device to the CPE and establish connectivity

PC2. access Customer Premise Equipment (CPE) settings using default login credentials

PC3. configure CPE as per the base setting (ip, gateway, mask etc.)

Establish broadband connectivity of CPE with service provider gateway and end user device

To be competent, the user/individual on the job must be able to:

PC4. verify that all cables and connectors are plugged in properly

PC5. ping the service provider gateway

PC6. analyse test results for connectivity and throughput parameters

PC7. configure end user device to establish LAN /WiFi connectivity with CPE

PC8. ping CPE from end user device and analyse response

Record configuration setting and testing steps for customer

To be competent, the user/individual on the job must be able to:

PC9. record CPE configuration settings

PC10. record end user device configuration settings

PC11. record pinging procedure and expected result parameters

PC12. perform speed test and record the data throughputs and show customer that they are as per committed plan

PC13. brief customer on basic trouble-shooting steps/self help

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. risk and impact of not following defined procedures/work instructions issued as per SHE & OSH guidelines

KU2. command line access and command prompts to execute basic commands

KU3. configuration settings of CPE (wired and wireless) and end user device

KU4. sourcing equipment and base configuration details

KU5. basic concepts of network topologies, broadband network elements, gateways, TCP/IP, IP address, subnet masks, Ethernet address, MAC address, IPv4, IPv6

KU6. basic commands like ping & ipconfig and acceptable round-trip time for IP packets

KU7. connectivity options and methods for CPE & end user device

KU8. customer premise equipment

KU9. features and operating requirements of test equipment

KU10. how to test the speed of connection and to demonstrate same to customer

KU11. Level1 & 2 diagnostics

KU12. in-built diagnostics results for remedial action

KU13. escalation matrix for reporting identified incidents, troubles and/ or emergencies e.g. system failures ,fire and power failures

Generic Skills (GS)

User/individual on the job needs to know how to:

GS1. interact courteously with customers

GS2. liaise with customers/vendors

GS3. work in coordination with team

GS4. communicate in the local language (preferable)

GS5. work systematically with attention to detail and adherence to all safety requirements

GS6. maintain proper records as per given format

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Configure CPE	**11**	**12**	**-**	**3**
PC1. connect up laptop/PC, smart/ip TV and other customer device to the CPE and establish connectivity	3	4	-	1
PC2. access Customer Premise Equipment (CPE) settings using default login credentials	4	4	-	1
PC3. configure CPE as per the base setting (ip, gateway, mask etc.)	4	4	-	1
Establish broadband connectivity of CPE with service provider gateway and end user device	**16**	**20**	**-**	**5**
PC4. verify that all cables and connectors are plugged in properly	3	4	-	1
PC5. ping the service provider gateway	2	4	-	1
PC6. analyse test results for connectivity and throughput parameters	4	4	-	1
PC7. configure end user device to establish LAN /WiFi connectivity with CPE	4	4	-	1
PC8. ping CPE from end user device and analyse response	3	4	-	1
Record configuration setting and testing steps for customer	**13**	**18**	**-**	**2**
PC9. record CPE configuration settings	4	4	-	-
PC10. record end user device configuration settings	3	4	-	1
PC11. record pinging procedure and expected result parameters	2	4	-	-
PC12. perform speed test and record the data throughputs and show customer that they are as per committed plan	2	3	-	1
PC13. brief customer on basic trouble-shooting steps/self help	2	3	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
NOS Total	**40**	**50**	**-**	**10**

National Occupational Standards (NOS) Parameters

NOS Code	TEL/N0112
NOS Name	Configure customer premises equipment and establish Broadband connectivity
Sector	Telecom
Sub-Sector	Passive Infrastructure
Occupation	Customer Service - Passive Infrastructure
NSQF Level	4
Credits	3
Version	5.0
Last Reviewed Date	31/08/2023
Next Review Date	31/08/2026
NSQC Clearance Date	31/08/2023

TEL/N0113: Troubleshoot and rectify faults

Description

This OS unit describes the knowledge, understanding and skills required for an individual to troubleshoot and rectify cable, connectors, CPE and broadband service faults and then complete documentation and clean up work site.

Scope

The scope covers the following :

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

Elements and Performance Criteria

Troubleshoot and rectify cable, connectors and CPE faults

To be competent, the user/individual on the job must be able to:

PC1.   identify cause of fault, No Service or service degradation

PC2.   test cabling using signal level meters /OTDR

PC3.   repair and replace faulty connectors / damaged cable

PC4.   perform re-conectorization/crimping (of cable pairs with connector) or replace cable, if required

PC5.   connect CPE to laptop/CPU/portable device

PC6.   access CPE through browser/software application and run diagnostic application

PC7.   install CPE access software, if required

PC8.   re-configure/reset the CPE to correct settings

Troubleshoot and repair clients' broadband service

To be competent, the user/individual on the job must be able to:

PC9.   troubleshoot/repair problems between customer equipment and the optical node

PC10.   troubleshoot problems for signal loss and interference

PC11.   take readings at all splitter points and terminated ends to determine the signal loss and continuity

PC12.   perform network troubleshooting including ping test, trace routes and speed test

PC13.   monitor, repair and record system, drop, and in-house signal leakage

Complete documentation and clean up work site

To be competent, the user/individual on the job must be able to:

PC14.   record steps undertaken for fault localization/isolation

PC15.   record repairs/replacements undertaken during fault rectification

PC16.   restore any changes made to the worksite during fault repair to the client's satisfaction

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. basic concepts of transmission, broadcasting, switching and operation of telecommunication systems
KU2. functioning of circuit boards and processors
KU3. types of cables and cable pairs
KU4. types of cable connectors
KU5. tools and equipment required for trouble-shooting cable and connector faults
KU6. crimping or soldering expertise
KU7. cable lengths required to achieve designed throughput
KU8. basics of EMI/EMC and preventive approach specific to modem
KU9. usage of test equipment
KU10. commands to reconfigure/rectify fault in CPE
KU11. correct commands and applications to reconfigure end user device
KU12. usage of laptop/portable device to connect to CPE and carry out fault diagnostics and repairs
KU13. how to interpret data on CPE interface accessed through laptop browser
KU14. how to interpret output of trouble shooting equipment/device
KU15. signal loss, attenuation and tiling
KU16. risk and impact of not following defined procedures/work instructions
KU17. escalation matrix for reporting identified incidents, troubles and/ or emergencies e.g. system failures, fire and power failures

Generic Skills (GS)

User/individual on the job needs to know how to:

GS1. liaise with customers/vendors
GS2. work in coordination with team
GS3. maintain proper records as per given format
GS4. interact courteously with users/customers
GS5. communicate in the local language (preferable)
GS6. work systematically with attention to detail and adherence to all safety requirements
GS7. maintain proper records as per given format

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Troubleshoot and rectify cable, connectors and CPE faults	**21**	**18**	**-**	**6**
PC1. identify cause of fault, No Service or service degradation	2	2	-	1
PC2. test cabling using signal level meters /OTDR	2	2	-	1
PC3. repair and replace faulty connectors / damaged cable	2	4	-	-
PC4. perform re-conectorization/crimping (of cable pairs with connector) or replace cable, if required	4	2	-	1
PC5. connect CPE to laptop/CPU/portable device	2	2	-	1
PC6. access CPE through browser/software application and run diagnostic application	2	2	-	1
PC7. install CPE access software, if required	4	2	-	-
PC8. re-configure/reset the CPE to correct settings	3	2	-	1
Troubleshoot and repair clients' broadband service	**16**	**22**	**-**	**4**
PC9. troubleshoot/repair problems between customer equipment and the optical node	4	4	-	1
PC10. troubleshoot problems for signal loss and interference	4	4	-	1
PC11. take readings at all splitter points and terminated ends to determine the signal loss and continuity	2	4	-	-
PC12. perform network troubleshooting including ping test, trace routes and speed test	4	6	-	1
PC13. monitor, repair and record system, drop, and in-house signal leakage	2	4	-	1
Complete documentation and clean up work site	**3**	**10**	**-**	**-**
PC14. record steps undertaken for fault localization/isolation	1	6	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC15. record repairs/replacements undertaken during fault rectification	1	2	-	-
PC16. restore any changes made to the worksite during fault repair to the client's satisfaction	1	2	-	-
NOS Total	**40**	**50**	**-**	**10**

National Occupational Standards (NOS) Parameters

NOS Code	TEL/N0113
NOS Name	Troubleshoot and rectify faults
Sector	Telecom
Sub-Sector	Passive Infrastructure
Occupation	Customer Service - Passive Infrastructure
NSQF Level	4
Credits	2
Version	4.0
Last Reviewed Date	31/08/2023
Next Review Date	31/08/2026
NSQC Clearance Date	31/08/2023

Qualification Pack

TEL/N2213: Repair and test handsets

Description

This OS unit is about assisting superiors in carrying out repair activities related to handheld devices - hardware and software.

Scope

The scope covers the following :

- Diagnose and categorise faults (hardware or software)
- Prepare for repairing of handset
- Repair the handset and test its functionality
- Perform post-repair activities

Elements and Performance Criteria

Diagnose and categorise faults (hardware or software)

To be competent, the user/individual on the job must be able to:

PC1. collect the faulty handheld devices from the customer care executives or front-end executives

PC2. assist the supervisor in analysing the requirements, issues and functionality problems reported by the customer/front-end team

PC3. identify the timelines and repair commitments based on the directions received from supervisor and as specified in the Service Level Agreement (SLA)

PC4. plan and prioritize activities related to delivery timeline and issues under supervision

PC5. diagnose the fault as listed in the company specific database under supervision and check if it is a hardware or software related issue

PC6. assist the supervisor in identifying the root cause of the fault to determine if any part requires replacement

PC7. identify the cause of fault by conducting appropriate diagnostic tests

PC8. check if the part or component required for repair is available at the store or needs to be ordered from the regional service centre

PC9. list all options for rectifying the fault under supervisor's guidance

Prepare for repairing of handset

To be competent, the user/individual on the job must be able to:

PC10. collect the parts to be replaced/repaired from the store/inventory keeper

PC11. collect all tools and equipment required for repair/replacement of parts

PC12. inspect the repair table and area to check if its clean and dust free

PC13. check if all equipment required for repair and testing are calibrated as per the specified environment parameters detailed by the handset manufacturer

PC14. check if lead-free soldering tools are available and ready for use

PC15. verify that all Electro Static Discharge (ESD) precautions are considered before starting repair

PC16. backup all user data using authorized mechanism and medium

Repair the handset and test its functionality

To be competent, the user/individual on the job must be able to:

PC17. dismantle handset and remove the components/parts under supervision and as per organizational guidelines/procedures

PC18. assist the supervisor in repairing the handset using authorized tools and equipment

PC19. replace components and parts w.r.t manufacturer specifications as per the instructions received by supervisor

PC20. verify that all parts of the handset are inserted properly and are contained within the body

PC21. assemble the handset properly under supervision of superior using appropriate tools and appropriate procedure

PC22. document the package details about case parts/components that are replaced and hold warranty

PC23. escalate any emergency situation/unresolved issues to the supervisor

PC24. assist supervisors in checking that the repairs conform to the quality targets in terms of bounce and repeat repair percentages, first time fix etc.

PC25. perform necessary software fault rectification such as correction/upgradation, software replacement etc. under supervision

PC26. test the effectiveness of the repair based on the directions received by supervisor and by using appropriate testing equipment

Perform post-repair activities

To be competent, the user/individual on the job must be able to:

PC27. check that the fault has been rectified without any collateral damage to the handset

PC28. send the repaired handset to the authorized personnel

PC29. return all tools and equipment to the store in clean and working condition

PC30. clean the repair bench/table to ensure no loose screws/parts are lying around

PC31. send the replaced defective part to the authorized personnel

PC32. document the repairs and replacement work for the handset along with time, date, handset specifications, complaint number etc.

PC33. inform all relevant personnel (including supervisors, front-end teams) about the completion of the repair activity

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. various flashing tools such as Samsung, MediaTek, Qualcomm etc. for various types of Smartphones including i-Phones

KU2. types of IMEI repairing tools

KU3. Real Time Transmission (RT TX)Cable, EDL Cable etc. for flashing

KU4. usage of UMT dongle for flashing

KU5. uninstalling applications that is not compatible or creating issues in the mobile phone

KU6. installing licensed and authorised software's to resolve issues and suiting the customer's requirement

KU7. replacing or repairing the faulty modules/components

KU8. cost of repair and verify if it is within Beyond Economic Repair (BER)

KU9. usage of instruments such as a multi-meter to identify and repair faults in Charging Section, Light Section, SIM Section, MMC Section, Touchpad section, Digital SMD Mic Section, Camera Section, Headphone section, Ringer/Speaker/Mic/Vibrator section and keypad section

KU10. display related issues, usage of OCA Lamination Machine to replace polarizer film, removing broken glass, replacing blank/white LCD, replacing broken glass edge/curved display and usage of bubble remover

KU11. various troubleshooting devices such as F Finder Dongle, ZWX Dongle etc.

KU12. testing the functioning of hardware after repairing

KU13. how to ensure that no damage is caused to the device while removal and fixing of components

KU14. how to ensure that other components are not damaged while using hot air gun for removal of a component which could cause damage

KU15. how to ensure that adequate soldering for fixing the component is done and no further rework is required

KU16. how to receive spare module / component from stores, make sure to keep necessary parts in stock

KU17. formation of Current AC/DC

KU18. Diode-Function, Symbol, Denoting letter, Identification of Solid and SMD Type Diode

KU19. Transistor-Basics, Types, Symbol, Denoting Letter, PNP and NPN.

KU20. EMMC chip off, Reballing and Soldering Concept, CPU based Smartphone Flashing and Smartphone IMEI Repair Tools, CRU based Smartphone FRP

KU21. flashing handsets online /offline, use of Miracle Box, Z3X Box for Samsung and setting up of Creak Box to spot process disruptions and delay

Generic Skills (GS)

User/individual on the job needs to know how to:

GS1. communicate respectfully with customer/customer facing teams

GS2. read and understand documents and reports

GS3. speak and understand English/regional language

GS4. read and write in English or any regional language

GS5. manage time efficiently

GS6. listen carefully and respond appropriately

GS7. work systematically with attention to detail

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Diagnose and categorise faults (hardware or software)	**14**	**10**	**-**	**3**
PC1. collect the faulty handheld devices from the customer care executives or front-end executives	2	-	-	-
PC2. assist the supervisor in analysing the requirements, issues and functionality problems reported by the customer/front-end team	2	-	-	-
PC3. identify the timelines and repair commitments based on the directions received from supervisor and as specified in the Service Level Agreement (SLA)	2	-	-	-
PC4. plan and prioritize activities related to delivery timeline and issues under supervision	2	-	-	-
PC5. diagnose the fault as listed in the company specific database under supervision and check if it is a hardware or software related issue	2	6	-	1
PC6. assist the supervisor in identifying the root cause of the fault to determine if any part requires replacement	-	-	-	1
PC7. identify the cause of fault by conducting appropriate diagnostic tests	2	-	-	-
PC8. check if the part or component required for repair is available at the store or needs to be ordered from the regional service centre	-	4	-	-
PC9. list all options for rectifying the fault under supervisor's guidance	2	-	-	1
Prepare for repairing of handset	**7**	**8**	**-**	**2**
PC10. collect the parts to be replaced/repaired from the store/inventory keeper	-	2	-	-
PC11. collect all tools and equipment required for repair/replacement of parts	-	2	-	-
PC12. inspect the repair table and area to check if its clean and dust free	2	-	-	1

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC13. check if all equipment required for repair and testing are calibrated as per the specified environment parameters detailed by the handset manufacturer	2	-	-	1
PC14. check if lead-free soldering tools are available and ready for use	2	-	-	-
PC15. verify that all Electro Static Discharge (ESD) precautions are considered before starting repair	1	-	-	-
PC16. backup all user data using authorized mechanism and medium	-	4	-	-
Repair the handset and test its functionality	**6**	**26**	**-**	**7**
PC17. dismantle handset and remove the components/parts under supervision and as per organizational guidelines/procedures	-	4	-	-
PC18. assist the supervisor in repairing the handset using authorized tools and equipment	-	4	-	1
PC19. replace components and parts w.r.t manufacturer specifications as per the instructions received by supervisor	-	4	-	1
PC20. verify that all parts of the handset are inserted properly and are contained within the body	2	-	-	-
PC21. assemble the handset properly under supervision of superior using appropriate tools and appropriate procedure	-	4	-	-
PC22. document the package details about case parts/components that are replaced and hold warranty	1	-	-	-
PC23. escalate any emergency situation/unresolved issues to the supervisor	1	-	-	-
PC24. assist supervisors in checking that the repairs conform to the quality targets in terms of bounce and repeat repair percentages, first time fix etc.	-	4	-	1
PC25. perform necessary software fault rectification such as correction/upgradation, software replacement etc. under supervision	-	4	-	2

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC26. test the effectiveness of the repair based on the directions received by supervisor and by using appropriate testing equipment	2	2	-	2
Perform post-repair activities	**8**	**6**	**-**	**3**
PC27. check that the fault has been rectified without any collateral damage to the handset	1	2	-	1
PC28. send the repaired handset to the authorized personnel	1	1	-	-
PC29. return all tools and equipment to the store in clean and working condition	1	1	-	-
PC30. clean the repair bench/table to ensure no loose screws/parts are lying around	1	-	-	1
PC31. send the replaced defective part to the authorized personnel	2	1	-	-
PC32. document the repairs and replacement work for the handset along with time, date, handset specifications, complaint number etc.	1	-	-	-
PC33. inform all relevant personnel (including supervisors, front-end teams) about the completion of the repair activity	1	1	-	1
NOS Total	**35**	**50**	**-**	**15**

National Occupational Standards (NOS) Parameters

NOS Code	TEL/N2213
NOS Name	Repair and test handsets
Sector	Telecom
Sub-Sector	Handset
Occupation	Customer Service - Handset Segment
NSQF Level	4
Credits	3
Version	3.0
Last Reviewed Date	31/08/2023
Next Review Date	31/08/2026
NSQC Clearance Date	31/08/2023

TEL/N4141: Provide Techpreneurial Solutions in the Village

Description

This OS unit encompasses the key focus areas of the Telecom Grameen Udhyami's services and emphasizes the role of entrepreneurship in bringing about positive change and empowerment in rural communities.

Scope

The scope covers the following :

- Setup techpreneurial business in a village
- Provide Basic Telecom Solutions
- Install UPS and check the electrical parameters

Elements and Performance Criteria

Setup Techpreneurial business in a village

To be competent, the user/individual on the job must be able to:

PC1. identify the village's needs and demands for telecom and hardware solutions

PC2. create a comprehensive plan outlining the services, target market, finances, and marketing strategies

PC3. choose a suitable location and set up infrastructure

PC4. obtain necessary permits and licenses

PC5. organize workshops in the village to promote digital literacy

Provide Telecom and Basic Hardware Solution

To be competent, the user/individual on the job must be able to:

PC6. offer comprehensive telecom services including SIM card sales, mobile recharge, top-up, and post-paid bill payment facility for mobile, landline and DTH services

PC7. provide internet connectivity solutions for homes and businesses in the village including broadband or wireless internet connections

PC8. establish public Wi-Fi hotspots in central locations, such as community centers or schools, to offer affordable internet access to the villagers

PC9. set up local area networks (LANs) in offices and homes, facilitating file sharing and communication

PC10. provide expert hardware and software repair services for mobile phones, computers, laptops, WiFi equipment, and other related devices

PC11. deliver basic IT solutions, including software installation, virus and malware removal, data backup and recovery to ensure smooth functioning of computers and devices for individuals and businesses

PC12. collaborate with government officials and NGOs to set up village information center with computers and internet access to provide valuable information on agriculture, healthcare, government schemes, etc.

PC13. collaborate with healthcare providers to setup telemedicine centres for connecting villagers with medical professionals remotely

PC14. assist in implementing security measures, like CCTV cameras to enhance safety and security in the village

PC15. provide advice and consultation services to individuals and businesses on technology-related matters, helping them make informed decisions

Install UPS and check electrical parameters

To be competent, the user/individual on the job must be able to:

PC16. checks for voltage, current, and earthing, as well as analyse basic wiring diagrams to facilitate the correct installation of the UPS

PC17. rout the power supply through the UPS and exercise precautions while handling power supplies

PC18. conduct periodic maintenance of the UPS system

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. business management, including financial planning, marketing, and customer relationship management, to run your entrepreneurial venture successfully

KU2. customer centricity

KU3. various telecom services offered by mobile operators, such as prepaid and post-paid plans, top-ups, and bill payment processes

KU4. different types of internet connections, including broadband and wireless options, and how to set them up and troubleshoot connectivity issues

KU5. Wi-Fi technology, security protocols, and how to configure and manage Wi-Fi hotspots for public use

KU6. LAN setup and configuration, including network devices, IP addressing, and file sharing protocols

KU7. voltage/current norms

KU8. hardware issues in mobile phones, computers, laptops, and other IT equipment

KU9. various operating systems and software applications

KU10. common security threats, malware types, and techniques to remove viruses from infected systems

KU11. data backup methods, storage devices, and recovery processes

KU12. government guidelines and protocols for village information centers

KU13. norms for checking earthing and continuity of power supply

KU14. UPS installation norms

KU15. types of UPS

KU16. power rating of UPS

KU17. functioning of test equipment for checking/measuring power supply

KU18. types of batteries compatible with UPS

Generic Skills (GS)

User/individual on the job needs to know how to:

GS1. use interpersonal skills to interact with villagers and businesses

GS2. maintain proper records as per given format

GS3. read and comprehend technical manual and literature

GS4. read and understand work orders, health and safety instructions, memos, reports etc.

GS5. communicate with supervisor and fellow technicians

GS6. communicate in the local language with the customers

GS7. maintain proper etiquette in front of the customers

GS8. work with minimum disturbance

GS9. relevant local regulations, licenses, or permits required to operate and offer telecom and IT services

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Setup Techpreneurial business in a village	**10**	**5**	**-**	**4**
PC1. identify the village's needs and demands for telecom and hardware solutions	3	2	-	-
PC2. create a comprehensive plan outlining the services, target market, finances, and marketing strategies	5	1	-	-
PC3. choose a suitable location and set up infrastructure	-	2	-	1
PC4. obtain necessary permits and licenses	-	-	-	2
PC5. organize workshops in the village to promote digital literacy	2	-	-	1
Provide Telecom and Basic Hardware Solution	**16**	**28**	**-**	**10**
PC6. offer comprehensive telecom services including SIM card sales, mobile recharge, top-up, and post-paid bill payment facility for mobile, landline and DTH services	2	3	-	1
PC7. provide internet connectivity solutions for homes and businesses in the village including broadband or wireless internet connections	2	4	-	1
PC8. establish public Wi-Fi hotspots in central locations, such as community centers or schools, to offer affordable internet access to the villagers	2	-	-	1
PC9. set up local area networks (LANs) in offices and homes, facilitating file sharing and communication	3	4	-	-
PC10. provide expert hardware and software repair services for mobile phones, computers, laptops, WiFi equipment, and other related devices	2	5	-	-
PC11. deliver basic IT solutions, including software installation, virus and malware removal, data backup and recovery to ensure smooth functioning of computers and devices for individuals and businesses	3	6	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC12. collaborate with government officials and NGOs to set up village information center with computers and internet access to provide valuable information on agriculture, healthcare, government schemes, etc.	-	-	-	2
PC13. collaborate with healthcare providers to setup telemedicine centres for connecting villagers with medical professionals remotely	-	-	-	2
PC14. assist in implementing security measures, like CCTV cameras to enhance safety and security in the village	-	6	-	1
PC15. provide advice and consultation services to individuals and businesses on technology-related matters, helping them make informed decisions	2	-	-	2
Install UPS and check electrical parameters	**9**	**17**	**-**	**1**
PC16. checks for voltage, current, and earthing, as well as analyse basic wiring diagrams to facilitate the correct installation of the UPS	4	6	-	1
PC17. rout the power supply through the UPS and exercise precautions while handling power supplies	2	6	-	-
PC18. conduct periodic maintenance of the UPS system	3	5	-	-
NOS Total	**35**	**50**	**-**	**15**

National Occupational Standards (NOS) Parameters

NOS Code	TEL/N4141
NOS Name	Provide Techpreneurial Solutions in the Village
Sector	Telecom
Sub-Sector	Passive Infrastructure
Occupation	Operations and Maintenance - Passive Infrastructure
NSQF Level	4
Credits	1
Version	1.0
Last Reviewed Date	31/08/2023
Next Review Date	31/08/2026
NSQC Clearance Date	31/08/2023

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

Description

This unit is about employability skills, Constitutional values, becoming a professional in the 21st Century, digital, financial, and legal literacy, diversity and Inclusion, English and communication skills, customer service, entrepreneurship, and apprenticeship, getting ready for jobs and career development.

Scope

The scope covers the following :

- Introduction to Employability Skills
- Constitutional values - Citizenship
- Becoming a Professional in the 21st Century
- Basic English Skills
- Career Development & Goal Setting
- Communication Skills
- Diversity & Inclusion
- Financial and Legal Literacy
- Essential Digital Skills
- Entrepreneurship
- Customer Service
- Getting ready for Apprenticeship & Jobs

Elements and Performance Criteria

Introduction to Employability Skills

To be competent, the user/individual on the job must be able to:

PC1. identify employability skills required for jobs in various industries

PC2. identify and explore learning and employability portals

Constitutional values – Citizenship

To be competent, the user/individual on the job must be able to:

PC3. recognize the significance of constitutional values, including civic rights and duties, citizenship, responsibility towards society etc. and personal values and ethics such as honesty, integrity, caring and respecting others, etc.

PC4. follow environmentally sustainable practices

Becoming a Professional in the 21st Century

To be competent, the user/individual on the job must be able to:

PC5. recognize the significance of 21st Century Skills for employment

PC6. practice the 21st Century Skills such as Self-Awareness, Behaviour Skills, time management, critical and adaptive thinking, problem-solving, creative thinking, social and cultural awareness, emotional awareness, learning to learn for continuous learning etc. in personal and professional life

Basic English Skills

To be competent, the user/individual on the job must be able to:

PC7. use basic English for everyday conversation in different contexts, in person and over the telephone

PC8. read and understand routine information, notes, instructions, mails, letters etc. written in English

PC9. write short messages, notes, letters, e-mails etc. in English

Career Development & Goal Setting

To be competent, the user/individual on the job must be able to:

PC10. understand the difference between job and career

PC11. prepare a career development plan with short- and long-term goals, based on aptitude

Communication Skills

To be competent, the user/individual on the job must be able to:

PC12. follow verbal and non-verbal communication etiquette and active listening techniques in various settings

PC13. work collaboratively with others in a team

Diversity & Inclusion

To be competent, the user/individual on the job must be able to:

PC14. communicate and behave appropriately with all genders and PwD

PC15. escalate any issues related to sexual harassment at workplace according to POSH Act

Financial and Legal Literacy

To be competent, the user/individual on the job must be able to:

PC16. select financial institutions, products and services as per requirement

PC17. carry out offline and online financial transactions, safely and securely

PC18. identify common components of salary and compute income, expenses, taxes, investments etc

PC19. identify relevant rights and laws and use legal aids to fight against legal exploitation

Essential Digital Skills

To be competent, the user/individual on the job must be able to:

PC20. operate digital devices and carry out basic internet operations securely and safely

PC21. use e- mail and social media platforms and virtual collaboration tools to work effectively

PC22. use basic features of word processor, spreadsheets, and presentations

Entrepreneurship

To be competent, the user/individual on the job must be able to:

PC23. identify different types of Entrepreneurship and Enterprises and assess opportunities for potential business through research

PC24. develop a business plan and a work model, considering the 4Ps of Marketing Product, Price, Place and Promotion

PC25. identify sources of funding, anticipate, and mitigate any financial/ legal hurdles for the potential business opportunity

Customer Service

To be competent, the user/individual on the job must be able to:

PC26. identify different types of customers

PC27. identify and respond to customer requests and needs in a professional manner.

PC28. follow appropriate hygiene and grooming standards

Getting ready for apprenticeship & Jobs

To be competent, the user/individual on the job must be able to:

PC29. create a professional Curriculum vitae (Résumé)

PC30. search for suitable jobs using reliable offline and online sources such as Employment exchange, recruitment agencies, newspapers etc. and job portals, respectively

PC31. apply to identified job openings using offline /online methods as per requirement

PC32. answer questions politely, with clarity and confidence, during recruitment and selection

PC33. identify apprenticeship opportunities and register for it as per guidelines and requirements

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. need for employability skills and different learning and employability related portals

KU2. various constitutional and personal values

KU3. different environmentally sustainable practices and their importance

KU4. Twenty first (21st) century skills and their importance

KU5. how to use English language for effective verbal (face to face and telephonic) and written communication in formal and informal set up

KU6. importance of career development and setting long- and short-term goals

KU7. about effective communication

KU8. POSH Act

KU9. Gender sensitivity and inclusivity

KU10. different types of financial institutes, products, and services

KU11. how to compute income and expenditure

KU12. importance of maintaining safety and security in offline and online financial transactions

KU13. different legal rights and laws

KU14. different types of digital devices and the procedure to operate them safely and securely

KU15. how to create and operate an e- mail account and use applications such as word processors, spreadsheets etc.

KU16. how to identify business opportunities

KU17. types and needs of customers

KU18. how to apply for a job and prepare for an interview

KU19. apprenticeship scheme and the process of registering on apprenticeship portal

Generic Skills (GS)

User/individual on the job needs to know how to:

GS1. read and write different types of documents/instructions/correspondence

GS2. communicate effectively using appropriate language in formal and informal settings

GS3. behave politely and appropriately with all

GS4. how to work in a virtual mode

GS5. perform calculations efficiently

GS6. solve problems effectively

GS7. pay attention to details

GS8. manage time efficiently

GS9. maintain hygiene and sanitization to avoid infection

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Introduction to Employability Skills	**1**	**1**	**-**	**-**
PC1. identify employability skills required for jobs in various industries	-	-	-	-
PC2. identify and explore learning and employability portals	-	-	-	-
Constitutional values – Citizenship	**1**	**1**	**-**	**-**
PC3. recognize the significance of constitutional values, including civic rights and duties, citizenship, responsibility towards society etc. and personal values and ethics such as honesty, integrity, caring and respecting others, etc.	-	-	-	-
PC4. follow environmentally sustainable practices	-	-	-	-
Becoming a Professional in the 21st Century	**2**	**4**	**-**	**-**
PC5. recognize the significance of 21st Century Skills for employment	-	-	-	-
PC6. practice the 21st Century Skills such as Self-Awareness, Behaviour Skills, time management, critical and adaptive thinking, problem-solving, creative thinking, social and cultural awareness, emotional awareness, learning to learn for continuous learning etc. in personal and professional life	-	-	-	-
Basic English Skills	**2**	**3**	**-**	**-**
PC7. use basic English for everyday conversation in different contexts, in person and over the telephone	-	-	-	-
PC8. read and understand routine information, notes, instructions, mails, letters etc. written in English	-	-	-	-
PC9. write short messages, notes, letters, e-mails etc. in English	-	-	-	-
Career Development & Goal Setting	**1**	**2**	**-**	**-**

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC10. understand the difference between job and career	-	-	-	-
PC11. prepare a career development plan with short- and long-term goals, based on aptitude	-	-	-	-
Communication Skills	**2**	**2**	**-**	**-**
PC12. follow verbal and non-verbal communication etiquette and active listening techniques in various settings	-	-	-	-
PC13. work collaboratively with others in a team	-	-	-	-
Diversity & Inclusion	**1**	**2**	**-**	**-**
PC14. communicate and behave appropriately with all genders and PwD	-	-	-	-
PC15. escalate any issues related to sexual harassment at workplace according to POSH Act	-	-	-	-
Financial and Legal Literacy	**2**	**3**	**-**	**-**
PC16. select financial institutions, products and services as per requirement	-	-	-	-
PC17. carry out offline and online financial transactions, safely and securely	-	-	-	-
PC18. identify common components of salary and compute income, expenses, taxes, investments etc	-	-	-	-
PC19. identify relevant rights and laws and use legal aids to fight against legal exploitation	-	-	-	-
Essential Digital Skills	**3**	**4**	**-**	**-**
PC20. operate digital devices and carry out basic internet operations securely and safely	-	-	-	-
PC21. use e- mail and social media platforms and virtual collaboration tools to work effectively	-	-	-	-
PC22. use basic features of word processor, spreadsheets, and presentations	-	-	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Entrepreneurship	**2**	**3**	**-**	**-**
PC23. identify different types of Entrepreneurship and Enterprises and assess opportunities for potential business through research	-	-	-	-
PC24. develop a business plan and a work model, considering the 4Ps of Marketing Product, Price, Place and Promotion	-	-	-	-
PC25. identify sources of funding, anticipate, and mitigate any financial/ legal hurdles for the potential business opportunity	-	-	-	-
Customer Service	**1**	**2**	**-**	**-**
PC26. identify different types of customers	-	-	-	-
PC27. identify and respond to customer requests and needs in a professional manner.	-	-	-	-
PC28. follow appropriate hygiene and grooming standards	-	-	-	-
Getting ready for apprenticeship & Jobs	**2**	**3**	**-**	**-**
PC29. create a professional Curriculum vitae (Résumé)	-	-	-	-
PC30. search for suitable jobs using reliable offline and online sources such as Employment exchange, recruitment agencies, newspapers etc. and job portals, respectively	-	-	-	-
PC31. apply to identified job openings using offline /online methods as per requirement	-	-	-	-
PC32. answer questions politely, with clarity and confidence, during recruitment and selection	-	-	-	-
PC33. identify apprenticeship opportunities and register for it as per guidelines and requirements	-	-	-	-
NOS Total	**20**	**30**	**-**	**-**

National Occupational Standards (NOS) Parameters

NOS Code	DGT/VSQ/N0102
NOS Name	Employability Skills (60 Hours)
Sector	Cross Sectoral
Sub-Sector	Professional Skills
Occupation	Employability
NSQF Level	4
Credits	2
Version	1.0
Last Reviewed Date	31/08/2023
Next Review Date	31/08/2026
NSQC Clearance Date	31/08/2023

Assessment Guidelines and Assessment Weightage

Assessment Guidelines

1. Criteria for assessment for each Qualification Pack will be created by the Sector Skill Council.

2. Element/Performance Criteria (PC) will be assigned marks proportional to its importance in NOS. SSC will also lay down proportion of marks for Theory and Skills Practical for each Element/PC.

3. The assessment for the theory part will be based on knowledge bank of questions created by the SSC.

4. Assessment will be conducted for all compulsory NOS, and where applicable, on the selected elective/option NOS/set of NOS.

5. Individual assessment agencies will create unique question papers for theory part for each candidate at each examination/training center (as per assessment criteria below).

6. Individual assessment agencies will create unique evaluations for skill practical for every student at each examination/ training center based on these criteria.

7. To pass the Qualification Pack assessment, every trainee should score the Recommended Pass % aggregate for the QP.

8. In case of unsuccessful completion, the trainee may seek reassessment on the Qualification Pack.

Minimum Aggregate Passing % at QP Level : 70

(**Please note**: Every Trainee should score a minimum aggregate passing percentage as specified above, to successfully clear the Qualification Pack assessment.)

Assessment Weightage

Compulsory NOS

National Occupational Standards	Theory Marks	Practical Marks	Project Marks	Viva Marks	Total Marks	Weightage
CON/N0602.Handle hand and power tools relevant to construction electrical works	30	70	-	-	100	10
TEL/N4122.Wiring and installing equipment at different sites	30	60	0	10	100	10
TEL/N6400.Splice Optical Fiber	35	55	-	10	100	10
TEL/N4201.In-building FTTH/X cabling	30	60	-	10	100	10
TEL/N0112.Configure customer premises equipment and establish Broadband connectivity	40	50	0	10	100	10
TEL/N0113.Troubleshoot and rectify faults	40	50	0	10	100	10
TEL/N2213.Repair and test handsets	35	50	0	15	100	10
TEL/N4141.Provide Techpreneurial Solutions in the Village	35	50	0	15	100	20
DGT/VSQ/N0102.Employability Skills (60 Hours)	20	30	-	-	50	10
Total	**295**	**475**	**-**	**80**	**850**	**100**

Acronyms

NOS	National Occupational Standard(s)
NSQF	National Skills Qualifications Framework
QP	Qualifications Pack
TVET	Technical and Vocational Education and Training

Qualification Pack

Glossary

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

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