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Digital Cable Technician - Access

QP Code: ELE/Q8106

Version: 2.0

NSQF Level: 4

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ELE/Q8106: Digital Cable Technician - Access

Brief Job Description

The person is responsible for installation, maintenance and repair of cable television and set-top box at premises. The technicians work on the trunk line and sub-trunk line, and inspect cable lines, lay cables under or on top of the building and repair cable faults.

Personal Attributes

The individual need to have a high level of manual dexterity/capability and need to have basic knowledge in math and science. They also need to be good communicators and listeners, and should be able to solve problems independently.

Applicable National Occupational Standards (NOS)

Compulsory NOS:

1. [ELE/N8116: Lay truck or sub truck cables install and connectorize as per designed route](#)
2. [ELE/N8117: Carry out installation of power inserter & balancing and commissioning of amplifier](#)
3. [ELE/N8118: Install Set Top Box at customers premise](#)
4. [ELE/N8119: Cater to customer complaints for troubleshooting and maintenance of set top box](#)
5. [ELE/N8120: Lay, installs and carry out commissioning for multi play network](#)
6. [ELE/N9905: Work effectively at the workplace](#)
7. [ELE/N1002: Apply health and safety practices at the workplace](#)

Qualification Pack (QP) Parameters

Sector	Electronics
Sub-Sector	Communication and Broadcasting
Occupation	After Sales Service
Country	India
NSQF Level	4
Credits	NA

Aligned to NCO/ISCO/ISIC Code	NCO-2015/NIL
Minimum Educational Qualification & Experience	8th Class with 2 Years of experience relevant OR I.T.I (2 years after 8th) with 2 Years of experience relevant OR 10th Class with 2 Years of experience relevant OR 12th Class OR I.T.I (after 10th) OR Certificate-NSQF with 2 Years of experience relevant Level-3 in the domain of (Electronics / Electrical / Mechanical)
Minimum Level of Education for Training in School	10th Class
Pre-Requisite License or Training	NA
Minimum Job Entry Age	18 Years
Last Reviewed On	27/01/2022
Next Review Date	16/03/2024
Deactivation Date	16/03/2024
NSQC Approval Date	27/01/2022
Version	2.0
Reference code on NQR	2022/EHW/ESSC/05138
NQR Version	1.0

Remarks:

NA

ELE/N8116: Lay trunk or sub trunk cables install and connectorize as per designed route

Description

This OS unit is about laying coaxial cables, carrying out installation and connectorization of actives and passives as per the designed route

Scope

The scope covers the following :

- Lay trunk or sub-trunk cables as per designed route
- Carry out installation and connectorization of actives and passives

Elements and Performance Criteria

Lay trunk/ sub-trunk cables as per the designed route

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

- PC1.** prepare a plan for laying cables for single way/two way with reverse path as per the designed route provided by the supervisor
- PC2.** identify the various types of cables Types: sub-trunk, access cable and fiber optics
- PC3.** calculate the height and length of the pole/tree before the laying the cables
- PC4.** create a requirement list and procure the materials
- PC5.** test the line using a line tester
- PC6.** ensure to lay the cables on a low-tension line
- PC7.** support the trunk/sub-trunk cable lines evenly about the circumference with messenger wires without crushing the cable
- PC8.** clip the cables using clipping wire at a distance of 1 meter throughout the trunk/sub-trunk line
- PC9.** keep the cable away from heating vents and water heaters
- PC10.** maintain a minimum height of 12-16 feet for trunks
- PC11.** carry out laying of cables as per the designed route like from pole to pole or tree to tree, etc. by climbing up the ladder safely
- PC12.** adhere to all safety measures while working on electrical poles Safety measures: Wear safety belts, shock proof shoes, helmets, goggles, and gloves
- PC13.** keep a loop of 3-5 meters cable on every pole after 80 meters
- PC14.** bend the cable as per manufacturers bending specification to avoid shorts, cable's impedance and signal loss

Carry out installation and connectorization of actives and passives

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

- PC15.** carry out proper fitting of the enclosure box for housing (actives/passives)
- PC16.** keep a small cable loop at the input and output of the amplifier
- PC17.** check the box have provision for locking
- PC18.** inspect that the box is painted with proper LCO code

- PC19.** ensure the RF coaxial cable connectors have a characteristic impedance matching that of the cable
- PC20.** check proper connectorization is established by using standard connectors and right kinds of tools
- PC21.** connectorize the trunk cables, input and output of the amplifiers and install passives (Tap off/Splitters) as per the design diagram
- PC22.** create testing points at the input and output
- PC23.** ensure proper torque is given to all the connectors

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** companys policies on: customer care
- KU2.** companys code of conduct
- KU3.** organisation culture and typical customer profile
- KU4.** companys reporting structure
- KU5.** companys documentation policy
- KU6.** unit losses of the different coaxial cables
- KU7.** various parts of coaxial cables Parts: Centre conductor, insulating dielectric, outer conductor, and outer protecting jacket or sheath
- KU8.** different types of cores used in coaxial cables Types: Copper core and steel with copper cladding
- KU9.** various types of support wires Types: Single strand and multi-strand
- KU10.** loop creation and bending process of cables
- KU11.** various tools used for laying and connectorization of cables Tools: Line tester, cable preparation tools, cutter, pliers, multi-meter, radio frequency meter, screw driver, etc.
- KU12.** connectorization process for actives and passives
- KU13.** proper fitting methods for amplifiers and splitters
- KU14.** etiquettes to be followed at customers premises
- KU15.** precautions to be taken while handling field calls and dealing with customers
- KU16.** relevant reference sheets, manuals and documents to carry in the field

Generic Skills (GS)

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

- GS1.** complete forms such as work orders, maintenance records, customer feedback form, etc.
- GS2.** note problems on job sheet and details of work done
- GS3.** read network design drawing and correctly interpret different legends used in drawing
- GS4.** read warnings, instructions and other text material on product labels, components, etc
- GS5.** read job sheets or work orders
- GS6.** read product and model serial numbers and interpret details such as make
- GS7.** receive and ask for clarifications from supervisor on the job requirement

- GS8.** listen carefully to the customer
- GS9.** communicate in local/English language
- GS10.** educate and inform customers about available connection plans, offers and cost of service
- GS11.** educate on precautions to be taken in order to avoid recurrence of problem
- GS12.** follow standard operating procedures while making decisions
- GS13.** take approval from supervisor in case the decision has to be made for exceptions
- GS14.** work with supervisor and co-workers to achieve smooth workflow
- GS15.** work with superiors and co-workers to share knowledge and learning
- GS16.** maintain personal grooming
- GS17.** be polite, patient and courteous under all circumstances with all types of customers
- GS18.** decide on the spot on whether interaction of customer with superior is necessary or not
- GS19.** maintain proper etiquette including the appropriate physical distance with customer during conversation, not entering customer premises without permission
- GS20.** put customer at ease and generate customers confidence
- GS21.** seek inputs to assess the problems
- GS22.** interpret accurately drawings, wiring and job specifications/instructions
- GS23.** improve work processes

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Lay trunk/ sub-trunk cables as per the designed route</i>	26	38	-	-
PC1. prepare a plan for laying cables for single way/two way with reverse path as per the designed route provided by the supervisor	2	2	-	-
PC2. identify the various types of cables Types: sub-trunk, access cable and fiber optics	2	2	-	-
PC3. calculate the height and length of the pole/tree before the laying the cables	2	3	-	-
PC4. create a requirement list and procure the materials	2	3	-	-
PC5. test the line using a line tester	1	2	-	-
PC6. ensure to lay the cables on a low-tension line	2	3	-	-
PC7. support the trunk/sub-trunk cable lines evenly about the circumference with messenger wires without crushing the cable	2	3	-	-
PC8. clip the cables using clipping wire at a distance of 1 meter throughout the trunk/sub-trunk line	1	2	-	-
PC9. keep the cable away from heating vents and water heaters	1	2	-	-
PC10. maintain a minimum height of 12-16 feet for trunks	1	2	-	-
PC11. carry out laying of cables as per the designed route like from pole to pole or tree to tree, etc. by climbing up the ladder safely	4	5	-	-
PC12. adhere to all safety measures while working on electrical poles Safety measures: Wear safety belts, shock proof shoes, helmets, goggles, and gloves	2	3	-	-
PC13. keep a loop of 3-5 meters cable on every pole after 80 meters	2	3	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC14. bend the cable as per manufacturers bending specification to avoid shorts, cable's impedance and signal loss	2	3	-	-
<i>Carry out installation and connectorization of actives and passives</i>	14	22	-	-
PC15. carry out proper fitting of the enclosure box for housing (actives/passives)	2	3	-	-
PC16. keep a small cable loop at the input and output of the amplifier	2	3	-	-
PC17. check the box have provision for locking	2	3	-	-
PC18. inspect that the box is painted with proper LCO code	2	3	-	-
PC19. ensure the RF coaxial cable connectors have a characteristic impedance matching that of the cable	1	2	-	-
PC20. check proper connectorization is established by using standard connectors and right kinds of tools	1	2	-	-
PC21. connectorize the trunk cables, input and output of the amplifiers and install passives (Tap off/Splitters) as per the design diagram	2	2	-	-
PC22. create testing points at the input and output	1	2	-	-
PC23. ensure proper torque is given to all the connectors	1	2	-	-
NOS Total	40	60	-	-

National Occupational Standards (NOS) Parameters

NOS Code	ELE/N8116
NOS Name	Lay truck or sub truck cables install and connectorize as per designed route
Sector	Electronics
Sub-Sector	Communication and Broadcasting
Occupation	After Sales Service-C&B
NSQF Level	4
Credits	TBD
Version	1.0
Next Review Date	16/03/2024

ELE/N8117: Carry out installation of power inserter & balancing and commissioning of amplifier

Description

This OS unit is about carrying out installation of power inserter and balancing and commissioning of amplifier

Scope

The scope covers the following :

- Install power inserter
- Carry out balancing and commissioning of amplifier

Elements and Performance Criteria

Install power inserter

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

- PC1.** carry all required tools and test equipment before installing the power inserter
- PC2.** ensure 90 Volt AC /50 Hertz power is inserted to the main trunk lines for powering the trunk amplifiers from the remote location
- PC3.** check the availability of power at all the input points
- PC4.** ensure proper earthing of the line as per the standard grounding parameter
- PC5.** feed the radio frequency (RF) signal from the combiner to the trunk line
- PC6.** check and ensure the input of the trunk amplifier is as per level provided by design team

Carry out balancing and commissioning of amplifier

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

- PC7.** set the amplifier at different stages and balance the output maintaining a slope as specified by the design team
- PC8.** balance the amplifiers for various paths as per amplifier levels provided by the design team
Various paths: Forward and reverse
- PC9.** record all the levels and maintain a datasheet for future reference
- PC10.** check the name of the nodes and amplifiers are painted on the enclosure boxes as per the area code and box serial number
- PC11.** carry out comprehensive testing for all the cascade amplifiers
- PC12.** measure signal-to-noise ratio (SNR) levels and quality parameters for all amplifiers in coordination with the backend engineering team

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** companys policies on: Incentives, delivery standards, and personnel management, call closure

- KU2.** companys sales, installation and after sales support policy
- KU3.** importance of the individuals role in the workflow
- KU4.** reporting structure
- KU5.** companys policy on products warranty and other terms and conditions
- KU6.** methods to handle 90 V AC
- KU7.** functions of power inserter
- KU8.** frequency spectrum used for community antenna television
- KU9.** process to set-up amplifier using input stage, mid-stage, and output stage
- KU10.** attenuation at different frequency levels for proper slope control
- KU11.** instrument use for balancing amplifier, cable analyser

Generic Skills (GS)

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

- GS1.** complete forms such as work orders, maintenance records, customer feedback form, etc.
- GS2.** note problems on job sheet and details of work done
- GS3.** read warnings, instructions and other text material on product labels, components, etc
- GS4.** read job sheets or work orders
- GS5.** read product and model serial numbers and interpret details such as make
- GS6.** receive and ask for clarifications from supervisor on the job requirement
- GS7.** listen carefully to the customer
- GS8.** communicate in local/English language
- GS9.** educate and inform customers about available connection plans, offers and cost of service
- GS10.** educate on precautions to be taken in order to avoid recurrence of problem
- GS11.** follow standard operating procedures while making decisions
- GS12.** take approval from supervisor in case the decision has to be made for exceptions
- GS13.** work with supervisor and co-workers to achieve smooth workflow
- GS14.** work with superiors and co-workers to share knowledge and learning
- GS15.** maintain personal grooming
- GS16.** be polite, patient and courteous under all circumstances with all types of customers
- GS17.** decide on the spot on whether interaction of customer with superior is necessary or not
- GS18.** maintain proper etiquette including the appropriate physical distance with
- GS19.** customer during conversation, not entering customers premises without permission, etc
- GS20.** put customer at ease and generate customers confidence
- GS21.** seek inputs to assess the problems
- GS22.** interpret accurately drawings, wiring and job specifications/instructions
- GS23.** improve work processes

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Install power inserter</i>	14	22	-	-
PC1. carry all required tools and test equipment before installing the power inserter	1	2	-	-
PC2. ensure 90 Volt AC /50 Hertz power is inserted to the main trunk lines for powering the trunk amplifiers from the remote location	2	2	-	-
PC3. check the availability of power at all the input points	2	2	-	-
PC4. ensure proper earthing of the line as per the standard grounding parameter	3	2	-	-
PC5. feed the radio frequency (RF) signal from the combiner to the trunk line	3	7	-	-
PC6. check and ensure the input of the trunk amplifier is as per level provided by design team	3	7	-	-
<i>Carry out balancing and commissioning of amplifier</i>	26	38	-	-
PC7. set the amplifier at different stages and balance the output maintaining a slope as specified by the design team	5	7	-	-
PC8. balance the amplifiers for various paths as per amplifier levels provided by the design team Various paths: Forward and reverse	5	7	-	-
PC9. record all the levels and maintain a datasheet for future reference	3	5	-	-
PC10. check the name of the nodes and amplifiers are painted on the enclosure boxes as per the area code and box serial number	3	5	-	-
PC11. carry out comprehensive testing for all the cascade amplifiers	5	7	-	-
PC12. measure signal-to-noise ratio (SNR) levels and quality parameters for all amplifiers in coordination with the backend engineering team	5	7	-	-
NOS Total	40	60	-	-

National Occupational Standards (NOS) Parameters

NOS Code	ELE/N8117
NOS Name	Carry out installation of power inserter & balancing and commissioning of amplifier
Sector	Electronics
Sub-Sector	Communication and Broadcasting
Occupation	After Sales Service-C&B
NSQF Level	4
Credits	TBD
Version	1.0
Next Review Date	16/03/2024

ELE/N8118: Install Set Top Box at customers premise

Description

This OS unit is about undertaking pre-installation and installation process of Set TopBox (STB) at customers premise.

Scope

The scope covers the following :

- Undertake pre-installation process
- Remove packaging and check accessories
- Install Set Top Box (STB)
- Complete installation documentation
- Interact with customer in a professional manner

Elements and Performance Criteria

Undertake preinstallation process

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

- PC1.** visit the customers premise before carrying out the installation
- PC2.** interact with the customer to understand the requirement
- PC3.** check that the location meets structural requirements such as distance from the poles/tree, power points, etc
- PC4.** educate the customer about the installation procedure and different subscription plans
- PC5.** seek appointment for installation

Remove packaging and check accessories

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

- PC10.** dispose the materials as per companys norms
- PC6.** ensure to carry sealed pack of set top box from the local cable operator
- PC7.** remove packaging of the set top box in front of the customer
- PC8.** check for all supporting accessories in the pack
- PC9.** carry the tools and fitments required for the installation

Install Set Top Box (STB)

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

- PC11.** draw drop cables as per customers requirement inside the customers premises from the tap poles by clipping at desired cable length
- PC12.** measure the threshold input available at the customers premises
- PC13.** identify the power point to run the set top box at the customer s premise
- PC14.** check proper connectorization at both ends of the drop cable
- PC15.** switch on and configure the set top box on all technical parameters Parameters: Carrier to noise ratio, forward error correction, symbol rate, etc.
- PC16.** activate the set top box from the backend team
- PC17.** ensure proper input signal level is established at the set top box (STB) input point

- PC18.** connect the set top box to the television set with composite cables/ high definition multiple insertion
- PC19.** check for all available channels as per customers requirement on the set top box
- PC20.** explain various preventive maintenance procedures to the customers, to keep the connection running
- PC21.** ensure the work site is cleaned after the work is completed and remove all the wastes from the site

Complete installation documentation

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

- PC22.** fill in customer acknowledgement form
- PC23.** seek customers signature
- PC24.** complete other documentation for recording completion of installation
- PC25.** call customer care and inform about job completion

Interact with customer in a professional manner

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

- PC26.** be courteous and professional over the call as well as at the merchants premises
- PC27.** be smartly dressed
- PC28.** reach the venue at least prior 5 mins the appointment time
- PC29.** greet the customer and introduce self
- PC30.** conduct a demonstration of how to use set top box in a pace and manner that the customer can follow comfortably
- PC31.** attend to and answer customer queries and doubts
- PC32.** leave the premises by thanking and bidding good bye to the customer in a courteous manner after the work is completed to their satisfaction

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** companys policies on: Incentives, delivery standards, and personnel management, call closure
- KU2.** companys sales, installation and after sales support policy
- KU3.** importance of the individuals role in the workflow
- KU4.** reporting structure
- KU5.** companys policy on products warranty and other terms and conditions
- KU6.** installation site requirements
- KU7.** waste disposal procedures
- KU8.** tools and equipment for installation Tools: Compression tools, cable preparation tools, tools bag, RF/ dB meter, attenuator/terminator, plier, spanner set, screw driver set, hammer small, line tester, etc.
- KU9.** drop cable losses
- KU10.** input requirement for set top box
- KU11.** configuration and functions of set top box
- KU12.** methods for connecting television and set top box

- KU13.** different television functions like input cables, television modes like digital/analog input, etc.
- KU14.** installation and activation process for set top box
- KU15.** safety rules, policies and procedures
- KU16.** various quality standards

Generic Skills (GS)

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

- GS1.** complete forms such as work orders, maintenance records, customer feedback form, etc.
- GS2.** note problems on job sheet and details of work done
- GS3.** read network design drawing and correctly interpret different legends used in drawing
- GS4.** read job sheets or work orders
- GS5.** read product and model serial numbers and interpret details such as make
- GS6.** receive and ask for clarifications from supervisor on the job requirement
- GS7.** listen carefully to the customer
- GS8.** communicate in local/English language
- GS9.** educate and inform customers about available connection plans, offers and cost of service
- GS10.** educate on precautions to be taken in order to avoid recurrence of problem
- GS11.** follow standard operating procedures while making decisions
- GS12.** take approval from supervisor in case the decision has to be made for exceptions
- GS13.** work with supervisor and co-workers to achieve smooth workflow
- GS14.** work with superiors and co-workers to share knowledge and learning
- GS15.** maintain personal grooming
- GS16.** be polite, patient and courteous under all circumstances with all types of customers
- GS17.** decide on the spot on whether interaction of customer with superior is necessary or not
- GS18.** maintain proper etiquette including the appropriate physical distance with customer during conversation, not entering customer premises without permission
- GS19.** seek inputs to assess the problems
- GS20.** interpret accurately drawings, wiring and job specifications/instructions
- GS21.** improve work processes

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Undertake preinstallation process</i>	8	8	-	-
PC1. visit the customers premise before carrying out the installation	2	1	-	-
PC2. interact with the customer to understand the requirement	2	1	-	-
PC3. check that the location meets structural requirements such as distance from the poles/tree, power points, etc	2	3	-	-
PC4. educate the customer about the installation procedure and different subscription plans	1	2	-	-
PC5. seek appointment for installation	1	1	-	-
<i>Remove packaging and check accessories</i>	8	11	-	-
PC10. dispose the materials as per companys norms	2	3	-	-
PC6. ensure to carry sealed pack of set top box from the local cable operator	1	1	-	-
PC7. remove packaging of the set top box in front of the customer	1	1	-	-
PC8. check for all supporting accessories in the pack	2	3	-	-
PC9. carry the tools and fitments required for the installation	2	3	-	-
<i>Install Set Top Box (STB)</i>	12	24	-	-
PC11. draw drop cables as per customers requirement inside the customers premises from the tap poles by clipping at desired cable length	2	5	-	-
PC12. measure the threshold input available at the customers premises	1	2	-	-
PC13. identify the power point to run the set top box at the customer s premise	1	2	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC14. check proper connectorization at both ends of the drop cable	1	2	-	-
PC15. switch on and configure the set top box on all technical parameters Parameters: Carrier to noise ratio, forward error correction, symbol rate, etc.	1	2	-	-
PC16. activate the set top box from the backend team	1	2	-	-
PC17. ensure proper input signal level is established at the set top box (STB) input point	1	2	-	-
PC18. connect the set top box to the television set with composite cables/ high definition multiple insertion	1	2	-	-
PC19. check for all available channels as per customers requirement on the set top box	1	2	-	-
PC20. explain various preventive maintenance procedures to the customers, to keep the connection running	1	2	-	-
PC21. ensure the work site is cleaned after the work is completed and remove all the wastes from the site	1	1	-	-
<i>Complete installation documentation</i>	4	6	-	-
PC22. fill in customer acknowledgement form	1	1	-	-
PC23. seek customers signature	1	1	-	-
PC24. complete other documentation for recording completion of installation	1	2	-	-
PC25. call customer care and inform about job completion	1	2	-	-
<i>Interact with customer in a professional manner</i>	8	11	-	-
PC26. be courteous and professional over the call as well as at the merchants premises	1	2	-	-
PC27. be smartly dressed	1	2	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC28. reach the venue at least prior 5 mins the appointment time	1	1	-	-
PC29. greet the customer and introduce self	1	1	-	-
PC30. conduct a demonstration of how to use set top box in a pace and manner that the customer can follow comfortably	1	2	-	-
PC31. attend to and answer customer queries and doubts	1	2	-	-
PC32. leave the premises by thanking and bidding good bye to the customer in a courteous manner after the work is completed to their satisfaction	2	1	-	-
NOS Total	40	60	-	-

National Occupational Standards (NOS) Parameters

NOS Code	ELE/N8118
NOS Name	Install Set Top Box at customers premise
Sector	Electronics
Sub-Sector	Communication and Broadcasting
Occupation	After Sales Service-C&B
NSQF Level	4
Credits	TBD
Version	1.0
Next Review Date	16/03/2024

ELE/N8119: Cater to customer complaints for troubleshooting and maintenance of set top box

Description

This OS unit about catering to the customer complaints by troubleshooting and maintenance of the set top box

Scope

The scope covers the following :

- Carry out routine check-up and maintenance of the trunk line
- Cater to customer complaints timely

Elements and Performance Criteria

Carry out routine check-up and maintenance of the trunk line

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

- PC1.** ensure routine check-up of the trunk line
- PC2.** maintain the trunk and amplifier periodically for its input and output signal variation
- PC3.** inspect the cable for any cut or damage
- PC4.** check on the availability of power supply to all the trunk amplifier are within 60-90 volt
- PC5.** remove packaging of set top box carefully and check accessories before installation at the customers premise

Cater to customer complaints timely

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

- PC6.** diagnose the fault in the unit as per customers complaint and initial inspection
- PC7.** cater to customers complaints at the earliest and troubleshoot problem timely
- PC8.** check the drop cable from the tap/split port for its functioning patch cord
- PC9.** inspect the connectors at both ends
- PC10.** check the power supply of set top box /television /router/ optical network unit (ONU)
- PC11.** verify customers authorization for establishing network signal as per cable/ data plan
- PC12.** check all the output connectivity from the optical network unit
- PC13.** collect monthly subscription from the customers on a regular basis

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** companys policies on: Incentives, delivery standards and personnel management and customer service standards
- KU2.** reporting and documentation processes
- KU3.** reporting structure
- KU4.** output connectivity of optical network unit

KU5. standards configuring parameters for set top box

KU6. customer feedback process

KU7. documentation procedure

Generic Skills (GS)

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

- GS1.** complete forms such as work orders, maintenance records, customer feedback form, etc.
- GS2.** note problems on job sheet and details of work done
- GS3.** read network design drawing and correctly interpret different legends used in drawing
- GS4.** read job sheets or work orders
- GS5.** read product and model serial numbers and interpret details such as make
- GS6.** receive and ask for clarifications from supervisor on the job requirement
- GS7.** listen carefully to the customer
- GS8.** communicate in local/English language
- GS9.** educate and inform customers about available connection plans, offers and cost of service
- GS10.** educate on precautions to be taken in order to avoid recurrence of problem
- GS11.** follow standard operating procedures while making decisions
- GS12.** take approval from supervisor in case the decision has to be made for exceptions
- GS13.** work with supervisor and co-workers to achieve smooth workflow
- GS14.** work with superiors and co-workers to share knowledge and learning
- GS15.** maintain personal grooming
- GS16.** be polite, patient and courteous under all circumstances with all types of customers
- GS17.** decide on the spot on whether interaction of customer with superior is necessary or not
- GS18.** maintain proper etiquette including the appropriate physical distance with customer during conversation, not entering customer premises without permission
- GS19.** seek inputs to assess the problems
- GS20.** interpret accurately drawings, wiring and job specifications/instructions
- GS21.** improve work processes

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Carry out routine check-up and maintenance of the trunk line</i>	10	21	-	-
PC1. ensure routine check-up of the trunk line	2	4	-	-
PC2. maintain the trunk and amplifier periodically for its input and output signal variation	2	7	-	-
PC3. inspect the cable for any cut or damage	2	4	-	-
PC4. check on the availability of power supply to all the trunk amplifier are within 60-90 volt	2	3	-	-
PC5. remove packaging of set top box carefully and check accessories before installation at the customers premise	2	3	-	-
<i>Cater to customer complaints timely</i>	20	49	-	-
PC6. diagnose the fault in the unit as per customers complaint and initial inspection	3	7	-	-
PC7. cater to customers complaints at the earliest and troubleshoot problem timely	3	7	-	-
PC8. check the drop cable from the tap/split port for its functioning patch cord	3	7	-	-
PC9. inspect the connectors at both ends	3	7	-	-
PC10. check the power supply of set top box /television /router/ optical network unit (ONU)	3	7	-	-
PC11. verify customers authorization for establishing network signal as per cable/ data plan	1	3	-	-
PC12. check all the output connectivity from the optical network unit	3	7	-	-
PC13. collect monthly subscription from the customers on a regular basis	1	4	-	-
NOS Total	30	70	-	-

National Occupational Standards (NOS) Parameters

NOS Code	ELE/N8119
NOS Name	Cater to customer complaints for troubleshooting and maintenance of set top box
Sector	Electronics
Sub-Sector	Communication and Broadcasting
Occupation	After Sales Service-C&B
NSQF Level	4
Credits	TBD
Version	1.0
Next Review Date	16/03/2024

ELE/N8120: Lay, installs and carry out commissioning for multi play network

Description

This OS unit about carrying out laying, installing and commissioning of multi play network

Scope

The scope covers the following :

- Lay optical fibre cables for multi play network
- Carry out commissioning and installation of multi play network

Elements and Performance Criteria

Lay optical fibre cables for multi play network

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

- PC1.** check the feasibility of laying trunk and sub-trunk routes from the fibre to the home (FTTH) distribution network plan received from route designer
- PC2.** create a requirement list and carry out procurement of the materials
- PC3.** install network management system (NMS) modem at each node to ensure the node is functional 24x7
- PC4.** ensure to carry the right of way (ROW) letter given by the concerned authority for laying the cables
- PC5.** lay the cables as per the requirement plan using proper messenger and clipping wires
- PC6.** prepare as build diagram (ABD) of the complete fibre trunk route, poles used, locations of joint closures, splitters and other passives by marking on a google map with all physical locations
- PC7.** ensure a loop of 2-3 meters are maintained on every alternative poles
- PC8.** check a proper bend radius is maintained as per manufacturer's specifications
- PC9.** use all the safety measures related to work
- PC10.** maintain a minimum height of 12 feet for the trunk line
- PC11.** install passive splitters as per design diagram and requirement at multiple locations on the trunk line
- PC12.** ensure proper fitment of joint closure on the pole using the clamp
- PC13.** use drip loop of fibre cable at the input and output of joint closure
- PC14.** ensure to maintain a split ratio for creating customer ports from one fibre Split ratio: 1:8, 1:16, 1:24, 1:32, etc.
- PC15.** prepare the fibre cables for jointing as per the colour code
- PC16.** carry out work in a moisture free environment
- PC17.** ensure the fibre cables are spliced as per the design diagram by optical fibre splicer
- PC18.** clean dust particles on the fibre by using disinfectant solution, e.g., iso-propyl solution
- PC19.** splice the fibre cable by maintaining the standard splicing parameters like attenuation in dB per splice

PC20. use proper tools for fibre cable laying and splicing Tools: Plier, spanner, screw driver, line tester, cleaver, splicing machine

Carry out commissioning and installation of multi play network

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

PC21. carry out testing of network by energising the fibre core at the backend using a laser source

PC22. test the power at various splitter output points using an optical power meter

PC23. ensure the available powers at all the splitter output points are as per standard for driving the customer premise equipment (CPE)

PC24. check the feed feasibility and amount of drop cable required as per customers request

PC25. carry all the materials like drop cable, joint closure, modem, patch cord, multi play ready optical network unit (ONU), LAN cable, RF cable, set top box (STB), and high definition multiple insertion (HDMI) cable

PC26. connect the drop cable to the nearest available splitter port of the joint closure in the house

PC27. ensure the output of the joint closure is fed to the optical network unit using a patch cord

PC28. carry out signal level testing using an optical power meter at the end of the patch cord as per standard to drive the customer premise equipment

PC29. connect the radio frequency (RF) to the set top box for establishing signal for television network

PC30. use the LAN cable to connect and configure the WIFI router

PC31. ensure the WIFI router is authorised as per the plan opted by the customer through customer provisioning system at the backend

PC32. escalate customer issues and problems that are unresolved at field level

PC33. record all the optical parameters, RF parameters for forward and reverse path for final audit and closure of the activity

PC34. install and configure the modem, and connect it to the laptops/ desktops

PC35. test the signal levels and other technical parameters required for cable modem

PC36. describe the operations and functions of cable modem to the customers

PC37. explain the preventive maintenance procedures to keep the connection up and running

PC38. clean the work site after the work is complete, and remove all the wastes from the site

PC39. ensure the customer signs off the installation report along with the customer feedback form

PC40. update installation status to the back office after satisfactory closure of the work order

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. companys policies on: Incentives, delivery standards and personnel management and customer service standards

KU2. reporting and documentation processes

KU3. reporting structure

KU4. optical fibre cables and its types

KU5. fibre to the home (FTTH) distribution network

KU6. network management system (NMS) modem

KU7. right of way (ROW) letter

- KU8.** messenger and clipping wires
- KU9.** as build diagram (ABD) of the complete fibre trunk route, poles used, locations of joint closures, splitters and other passives
- KU10.** bend radius
- KU11.** safety measures
- KU12.** procedures for jointing of optical fibre cables
- KU13.** splicing method and its standard parameters
- KU14.** proper tools for optical fibre cable laying and splicing
- KU15.** network testing using laser source
- KU16.** splitters and its functions
- KU17.** optical power meter and its uses
- KU18.** operations and functions of various parts of multi play network: Various parts: Drop cable, joint closure, patch cord, modem, multi play ready optical network unit (ONU), LAN cable, RF cable, Set top box (STB), High definition multiple insertion (HDMI) cable, etc
- KU19.** process for signal level testing
- KU20.** optical parameters and RF parameters for forward and reverse path
- KU21.** installation and configuration process of modem and set top box

Generic Skills (GS)

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

- GS1.** complete forms such as work orders, maintenance records, customer feedback form, etc.
- GS2.** note problems on job sheet and details of work done
- GS3.** read warnings, instructions and other text material on product labels, components, etc
- GS4.** read job sheets or work orders
- GS5.** read product and model serial numbers and interpret details such as make date, availability, etc
- GS6.** receive and ask for clarifications from supervisor on the job requirement
- GS7.** listen carefully to the customer
- GS8.** communicate in local/English language
- GS9.** educate and inform customer about product, warranty, cost of service, model replacement, different plans for subscription, etc
- GS10.** educate on precautions to be taken in order to avoid recurrence of problem
- GS11.** follow standard operating procedures while making decisions
- GS12.** take approval from supervisor in case the decision has to be made for exceptions
- GS13.** work with supervisor and co-workers to achieve smooth workflow
- GS14.** work with superiors and co-workers to share knowledge and learning
- GS15.** maintain personal grooming
- GS16.** be polite, patient and courteous under all circumstances with all types of customers
- GS17.** decide on the spot on whether interaction of customer with superior is necessary or not
- GS18.** maintain proper etiquette including the appropriate physical distance with customer during conversation, not entering customer premises without permission



Qualification Pack



GS19. seek inputs at assessing the problems

GS20. interpret accurately drawings, wiring and job specifications/instructions

GS21. improve work processes

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Lay optical fibre cables for multi play network</i>	17	37	-	-
PC1. check the feasibility of laying trunk and sub-trunk routes from the fibre to the home (FTTH) distribution network plan received from route designer	1	2	-	-
PC2. create a requirement list and carry out procurement of the materials	1	2	-	-
PC3. install network management system (NMS) modem at each node to ensure the node is functional 24x7	1	2	-	-
PC4. ensure to carry the right of way (ROW) letter given by the concerned authority for laying the cables	1	2	-	-
PC5. lay the cables as per the requirement plan using proper messenger and clipping wires	1	2	-	-
PC6. prepare as build diagram (ABD) of the complete fibre trunk route, poles used, locations of joint closures, splitters and other passives by marking on a google map with all physical locations	1	2	-	-
PC7. ensure a loop of 2-3 meters are maintained on every alternative poles	-	1	-	-
PC8. check a proper bend radius is maintained as per manufacturer's specifications	-	2	-	-
PC9. use all the safety measures related to work	1	1	-	-
PC10. maintain a minimum height of 12 feet for the trunk line	1	2	-	-
PC11. install passive splitters as per design diagram and requirement at multiple locations on the trunk line	1	2	-	-
PC12. ensure proper fitment of joint closure on the pole using the clamp	1	2	-	-
PC13. use drip loop of fibre cable at the input and output of joint closure	1	2	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC14. ensure to maintain a split ratio for creating customer ports from one fibre Split ratio: 1:8, 1:16, 1:24, 1:32, etc.	1	2	-	-
PC15. prepare the fibre cables for jointing as per the colour code	1	2	-	-
PC16. carry out work in a moisture free environment	-	1	-	-
PC17. ensure the fibre cables are spliced as per the design diagram by optical fibre splicer	1	2	-	-
PC18. clean dust particles on the fibre by using disinfectant solution, e.g., iso-propyl solution	1	2	-	-
PC19. splice the fibre cable by maintaining the standard splicing parameters like attenuation in dB per splice	1	2	-	-
PC20. use proper tools for fibre cable laying and splicing Tools: Plier, spanner, screw driver, line tester, cleaver, splicing machine	1	2	-	-
<i>Carry out commissioning and installation of multi play network</i>	13	33	-	-
PC21. carry out testing of network by energising the fibre core at the backend using a laser source	1	2	-	-
PC22. test the power at various splitter output points using an optical power meter	1	2	-	-
PC23. ensure the available powers at all the splitter output points are as per standard for driving the customer premise equipment (CPE)	1	2	-	-
PC24. check the feed feasibility and amount of drop cable required as per customers request	1	2	-	-
PC25. carry all the materials like drop cable, joint closure, modem, patch cord, multi play ready optical network unit (ONU), LAN cable, RF cable, set top box (STB), and high definition multiple insertion (HDMI) cable	1	2	-	-
PC26. connect the drop cable to the nearest available splitter port of the joint closure in the house	1	2	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC27. ensure the output of the joint closure is fed to the optical network unit using a patch cord	1	2	-	-
PC28. carry out signal level testing using an optical power meter at the end of the patch cord as per standard to drive the customer premise equipment	1	2	-	-
PC29. connect the radio frequency (RF) to the set top box for establishing signal for television network	1	2	-	-
PC30. use the LAN cable to connect and configure the WIFI router	1	2	-	-
PC31. ensure the WIFI router is authorised as per the plan opted by the customer through customer provisioning system at the backend	1	2	-	-
PC32. escalate customer issues and problems that are unresolved at field level	1	2	-	-
PC33. record all the optical parameters, RF parameters for forward and reverse path for final audit and closure of the activity	1	2	-	-
PC34. install and configure the modem, and connect it to the laptops/ desktops	-	1	-	-
PC35. test the signal levels and other technical parameters required for cable modem	-	1	-	-
PC36. describe the operations and functions of cable modem to the customers	-	1	-	-
PC37. explain the preventive maintenance procedures to keep the connection up and running	-	1	-	-
PC38. clean the work site after the work is complete, and remove all the wastes from the site	-	1	-	-
PC39. ensure the customer signs off the installation report along with the customer feedback form	-	1	-	-
PC40. update installation status to the back office after satisfactory closure of the work order	-	1	-	-
NOS Total	30	70	-	-

National Occupational Standards (NOS) Parameters

NOS Code	ELE/N8120
NOS Name	Lay, installs and carry out commissioning for multi play network
Sector	Electronics
Sub-Sector	Communication and Broadcasting
Occupation	After Sales Service-C&B
NSQF Level	4
Credits	TBD
Version	1.0
Next Review Date	16/03/2024

ELE/N9905: Work effectively at the workplace

Description

This unit is about the communicating and managing work effectively at the workplace as well as taking measures to enhance own competence and working in a disciplined and ethical manner.

Scope

The scope covers the following :

- Communicate effectively at the workplace
- Work effectively
- Maintain and enhance professional competence
- Work in a disciplined and ethical manner
- Uphold social diversity at the workplace

Elements and Performance Criteria

Communicate effectively at the workplace

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

- PC1.** exchange information and instruction with colleagues, and seek clarifications and feedback as necessary
- PC2.** assist colleagues where required
- PC3.** follow business communication etiquette in all interactions and communicative formats (online, digital, and in-person)
- PC4.** document and share all relevant information with stakeholders in agreed formats and as per agreed timelines

Work effectively

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

- PC5.** identify and obtain clarity regarding organisational, team and own goals and targets
- PC6.** prioritise and plan work in order to achieve goals and targets
- PC7.** monitor own and team performance as per agreed plan
- PC8.** complete duties accurately, systematically and within required timeframes
- PC9.** express emotions appropriately at the workplace and manage own response to heightened emotions
- PC10.** maintain orderliness and cleanliness in the work area

Maintain and enhance professional competence

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

- PC11.** identify own strengths and weaknesses in relation to goals and targets
- PC12.** adapt self, service, or product to meet success criteria
- PC13.** seek and select opportunities for continuous professional development
- PC14.** formulate a professional development plan to enhance capabilities
- PC15.** build or contribute to the organizational knowledge base of cases, clients, issues, solutions, and innovations

PC16. examine developments and trends in field of work and their potential impact on work

PC17. take feedback from peers, supervisors and clients to improve own performance and practices

Work in a disciplined and ethical manner

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

PC18. perform tasks as per workplace standards, organisational policies and legislative requirements

PC19. display appropriate professional appearance at the workplace and adhere to the organisational dress code

PC20. demonstrate responsible and disciplined behaviour at the workplace such as punctuality; completing tasks as per given time and standards; demonstrating professional behaviour at all times, adopting environment- friendly practices, etc.

PC21. identify the cause of conflict and options for resolution with peers or escalate grievances and problems to appropriate authority as per procedure for conflict resolution

PC22. protect the rights of the client and organisation when delivering services

PC23. ensure services are delivered equally to all clients regardless of personal and cultural beliefs

PC24. operate within an agreed ethical code of practice and report unethical conduct to the appropriate authorities

PC25. follow organisational guidelines and legal requirements on disclosure and confidentiality

Uphold social diversity at the workplace

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

PC26. recognize and evaluate biased practices against underrepresented groups like women and persons with disabilities, in workplace systems and processes

PC27. identify and report discrimination and harassment based on gender, disability, or cultural difference at the workplace

PC28. use inclusive or neutral language and gestures in all interactions

PC29. respect the personal and professional space of others

PC30. access grievance redressal mechanisms as per legislations

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. organisation's policies on dress code, workplace timings, workplace behaviour, performance management, incentives, delivery standards, information security, etc.

KU2. organizational hierarchy and escalation matrix

KU3. importance of the individual's role in the workflow

KU4. organisational norms on health, safety and sustainability

KU5. work area inspection procedures and practices

KU6. professional etiquette and grooming

KU7. communication etiquette across communicative mediums (online, digital, and in-person) including strategies/methods for sharing information, documentation, and providing and receiving feedback

KU8. importance of self-evaluations and developing a continuous learning and professional development plan

- KU9.** developments and trends impacting professional practice
- KU10.** importance of taking and using feedback from colleagues and clients to identify and introduce improvements in work performance
- KU11.** professional ethics and workplace norms on reporting and/or penalizing unethical behaviour and practices.
- KU12.** guidelines and legal requirements on disclosure, confidentiality, and conflicts of interest
- KU13.** strategies for collaboration with colleagues and clients.
- KU14.** professional responses and strategies against inappropriate language or behaviour toward self and others
- KU15.** Implicit bias (based on gender, disability, class, caste, colour, race, culture, religion, etc.) and its consequences in the workplace
- KU16.** organizational guidelines, prevalent legislations and accessibility norms and processes to support PwDs at the workplace
- KU17.** strategies for time, effort and resource allocation towards the goals.
- KU18.** basic concepts of work productivity including waste reduction, efficient material usage and optimization of time

Generic Skills (GS)

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

- GS1.** complete documentation and forms such as work orders, invoices maintenance records activity logs, attendance sheets as per organizational format in English and/or local language
- GS2.** write basic accident or incident report accurately in an appropriate format
- GS3.** read warnings, instructions and other text material on product labels, components, etc. and relevant signages, warnings, labels or descriptions on equipment, etc. while carrying out work activities
- GS4.** convey and share technical information clearly using appropriate language
- GS5.** clarify task-related information
- GS6.** liaise with authorities and supervisors as per organizational protocol
- GS7.** listen, speak, and write in an inclusive, respectful manner in line with organizational protocol
- GS8.** seek clarification from immediate supervisor or responsible authority or exercise most appropriate solutions to safety breaches at work
- GS9.** report to the supervisor and when to deal with a colleague depending on the type of concern
- GS10.** deliver product to next work process on time
- GS11.** improve work process and report potential areas of delays and disruptions
- GS12.** communicate problems appropriately to others
- GS13.** identify symptoms of the fault to the cause of the problem and resolve, otherwise seek assistance and support from other sources to solve the problem
- GS14.** anticipate and avoid hazards that may occur during repairs because of tools, materials used or repair processes
- GS15.** complete tasks efficiently and accurately within stipulated time
- GS16.** appreciate and respect social diversity in all professional settings
- GS17.** develop awareness and accountability for perspectives on gender, disabilities, and socio-cultural issues leading to discrimination, bias, or harassment at the workplace



Qualification Pack



GS18. maintain positive and effective relationships with colleagues and customers

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Communicate effectively at the workplace</i>	5	13	-	-
PC1. exchange information and instruction with colleagues, and seek clarifications and feedback as necessary	1	3	-	-
PC2. assist colleagues where required	1	3	-	-
PC3. follow business communication etiquette in all interactions and communicative formats (online, digital, and in-person)	1	4	-	-
PC4. document and share all relevant information with stakeholders in agreed formats and as per agreed timelines	2	3	-	-
<i>Work effectively</i>	6	13	-	-
PC5. identify and obtain clarity regarding organisational, team and own goals and targets	1	2	-	-
PC6. prioritise and plan work in order to achieve goals and targets	1	2	-	-
PC7. monitor own and team performance as per agreed plan	1	2	-	-
PC8. complete duties accurately, systematically and within required timeframes	1	2	-	-
PC9. express emotions appropriately at the workplace and manage own response to heightened emotions	1	2	-	-
PC10. maintain orderliness and cleanliness in the work area	1	3	-	-
<i>Maintain and enhance professional competence</i>	8	7	-	-
PC11. identify own strengths and weaknesses in relation to goals and targets	1	1	-	-
PC12. adapt self, service, or product to meet success criteria	1	1	-	-
PC13. seek and select opportunities for continuous professional development	1	1	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC14. formulate a professional development plan to enhance capabilities	2	1	-	-
PC15. build or contribute to the organizational knowledge base of cases, clients, issues, solutions, and innovations	1	1	-	-
PC16. examine developments and trends in field of work and their potential impact on work	1	1	-	-
PC17. take feedback from peers, supervisors and clients to improve own performance and practices	1	1	-	-
<i>Work in a disciplined and ethical manner</i>	11	16	-	-
PC18. perform tasks as per workplace standards, organisational policies and legislative requirements	2	2	-	-
PC19. display appropriate professional appearance at the workplace and adhere to the organisational dress code	1	2	-	-
PC20. demonstrate responsible and disciplined behaviour at the workplace such as punctuality; completing tasks as per given time and standards; demonstrating professional behaviour at all times, adopting environment- friendly practices, etc.	1	2	-	-
PC21. identify the cause of conflict and options for resolution with peers or escalate grievances and problems to appropriate authority as per procedure for conflict resolution	2	2	-	-
PC22. protect the rights of the client and organisation when delivering services	1	2	-	-
PC23. ensure services are delivered equally to all clients regardless of personal and cultural beliefs	1	2	-	-
PC24. operate within an agreed ethical code of practice and report unethical conduct to the appropriate authorities	2	2	-	-
PC25. follow organisational guidelines and legal requirements on disclosure and confidentiality	1	2	-	-
<i>Uphold social diversity at the workplace</i>	10	11	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC26. recognize and evaluate biased practices against underrepresented groups like women and persons with disabilities, in workplace systems and processes	2	2	-	-
PC27. identify and report discrimination and harassment based on gender, disability, or cultural difference at the workplace	2	2	-	-
PC28. use inclusive or neutral language and gestures in all interactions	2	2	-	-
PC29. respect the personal and professional space of others	2	2	-	-
PC30. access grievance redressal mechanisms as per legislations	2	3	-	-
NOS Total	40	60	-	-

National Occupational Standards (NOS) Parameters

NOS Code	ELE/N9905
NOS Name	Work effectively at the workplace
Sector	Electronics
Sub-Sector	Generic
Occupation	Generic - Organizational Behaviour
NSQF Level	4
Credits	TBD
Version	2.0
Last Reviewed Date	24/02/2022
Next Review Date	30/12/2026
NSQC Clearance Date	30/12/2021

ELE/N1002: Apply health and safety practices at the workplace

Description

This OS unit is about knowledge and practices relating to health, safety and security that candidates need to use in the workplace.

Scope

The scope covers the following :

- Deal with workplace hazards
- Apply fire safety practices
- Follow emergencies, rescue and first-aid procedures
- Effective waste management/recycling practices

Elements and Performance Criteria

Deal with workplace hazards

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

- PC1.** identify job-site hazards and possible causes of accident in the workplace
- PC2.** perform work complying to organizational safe working practices and observing hazard signs displayed on containers, equipment and in various work areas such as inside buildings, in open areas and public spaces, etc.
- PC3.** use appropriate personal protective equipment (PPE) for specific tasks and work conditions, contaminant (concentration w.r.t air) requirements and severity of hazard while conforming to the Indian/International standards
- PC4.** follow standard safety procedures while handling tool/ ,equipment, hazardous substances and while working in hazardous environments
- PC5.** dispose electronic waste (such as toxins; metals such as lead, cadmium, barium; flame retardant plastics, welding slag etc.) as per industry approved techniques
- PC6.** avoid damage of components due to negligence in electrostatic discharge (ESD) procedures
- PC7.** locate general health and safety equipment in the workplace such as fire extinguishers; first aid equipment; safety instruments, clothing and installations (fire exits, exhaust fans)
- PC8.** maintain appropriate posture while handling heavy objects
- PC9.** apply good housekeeping practices at all times

Apply fire safety practices

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

- PC10.** take preventive measures to prevent fire hazards
- PC11.**
 - use appropriate fire extinguishers for different types of fires
 - Types of fires: Class A: e.g. ordinary solid combustibles, such as wood, paper, cloth, plastic, charcoal, etc.; Class B: flammable liquids and gases, such as gasoline, propane, diesel fuel, tar, cooking oil, and similar substances; Class C: e.g. electrical equipment such as appliances, wiring, breaker panels, etc. (These categories of fires become Class A, B, and D fires when the electrical equipment that initiated the fire is no I
- PC12.** exhibit rescue and first-aid techniques in case of fire or electrocution

Follow emergencies, rescue and first-aid procedures

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

- PC13.** administer appropriate first aid to victims in case of bleeding, burns, choking, electric shock, poisoning etc.
- PC14.** administer first aid to victims in case of a heart attack or cardiac arrest due to electric shock,
- PC15.** participate regularly in emergency procedures such as raising alarm, safe/efficient, evacuation, correct means of taking shelter and escaping, correct assembly point, roll call, correct return to work
- PC16.** use correct method to move injured people and others during an emergency

Effective waste management/recycling practices

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

- PC17.** identify recyclable and non-recyclable, and hazardous waste generated
- PC18.** segregate waste into different categories
- PC19.** ensure disposal of non-recyclable waste appropriately
- PC20.** deposit non-recyclable and reusable material at identified location
- PC21.** follow processes specified for disposal of hazardous waste

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** importance of working in clean and safe work environment following safety practices and procedures
- KU2.** health and safety roles and responsibilities of relevant personnel within and outside the organisation
- KU3.** key internal and external sources of health and safety information
- KU4.** basic knowledge of electronic devices and related health risks
- KU5.** meaning of hazards and risks
- KU6.** various types of health and safety hazards commonly present in the work environment such as physical hazards, electrical hazards, chemical hazards, fire hazards, equipment related hazards, health hazards, etc.
- KU7.** methods of accident prevention
- KU8.** importance of using protective clothing/equipment while working
- KU9.** general principles for identifying and controlling health and safety risks
- KU10.** main hazards and preventive as well as control measures while working with different types of equipment
- KU11.** importance of carrying out electrical and non-electrical isolation to prevent hazards from loss of machine/system/process control
- KU12.** main hazards and preventive as well as control measures when working with electrical systems or using electrical equipment
- KU13.** forms and classifications of hazardous substances
- KU14.** safe working practices while working at various hazardous sites
- KU15.** prevention and control measures to reduce risks from exposure to hazardous substances
- KU16.** health effects associated with exposure to noise and vibration and the appropriate control measures

- KU17.** precautionary activities to prevent the fire accident
- KU18.** various causes of fire such as heating of metal, spontaneous ignition, sparking, electrical eating, loose fires (smoking, welding, etc.) chemical fires etc.
- KU19.** techniques of using the different fire extinguishers
- KU20.** different methods and material to extinguish fires
- KU21.** different materials used for extinguishing fire such as sand, water, foam, CO2, dry powder
- KU22.** rescue techniques used during a fire hazard
- KU23.** various types of safety signs and their meaning
- KU24.** basic first aid treatment relevant to the common work place injuries e.g. shock, electrical shock, bleeding, breaks to bones, minor burns, resuscitation, poisoning, eye injuries
- KU25.** contents of written accident report
- KU26.** potential injuries and ill health associated with incorrect handling of tools and equipment
- KU27.** safe lifting and carrying practices
- KU28.** potential impact to a person who is moved incorrectly
- KU29.** personal safety, health and dignity issues relating to the movement of a person by others
- KU30.** ESD measures and 5S
- KU31.** efficient utilization and management of material and water
- KU32.** ways to recognize common electrical problems and practices of conserving electricity
- KU33.** usage of different colours of dustbins, categorization of waste into dry, wet, recyclable, nonrecyclable and items of single-use plastics
- KU34.** organization's procedure for minimizing waste
- KU35.** waste management and methods of waste disposal
- KU36.** common sources of pollution and ways to minimize it
- KU37.** names, contact information and location of people responsible for health and safety in the workplace
- KU38.** location of documents and equipment for health and safety compliance/practices in the workplace
- KU39.** safety notices, signs and instructions at workplace

Generic Skills (GS)

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

- GS1.** interpret general health and safety guidelines labels, charts, signages
- GS2.** read operation manuals
- GS3.** write health and safety compliance report
- GS4.** write an accident/incident report in local language or English
- GS5.** provide an emergency or safety incident brief to seniors or relevant authorities in a calm, clear and to-the-point manner
- GS6.** communicate general health and safety guidelines to colleagues/co-workers
- GS7.** communicate appropriately with co-workers in order to clarify instructions and other issues
- GS8.** act in case of any potential hazards observed in the work place

- GS9.** plan and organize their own work schedule, work area, tools, equipment in compliance with organizational policies for health, safety and security
- GS10.** take adequate measures to ensure the safety of clients and visitors at the workplace
- GS11.** identify immediate or temporary solutions to resolve delays
- GS12.** evaluate the work area for health and safety risks or hazards
- GS13.** use cause and effect relations to anticipate potential issues, problems and their solution in the work area related to safety
- GS14.** recognise emergency and potential emergency situations
- GS15.** protect self and others from a health and safety risk or hazard
- GS16.** communicate and collaborate to incorporate sustainable practices (greening) in workplace processes
- GS17.** record data on waste disposal at workplace

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Deal with workplace hazards</i>	20	31	-	-
PC1. identify job-site hazards and possible causes of accident in the workplace	2	3	-	-
PC2. perform work complying to organizational safe working practices and observing hazard signs displayed on containers, equipment and in various work areas such as inside buildings, in open areas and public spaces, etc.	3	4	-	-
PC3. use appropriate personal protective equipment (PPE) for specific tasks and work conditions, contaminant (concentration w.r.t air) requirements and severity of hazard while conforming to the Indian/International standards	3	4	-	-
PC4. follow standard safety procedures while handling tool/ ,equipment, hazardous substances and while working in hazardous environments	3	4	-	-
PC5. dispose electronic waste (such as toxins; metals such as lead, cadmium, barium; flame retardant plastics, welding slag etc.) as per industry approved techniques	2	4	-	-
PC6. avoid damage of components due to negligence in electrostatic discharge (ESD) procedures	2	3	-	-
PC7. locate general health and safety equipment in the workplace such as fire extinguishers; first aid equipment; safety instruments, clothing and installations (fire exits, exhaust fans)	2	3	-	-
PC8. maintain appropriate posture while handling heavy objects	1	3	-	-
PC9. apply good housekeeping practices at all times	2	3	-	-
<i>Apply fire safety practices</i>	4	9	-	-
PC10. take preventive measures to prevent fire hazards	2	3	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<p>PC11.</p> <ul style="list-style-type: none"> • use appropriate fire extinguishers for different types of fires • Types of fires: Class A: e.g. ordinary solid combustibles, such as wood, paper, cloth, plastic, charcoal, etc.; Class B: flammable liquids and gases, such as gasoline, propane, diesel fuel, tar, cooking oil, and similar substances; Class C: e.g. electrical equipment such as appliances, wiring, breaker panels, etc. (These categories of fires become Class A, B, and D fires when the electrical equipment that initiated the fire is no l 	1	3	-	-
<p>PC12. exhibit rescue and first-aid techniques in case of fire or electrocution</p>	1	3	-	-
<p><i>Follow emergencies, rescue and first-aid procedures</i></p>	6	13	-	-
<p>PC13. administer appropriate first aid to victims in case of bleeding, burns, choking, electric shock, poisoning etc.</p>	1	3	-	-
<p>PC14. administer first aid to victims in case of a heart attack or cardiac arrest due to electric shock,</p>	1	2	-	-
<p>PC15. participate regularly in emergency procedures such as raising alarm, safe/efficient, evacuation, correct means of taking shelter and escaping, correct assembly point, roll call, correct return to work</p>	2	4	-	-
<p>PC16. use correct method to move injured people and others during an emergency</p>	2	4	-	-
<p><i>Effective waste management/recycling practices</i></p>	5	12	-	-
<p>PC17. identify recyclable and non-recyclable, and hazardous waste generated</p>	1	3	-	-
<p>PC18. segregate waste into different categories</p>	1	2	-	-
<p>PC19. ensure disposal of non-recyclable waste appropriately</p>	1	2	-	-
<p>PC20. deposit non-recyclable and reusable material at identified location</p>	1	3	-	-
<p>PC21. follow processes specified for disposal of hazardous waste</p>	1	2	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
NOS Total	35	65	-	-

National Occupational Standards (NOS) Parameters

NOS Code	ELE/N1002
NOS Name	Apply health and safety practices at the workplace
Sector	Electronics
Sub-Sector	Generic
Occupation	Generic - Health Safety
NSQF Level	4
Credits	TBD
Version	3.0
Last Reviewed Date	24/02/2022
Next Review Date	24/02/2025
NSQC Clearance Date	24/02/2022

Assessment Guidelines and Assessment Weightage

Assessment Guidelines

1. Criteria for assessment for each Qualification Pack will be created by the Sector Skill Council. Each 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.
2. The assessment for the theory part will be based on knowledge bank of questions created by the SSC.
3. Assessment will be conducted for all compulsory NOS, and where applicable, on the selected elective/option NOS/set of NOS.
4. Individual assessment agencies will create unique question papers for theory part for each candidate at each examination/training center (as per assessment criteria below).
5. Individual assessment agencies will create unique evaluations for skill practical for every student at each examination/ training center based on these criteria.
6. To pass the Qualification Pack assessment, every trainee should score the Recommended Pass % aggregate for the QP.
7. 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
ELE/N8116.Lay truck or sub truck cables install and connectorize as per designed route	40	60	-	-	100	15
ELE/N8117.Carry out installation of power inserter & balancing and commissioning of amplifier	40	60	-	-	100	15
ELE/N8118.Install Set Top Box at customers premise	40	60	-	-	100	15
ELE/N8119.Cater to customer complaints for troubleshooting and maintenance of set top box	30	70	-	-	100	15
ELE/N8120.Lay, installs and carry out commissioning for multi play network	30	70	-	-	100	20
ELE/N9905.Work effectively at the workplace	40	60	-	-	100	10
ELE/N1002.Apply health and safety practices at the workplace	35	65	-	-	100	10
Total	255	445	-	-	700	100

Acronyms

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

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.

<p>Organisational Context</p>	<p>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.</p>
<p>Technical Knowledge</p>	<p>Technical knowledge is the specific knowledge needed to accomplish specific designated responsibilities.</p>
<p>Core Skills/ Generic Skills (GS)</p>	<p>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.</p>
<p>Electives</p>	<p>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.</p>
<p>Options</p>	<p>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.</p>