

Qualification Pack



Installation Engineer - SDH, DWDM, L2 and L3 Equipment

QP Code: TEL/Q6300

Version: 3.0

NSQF Level: 5

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



Qualification Pack

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TEL/Q6300: Installation Engineer - SDH, DWDM, L2 and L3 Equipment

Brief Job Description

The individual in this job is responsible for installing SDH, DWDM, L2 and L3 equipment in the site and carrying out site acceptance testing. As an optional responsibility, the engineer may need to undertake commissioning of the site based on network topology.

Personal Attributes

The individual in this job should have excellent problem-solving capabilities and quantitative abilities. They should be able to multitask and track multiple projects simultaneously. They should be good communicators and have strong interpersonal skills. They should be keen learners and show the desire to stay updated about the changing technologies in the field.

Applicable National Occupational Standards (NOS)

Compulsory NOS:

1. [TEL/N6300: Install SDH, DWDM, L2 and L3 Equipment](#)
2. [TEL/N6301: Undertake Acceptance Testing \(AT\) of SDH, DWDM, L2 and L3 Equipment](#)
3. [TEL/N6302: Perform Commissioning of SDH, DWDM, L2 and L3 Equipment](#)
4. [TEL/N9103: Implement Effective Interaction at workplace](#)
5. [TEL/N9104: Manage Work, Resources and Safety at workplace](#)
6. [DGT/VSQ/N0102: Employability Skills \(60 Hours\)](#)

Qualification Pack (QP) Parameters

Sector	Telecom
Sub-Sector	Network Managed Services
Occupation	Project Engineering
Country	India
NSQF Level	5
Credits	18

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Aligned to NCO/ISCO/ISIC Code	NCO-2015/3114.0902
Minimum Educational Qualification & Experience	<p>Completed 4 year UG program (Completed 2nd year of 3-year/ 4-years UG) OR Pursuing 2nd year of UG (Pursuing 2nd year of 3-year/ 4-years UG and continuing education) OR Completed 2nd year diploma after 12th OR Pursuing 2nd year of 2-year diploma after 12th (with No Experience required) OR 12th grade Pass (with 2 year of any combination of NTC/NAC/CITS or equivalent with no experience required) OR Previous relevant Qualification of NSQF Level (4) with 3 Years of experience</p>
Minimum Level of Education for Training in School	
Pre-Requisite License or Training	Knowledge on L1 (SDH, DWDM), L2 (Switching, Routing) Technologies
Minimum Job Entry Age	21 Years
Last Reviewed On	NA
Next Review Date	27/01/2025
NSQC Approval Date	27/01/2022
Version	3.0
Reference code on NQR	QG-05-TL-00453-2023-V1.1-TSSC
NQR Version	1.1

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TEL/N6300: Install SDH, DWDM, L2 and L3 Equipment

Description

This OS unit is about carrying out installation of SDH, DWDM, L2 and L3 equipment for the sites proposed by the planning team.

Scope

The scope covers the following :

- Prepare for installation
- Connect power and traffic cable to the equipment
- Record and report installation status

Elements and Performance Criteria

Prepare for installation

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

- PC1.** verify availability of all line items required for installation and match with Bill of Material (BOM)
- PC2.** check availability of installation kit/racks required for the installation as mentioned in the installation guide
- PC3.** access installation plan from the planning team, interpret it and recommend any modifications in the plan
- PC4.** determine if any additional equipment, accessories are needed for installation
- PC5.** ensure proper order and sequence of equipment in the rack
- PC6.** maintain adequate space between equipment in the rack and for cable routing

Connect power and traffic cable to the equipment

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

- PC7.** identify appropriate MCBs to be used at the rack for the installation as per power consumption of the equipment
- PC8.** verify that the MCB has -48V DC and Ground connectivity with the equipment
- PC9.** identify appropriate optical patch cords and electrical cables to be used
- PC10.** perform connection and routing of power cable and traffic cable properly
- PC11.** mark traffic cables with appropriate printed stickers
- PC12.** follow precautions to avoid damage to cables and connectors during connecting and disconnecting
- PC13.** communicate installation progress to the Project Manager

Record and report installation status

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

- PC14.** prepare installation report in specified format with all relevant information
- PC15.** obtain signature on the installation report from the appropriate authority
- PC16.** ensure that all required documents are timely updated after completion of a job/task

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PC17. ensure documents are available to all appropriate authorities

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** basic equipment category
- KU2.** site installation checklist and critical punch points
- KU3.** risk and impact of not following defined procedures/work instructions
- KU4.** equipment dimension from installation guide
- KU5.** usage of cable connectors, cable ties and cable tray
- KU6.** types of login cables (RJ45, RS232, High Speed USB) required to login on the core nodes
- KU7.** need, requirement and process of earthing the equipment.
- KU8.** mechanism to maintain the earthing pit to absolute zero
- KU9.** types of documentation in organization and importance of the same

Generic Skills (GS)

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

- GS1.** read and interpret necessary documents
- GS2.** liaise and coordinate with third party vendors/other stakeholders
- GS3.** use and maintain resources efficiently and effectively
- GS4.** multitask by handling multiple tasks and completing them successfully with due timeline
- GS5.** prioritize and execute tasks in a high-pressure environment
- GS6.** maintain proper records as per given format

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Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Prepare for installation</i>	12	23	-	4
PC1. verify availability of all line items required for installation and match with Bill of Material (BOM)	2	4	-	1
PC2. check availability of installation kit/racks required for the installation as mentioned in the installation guide	1	5	-	1
PC3. access installation plan from the planning team, interpret it and recommend any modifications in the plan	1	3	-	1
PC4. determine if any additional equipment, accessories are needed for installation	3	4	-	-
PC5. ensure proper order and sequence of equipment in the rack	2	3	-	-
PC6. maintain adequate space between equipment in the rack and for cable routing	3	4	-	1
<i>Connect power and traffic cable to the equipment</i>	13	24	-	3
PC7. identify appropriate MCBs to be used at the rack for the installation as per power consumption of the equipment	2	3	-	1
PC8. verify that the MCB has -48V DC and Ground connectivity with the equipment	2	2	-	-
PC9. identify appropriate optical patch cords and electrical cables to be used	2	3	-	1
PC10. perform connection and routing of power cable and traffic cable properly	2	4	-	-
PC11. mark traffic cables with appropriate printed stickers	1	4	-	-
PC12. follow precautions to avoid damage to cables and connectors during connecting and disconnecting	1	4	-	1

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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC13. communicate installation progress to the Project Manager	3	4	-	-
<i>Record and report installation status</i>	5	13	-	3
PC14. prepare installation report in specified format with all relevant information	2	4	-	1
PC15. obtain signature on the installation report from the appropriate authority	1	3	-	1
PC16. ensure that all required documents are timely updated after completion of a job/task	1	3	-	-
PC17. ensure documents are available to all appropriate authorities	1	3	-	1
NOS Total	30	60	-	10

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National Occupational Standards (NOS) Parameters

NOS Code	TEL/N6300
NOS Name	Install SDH, DWDM, L2 and L3 Equipment
Sector	Telecom
Sub-Sector	Network Managed Services
Occupation	Project Engineering
NSQF Level	5
Credits	5
Version	3.0
Last Reviewed Date	NA
Next Review Date	27/01/2025
NSQC Clearance Date	27/01/2022

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TEL/N6301: Undertake Acceptance Testing (AT) of SDH, DWDM, L2 and L3 Equipment

Description

This OS unit is about carrying out site Acceptance Testing (AT) of SDH, DWDM, L2 and L3 equipment for the sites where equipment installation work is successfully completed.

Scope

The scope covers the following :

- Develop site acceptance testing plans and test procedures
- Configure the equipment and label ports and cables
- Test effectiveness, prepare test report and record the test results

Elements and Performance Criteria

Develop site acceptance testing plans and test procedures

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

- PC1.** develop step-by-step acceptance testing plan for the equipment
- PC2.** verify the prepared document from appropriate authority
- PC3.** implement necessary feedback points to the test plan and guidelines
- PC4.** maintain and update the acceptance testing document in the specified format

Configure the equipment and label ports and cables

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

- PC5.** verify power connectivity and switch-on the power to the equipment
- PC6.** configure the equipment step-by-step according to the acceptance testing guidelines
- PC7.** perform cross checking against the configuration checklist specified in the AT document
- PC8.** arrange printed stickers to label equipment ports
- PC9.** perform labelling of port number appropriately as per Acceptance Testing (AT) guidelines to ensure it clarifies connectivity between two ends of a label

Test effectiveness, prepare test report and record the test results

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

- PC10.** test the equipment as per the guidelines with the help of PDH and SDH test cases
- PC11.** update the test report as per the test result
- PC12.** obtain signature on the AT report from the appropriate authority
- PC13.** ensure completion of administrative jobs like site clearance, return of test equipment
- PC14.** ensure that all documents related to conducted tests are timely updated and test results are recorded in prescribed formats
- PC15.** ensure that documents are available to all appropriate authorities to inspect

Knowledge and Understanding (KU)

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The individual on the job needs to know and understand:

- KU1.** basic equipment design and application
- KU2.** PDH, SDH and DWDM technology, its components, architecture, limitations and advantages
- KU3.** login cables (RJ45, RS232 and Hi-Speed USB) for different site equipment
- KU4.** cables (optical, electrical) and connectors for effective cabling
- KU5.** functionality of test equipment, line tester, Ethernet tester, VSWR meter, RF power meter, Optical meter etc
- KU6.** types of documentation in organization and importance of the same
- KU7.** records to be maintained and implication of non-maintenance of the same

Generic Skills (GS)

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

- GS1.** draft and write appropriate plans/formats
- GS2.** read and comprehend plans/formats
- GS3.** prioritize and execute tasks in high-pressure environment
- GS4.** interpret test results and undertake appropriate steps
- GS5.** utilize appropriate communication channels to escalate unresolved problems

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Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Develop site acceptance testing plans and test procedures</i>	8	17	-	2
PC1. develop step-by-step acceptance testing plan for the equipment	3	5	-	1
PC2. verify the prepared document from appropriate authority	2	4	-	-
PC3. implement necessary feedback points to the test plan and guidelines	2	4	-	1
PC4. maintain and update the acceptance testing document in the specified format	1	4	-	-
<i>Configure the equipment and label ports and cables</i>	12	21	-	5
PC5. verify power connectivity and switch-on the power to the equipment	2	5	-	1
PC6. configure the equipment step-by-step according to the acceptance testing guidelines	3	3	-	1
PC7. perform cross checking against the configuration checklist specified in the AT document	3	4	-	1
PC8. arrange printed stickers to label equipment ports	2	5	-	1
PC9. perform labelling of port number appropriately as per Acceptance Testing (AT) guidelines to ensure it clarifies connectivity between two ends of a label	2	4	-	1
<i>Test effectiveness, prepare test report and record the test results</i>	15	17	-	3
PC10. test the equipment as per the guidelines with the help of PDH and SDH test cases	5	4	-	-
PC11. update the test report as per the test result	2	1	-	1

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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC12. obtain signature on the AT report from the appropriate authority	2	2	-	-
PC13. ensure completion of administrative jobs like site clearance, return of test equipment	2	4	-	1
PC14. ensure that all documents related to conducted tests are timely updated and test results are recorded in prescribed formats	2	3	-	-
PC15. ensure that documents are available to all appropriate authorities to inspect	2	3	-	1
NOS Total	35	55	-	10

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National Occupational Standards (NOS) Parameters

NOS Code	TEL/N6301
NOS Name	Undertake Acceptance Testing (AT) of SDH, DWDM, L2 and L3 Equipment
Sector	Telecom
Sub-Sector	Network Managed Services
Occupation	Project Engineering
NSQF Level	5
Credits	4
Version	3.0
Last Reviewed Date	NA
Next Review Date	27/01/2025
NSQC Clearance Date	27/01/2022

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TEL/N6302: Perform Commissioning of SDH, DWDM, L2 and L3 Equipment

Description

This OS unit is about carrying out commissioning of SDH and DWDM equipment for the sites where equipment installation and site acceptance testing has been successfully completed

Scope

The scope covers the following :

- Assess network topology to develop commissioning plan and test procedure
- Configure and test the equipment, and record test details

Elements and Performance Criteria

Assess network topology to develop commissioning plan and test procedure

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

- PC1.** interpret SDH/DWDM/LAN/WAN network topology, basic features and working functionality of the equipment
- PC2.** analyse ways to provision equipment as per the requirements and specifications
- PC3.** prepare step-by-step commissioning plan for the equipment and record the guidelines in specified format
- PC4.** develop a test procedure for the commissioned equipment and document the same
- PC5.** verify power cable connectivity with the equipment and switch it on

Configure and test the equipment, and record test details

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

- PC6.** configure the equipment as per commissioning guide
- PC7.** verify the configuration checklist as per commissioning guide
- PC8.** test the commissioned equipment with the help of SDH and PDH test cases
- PC9.** update the test report timely for the commissioned equipment as per the test result
- PC10.** ensure completion of administrative jobs like site clearance, return of test equipment after successful commissioning
- PC11.** ensure commissioning and test documents are timely updated
- PC12.** ensure that the updated commissioning and test documents are available to all appropriate authorities for further inspection

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** OSI, LAN, WAN and MAN architecture and protocols
- KU2.** basic equipment design and application
- KU3.** Internet and IP protocol and VLAN concepts



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- KU4.** Ethernet networking, media and connector functioning
- KU5.** types of documentation in organization and importance of the same
- KU6.** records to be maintained and implication of non-maintenance of the same

Generic Skills (GS)

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

- GS1.** read and comprehend different types of information
- GS2.** write as per pre-defined format
- GS3.** interpret test results and undertake appropriate steps
- GS4.** prioritize and execute tasks in high pressure environment
- GS5.** utilize appropriate communication channels to escalate unresolved problems

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Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Assess network topology to develop commissioning plan and test procedure</i>	25	19	-	5
PC1. interpret SDH/DWDM/LAN/WAN network topology, basic features and working functionality of the equipment	5	4	-	1
PC2. analyse ways to provision equipment as per the requirements and specifications	5	4	-	1
PC3. prepare step-by-step commissioning plan for the equipment and record the guidelines in specified format	5	4	-	1
PC4. develop a test procedure for the commissioned equipment and document the same	5	3	-	1
PC5. verify power cable connectivity with the equipment and switch it on	5	4	-	1
<i>Configure and test the equipment, and record test details</i>	15	31	-	5
PC6. configure the equipment as per commissioning guide	5	5	-	1
PC7. verify the configuration checklist as per commissioning guide	3	5	-	1
PC8. test the commissioned equipment with the help of SDH and PDH test cases	2	6	-	1
PC9. update the test report timely for the commissioned equipment as per the test result	2	4	-	-
PC10. ensure completion of administrative jobs like site clearance, return of test equipment after successful commissioning	1	3	-	-
PC11. ensure commissioning and test documents are timely updated	1	4	-	1
PC12. ensure that the updated commissioning and test documents are available to all appropriate authorities for further inspection	1	4	-	1

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

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National Occupational Standards (NOS) Parameters

NOS Code	TEL/N6302
NOS Name	Perform Commissioning of SDH, DWDM, L2 and L3 Equipment
Sector	Telecom
Sub-Sector	Network Managed Services
Occupation	Project Engineering
NSQF Level	5
Credits	4
Version	3.0
Last Reviewed Date	NA
Next Review Date	27/01/2025
NSQC Clearance Date	27/01/2022

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TEL/N9103: Implement Effective Interaction at workplace

Description

This OS unit is about communicating with superiors and colleagues as well as customers and other stakeholders in own or other work groups within as well as outside the organisation

Scope

The scope covers the following :

- Interact effectively with superiors
- Interact effectively with colleagues and customers
- Respect differences of gender and ability

Elements and Performance Criteria

Interact effectively with superiors

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

- PC1.** interpret work requirements from the superior and customers
- PC2.** report any unforeseen disruptions or delays to superiors and/or concerned person
- PC3.** achieve productivity and quality of work as per the company procedure

Interact effectively with colleagues and customers

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

- PC4.** explain the work requirements and the scope of work to the team
- PC5.** communicate information using different techniques such as face-to-face, telephonic and written means
- PC6.** co-ordinate with team to integrate work as per requirements
- PC7.** respect colleagues and customers and communicate taking care of their personal spaces
- PC8.** find solutions to work related difficulties with mutual agreement with colleagues and customers
- PC9.** resolve conflicts within the team at work to achieve smooth workflow
- PC10.** motivate team members to put organizational goals over individual goals
- PC11.** encourage the team to provide feedback on any issues facing them

Respect differences of gender and ability

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

- PC12.** ensure personal behaviour of self and team is conducted taking gender and disability of the person into consideration
- PC13.** demonstrate sensitivity towards gender and person with disability while communicating
- PC14.** list the different types of disabilities with their respective issues
- PC15.** provide help to PwD team members in overcoming any challenges faced in work
- PC16.** use inclusive language irrespective of the disability and the gender of the person
- PC17.** treat all colleagues and co-workers equally

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PC18. respect personal space of colleagues and co-workers

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** importance of effective and different means of communication and establishing good working relationships with colleagues and superiors
- KU2.** importance of helping colleagues with problems, in order to meet quality and time standards as a team
- KU3.** different methods of communication
- KU4.** different types of information that colleagues might need and the importance of providing this information in an appropriate manner
- KU5.** helping colleagues with problems, in order to meet quality and time standards as a team
- KU6.** organisation's policies and procedures for working with colleagues and superior
- KU7.** implications of own work on the work and schedule of others
- KU8.** importance of understanding consequences of gender based behaviour
- KU9.** gender based concepts, issues and legislation
- KU10.** organisation standards and guidelines to be followed for PwD and knowledge about laws, acts and provisions defined for PwD by the statutory bodies and the right way to use them including various medical conditions associated with PwD
- KU11.** health and safety requirements at workplace for PwD
- KU12.** rights and duties at workplace with respect to PwD
- KU13.** process of recruiting people for a particular job profile w.r.t PwD and gender
- KU14.** various government / private schemes and benefits available for PwD and information about various institutes working for PwD to enable in providing livelihood opportunities for PwD

Generic Skills (GS)

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

- GS1.** complete written work with attention to detail and read instructions/guidelines/procedures
- GS2.** listen effectively and orally communicate information
- GS3.** ask for clarification and advice from the concerned person
- GS4.** deliver consistent and reliable service to customers
- GS5.** check that the work meets customer requirements
- GS6.** practice and acceptance of gender and its concepts
- GS7.** develop empathy across genders and towards PwD
- GS8.** reflect on own gender identity, gender roles and PwD issues
- GS9.** engage and participate in discussions to end gender and disability discrimination
- GS10.** improve and modify work practices
- GS11.** maintain positive and effective relationships with colleagues and customers
- GS12.** evaluate the possible solution(s) to the problem

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Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Interact effectively with superiors</i>	2	9	-	1
PC1. interpret work requirements from the superior and customers	1	2	-	-
PC2. report any unforeseen disruptions or delays to superiors and/or concerned person	1	2	-	1
PC3. achieve productivity and quality of work as per the company procedure	-	5	-	-
<i>Interact effectively with colleagues and customers</i>	13	27	-	5
PC4. explain the work requirements and the scope of work to the team	2	3	-	-
PC5. communicate information using different techniques such as face-to-face, telephonic and written means	2	4	-	1
PC6. co-ordinate with team to integrate work as per requirements	-	4	-	1
PC7. respect colleagues and customers and communicate taking care of their personal spaces	-	3	-	-
PC8. find solutions to work related difficulties with mutual agreement with colleagues and customers	3	3	-	-
PC9. resolve conflicts within the team at work to achieve smooth workflow	-	4	-	1
PC10. motivate team members to put organizational goals over individual goals	3	4	-	1
PC11. encourage the team to provide feedback on any issues facing them	3	2	-	1
<i>Respect differences of gender and ability</i>	15	24	-	4
PC12. ensure personal behaviour of self and team is conducted taking gender and disability of the person into consideration	2	4	-	-

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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC13. demonstrate sensitivity towards gender and person with disability while communicating	2	3	-	1
PC14. list the different types of disabilities with their respective issues	2	3	-	1
PC15. provide help to PwD team members in overcoming any challenges faced in work	2	3	-	-
PC16. use inclusive language irrespective of the disability and the gender of the person	2	3	-	1
PC17. treat all colleagues and co-workers equally	2	3	-	-
PC18. respect personal space of colleagues and co-workers	3	5	-	1
NOS Total	30	60	-	10

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National Occupational Standards (NOS) Parameters

NOS Code	TEL/N9103
NOS Name	Implement Effective Interaction at workplace
Sector	Telecom
Sub-Sector	Generic
Occupation	Generic
NSQF Level	5
Credits	1
Version	2.0
Last Reviewed Date	NA
Next Review Date	24/02/2025
NSQC Clearance Date	24/02/2022

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TEL/N9104: Manage Work, Resources and Safety at workplace

Description

This OS unit is about planning work and implementing sustainable as well as healthy practices for safety and optimal use of resources

Scope

The scope covers the following :

- Manage learning and self-direction
- Develop critical thinking and problem solving
- Perform work as per quality standards
- Maintain safe and secure working environment
- Comply with material / energy / electricity conservation practices

Elements and Performance Criteria

Manage learning and self-direction

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

- PC1.** develop technical and personal skills to be updated with new technologies prevalent in the industry
- PC2.** train the team such that they are able to adapt latest products/services in their working environment
- PC3.** identify opportunities for team building workshops and motivational trainings

Develop critical thinking and problem solving

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

- PC4.** guide the team to be accountable for timely completion of tasks
- PC5.** analyse problems accurately to be able to correctly suggest suitable solutions to the concerned persons
- PC6.** train the team to estimate the cause of the problem and validate

Perform work as per quality standards

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

- PC7.** implement ways to keep immediate as well as team's work area clean and tidy
- PC8.** maintain efficiency and productivity while performing role/responsibility
- PC9.** supervise the team to ensure that the work is done as per the assigned and agreed requirements
- PC10.** create schedules and rosters for the team to ensure they understand individual work requirements

Maintain safe and secure working environment

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

- PC11.** identify organisation's health, safety, security policies and procedures

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- PC12.** instruct team to report any identified breaches in health, safety, and security policies and procedures to the designated person
- PC13.** manage hazards such as illness, accidents, fires or any other natural calamity safely, as per organisation's emergency procedures, within the limits of individual's authority
- PC14.** report any hazard outside the individual's authority to the relevant person in line with organisational procedures and warn others who may be affected

Material / energy / electricity conservation practices

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

- PC15.** implement ways to optimize usage of material including water in various tasks/activities/processes
- PC16.** supervise the team to ensure responsible use of resources
- PC17.** motivate the team to carry out routine cleaning of tools, machine and equipment
- PC18.** guide the team to optimize use of electricity/energy in various tasks/activities/processes
- PC19.** implement periodic checks of the functioning of the equipment/machine and rectify wherever required
- PC20.** guide the team to report malfunctioning and lapses in maintenance of equipment
- PC21.** implement ways to use electrical equipment and appliances properly

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** strategies pertinent to the field that can be used to pursue an advancement of skills
- KU2.** key performance indicators for the new tasks
- KU3.** feedback processes and formats
- KU4.** timelines and goals as well as their relevance to work allocated
- KU5.** importance of quality and timely delivery of the product/service
- KU6.** layout of the workstation and equipment used
- KU7.** escalation matrix and its importance, especially in case of emergencies
- KU8.** ways of time and cost management
- KU9.** rules/regulation for maintaining health and safety at workplace
- KU10.** meaning of hazard, different types of health and safety hazards found in the workplace, risks and threats based on the nature of work
- KU11.** procedures to report breaches in health, safety and security
- KU12.** ways of managing resources and material efficiently
- KU13.** ways to recognize common electrical problems and common practices of conserving electricity

Generic Skills (GS)

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

- GS1.** explore various pathways to expand one's own learning skills and abilities

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- GS2.** analyse feedback for improving one's way of working
- GS3.** interpret feedback from superiors in a constructive way
- GS4.** identify the root cause of problems
- GS5.** understand the problem by asking significant questions to clarify the various points of view on the problem
- GS6.** seek clarifications from superior about the job requirement
- GS7.** work in a team with full coordination of team members
- GS8.** read instructions/guidelines and Standard Operating Practices (SOP) documents
- GS9.** complete tasks efficiently and accurately within stipulated time
- GS10.** record data in statutory documents relevant to safety and hygiene
- GS11.** escalate/refer all anomalies to the concerned persons
- GS12.** identify the most suitable course of action for completing the task using provided resources

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Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Manage learning and self-direction</i>	4	5	-	-
PC1. develop technical and personal skills to be updated with new technologies prevalent in the industry	2	1	-	-
PC2. train the team such that they are able to adapt latest products/services in their working environment	1	2	-	-
PC3. identify opportunities for team building workshops and motivational trainings	1	2	-	-
<i>Develop critical thinking and problem solving</i>	4	7	-	-
PC4. guide the team to be accountable for timely completion of tasks	2	3	-	-
PC5. analyse problems accurately to be able to correctly suggest suitable solutions to the concerned persons	1	2	-	-
PC6. train the team to estimate the cause of the problem and validate	1	2	-	-
<i>Perform work as per quality standards</i>	5	9	-	4
PC7. implement ways to keep immediate as well as team's work area clean and tidy	1	2	-	-
PC8. maintain efficiency and productivity while performing role/responsibility	1	2	-	2
PC9. supervise the team to ensure that the work is done as per the assigned and agreed requirements	1	2	-	1
PC10. create schedules and rosters for the team to ensure they understand individual work requirements	2	3	-	1
<i>Maintain safe and secure working environment</i>	12	13	-	2
PC11. identify organisation's health, safety, security policies and procedures	3	3	-	-

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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC12. instruct team to report any identified breaches in health, safety, and security policies and procedures to the designated person	3	3	-	-
PC13. manage hazards such as illness, accidents, fires or any other natural calamity safely, as per organisation's emergency procedures, within the limits of individual's authority	3	4	-	1
PC14. report any hazard outside the individual's authority to the relevant person in line with organisational procedures and warn others who may be affected	3	3	-	1
<i>Material / energy / electricity conservation practices</i>	15	16	-	4
PC15. implement ways to optimize usage of material including water in various tasks/activities/processes	1	2	-	1
PC16. supervise the team to ensure responsible use of resources	2	2	-	1
PC17. motivate the team to carry out routine cleaning of tools, machine and equipment	2	2	-	1
PC18. guide the team to optimize use of electricity/energy in various tasks/activities/processes	3	4	-	-
PC19. implement periodic checks of the functioning of the equipment/machine and rectify wherever required	2	2	-	1
PC20. guide the team to report malfunctioning and lapses in maintenance of equipment	3	2	-	-
PC21. implement ways to use electrical equipment and appliances properly	2	2	-	-
NOS Total	40	50	-	10

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National Occupational Standards (NOS) Parameters

NOS Code	TEL/N9104
NOS Name	Manage Work, Resources and Safety at workplace
Sector	Telecom
Sub-Sector	Generic
Occupation	Generic
NSQF Level	5
Credits	1
Version	2.0
Last Reviewed Date	NA
Next Review Date	24/02/2025
NSQC Clearance Date	24/02/2022

Qualification Pack

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:

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- 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.

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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

Qualification Pack

- 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

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Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Introduction to Employability Skills</i>	1	1	-	-
PC1. identify employability skills required for jobs in various industries	-	-	-	-
PC2. identify and explore learning and employability portals	-	-	-	-
<i>Constitutional values - Citizenship</i>	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	-	-	-	-
<i>Becoming a Professional in the 21st Century</i>	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	-	-	-	-
<i>Basic English Skills</i>	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	-	-	-	-
<i>Career Development & Goal Setting</i>	1	2	-	-

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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	-	-	-	-
<i>Communication Skills</i>	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	-	-	-	-
<i>Diversity & Inclusion</i>	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	-	-	-	-
<i>Financial and Legal Literacy</i>	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	-	-	-	-
<i>Essential Digital Skills</i>	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	-	-	-	-

Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Entrepreneurship</i>	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	-	-	-	-
<i>Customer Service</i>	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	-	-	-	-
<i>Getting ready for apprenticeship & Jobs</i>	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	-	-

Qualification Pack

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	NA
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.

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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
TEL/N6300.Install SDH, DWDM, L2 and L3 Equipment	30	60	-	10	100	20
TEL/N6301.Undertake Acceptance Testing (AT) of SDH, DWDM, L2 and L3 Equipment	35	55	-	10	100	20
TEL/N6302.Perform Commissioning of SDH, DWDM, L2 and L3 Equipment	40	50	-	10	100	20
TEL/N9103.Implement Effective Interaction at workplace	30	60	-	10	100	15
TEL/N9104.Manage Work, Resources and Safety at workplace	40	50	-	10	100	15
DGT/VSQ/N0102.Employability Skills (60 Hours)	20	30	-	-	50	10
Total	195	305	-	50	550	100

Qualification Pack

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.

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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.