Qualification Pack

Project Supervisor - 5G Networks

QP Code: TEL/Q6306

Version: 3.0

NSQF Level: 5

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Qualification Pack

TEL/Q6306: Project Supervisor - 5G Networks

Brief Job Description

A Project Supervisor - 5G Networks is responsible for ensuring and coordinating with all concerned, so that the 5G site is fully operational immediately after successful installation and commissioning. This includes installation of 5G gNodeB, electronic equipment, battery bank, power plant at site, 5G antennas and any other related activities for operationalization of the site. They must have expertise in passive and active hardware, as well as software configurations during installation. Additionally, the role involves conducting site acceptance tests, including site audits, VSWR testing, call testing, and verifying antenna positioning (tilt, azimuth, and zenith angles).

Personal Attributes

The individual should be adaptable to evolving technologies, possess strong teamwork and leadership skills, and demonstrate ownership, multitasking, and project-tracking abilities. Attention to detail, problem-solving, quantitative skills, effective communication, customer focus, and professionalism are essential.

Applicable National Occupational Standards (NOS)

Compulsory NOS:

1. TEL/N6319: Check Availability of Hardware Equipment at the Site Location
2. TEL/N6320: Perform Installation and Commissioning of 5G Tower Site
3. TEL/N6321: Perform Compliance and Quality Checks
4. TEL/N6322: Carry out Acceptance Testing and Site Monitoring
5. TEL/N9109: Follow sustainable practices in telecom infrastructure management
6. TEL/N9104: Manage Work, Resources and Safety at workplace
7. DGT/VSQ/N0102: Employability Skills (60 Hours)

Qualification Pack (QP) Parameters

Sector	Telecom
Sub-Sector	Network Managed Services
Occupation	Project Engineering

Qualification Pack

Country	India
NSQF Level	5
Credits	21
Aligned to NCO/ISCO/ISIC Code	NCO-2015/3114.1301
Minimum Educational Qualification & Experience	Completed 2nd year of UG (UG Diploma) (of 3-year/ 4-years UG (B.Tech/B.E. in Electronics and Communication Engineering/ Telecommunication Engineering/ Electrical and Electronics Engineering)) OR Completed 2nd year diploma after 12th (in Electronics and Communication Engineering/ Wireless Communication/ Networking and Mobile Communications) OR 12th grade Pass with 3 Years of experience in network management domain OR Previous relevant Qualification of NSQF Level (4.0) with 3 Years of experience in network management domain OR Previous relevant Qualification of NSQF Level (4.5) with 1.5 years of experience in network management domain
Minimum Level of Education for Training in School	
Pre-Requisite License or Training	NA
Minimum Job Entry Age	21 Years
Last Reviewed On	NA
Next Review Date	30/04/2028
NSQC Approval Date	08/05/2025
Version	3.0
Reference code on NQR	QG-05-TL-04088-2025-V2-TSSC
NQR Version	2

Qualification Pack

TEL/N6319: Check Availability of Hardware Equipment at the Site Location

Description

This unit is about various activities carried out before installation of 5G nodes at site.

Scope

The scope covers the following :

- Pre-requisites for 5G mobile/radio networking
- Carry out 5G NR site hardware/equipment installation
- Prepare site for 5G implementation

Elements and Performance Criteria

Pre-requisites for 5G mobile/radio networking

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

PC1. review and interpret 3GPP standards, project budget, architectural blueprints, and client-specific design documents

PC2. coordinate with cross-functional teams to translate high-level architecture into actionable deployment deliverables

PC3. assess and validate Multiple Input, Multiple Output (MIMO) antenna parameters such as diversity gain, MIMO capacity, and beamforming requirements

PC4. evaluate the radiation pattern of MIMO antenna and implement network slicing and Network Function Virtualization (NFV) strategies

PC5. conduct pre-deployment software testing using automated scripts and verify backhaul network integration with planned 5G site programs

Carry out 5G NR site hardware/equipment installation

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

PC6. verify the availability of passive equipment like battery bank, power plant, air conditioning etc, in case of a shelter site, single/dual/triple-band MIMO antennas, feeder and jumper cables, and mounting accessories

PC7. ensure active equipment, such as gNodeB, fibre based transmission networks of SDH or ethernet hierarchy, microwave link devices, and edge computing units, are ready for deployment at the site

PC8. validate the functionality and compatibility of utilities, including command centers, alarm managers, historical alarm reports, PM reports, and alarm correlation tools

PC9. implement orchestration among teams, Network Function Virtualization Infrastructure (NFVI), and cloud-native network functions to optimize site deployment

PC10. conduct impact assessment and risk analysis of solution lifecycle activities, including revisions and system upgrades as required

PC11. execute Proof of Concepts (PoC) and present findings to stakeholders to confirm deployment feasibility and alignment with requirements

PC12. install, configure, and commission the equipment at designated locations, ensuring compliance with safety and operational standards

Prepare site for 5G implementation

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

PC13. conduct signal strength analysis using antenna parameters to ensure compliance with customer specifications

PC14. adjust antenna tilt, zenith, and azimuth angles to optimize coverage and minimize interference

PC15. perform pre-activation checks to validate equipment readiness and network synchronization

PC16. document site conditions, equipment inventory, and test results for quality assurance and compliance tracking

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. the principles of radio access technology (4G/5G) and their deployment frameworks

KU2. fifth-generation (5G) access domain, 3GPP specifications, and standards across L1, L2, and L3 layers

KU3. key concepts in VoLTE, VoWiFi, Virtualized RAN (vRAN), O-RAN, and Management and Orchestration (MANO)

KU4. message flows, parameters, and signaling procedures used in 5G networking

KU5. cloud technologies, Open Edge Servers, and xHaul deployments within cloud environments

KU6. equipment safety procedures, compliance guidelines, and industry best practices for hardware deployment

KU7. troubleshooting methodologies for common hardware failures, network configuration issues, and software bugs

KU8. system integration principles, including API management, virtualized network function (VNF) compatibility, and interoperability testing

KU9. escalation processes and incident management frameworks for reporting system failures, security threats, and environmental hazards

Generic Skills (GS)

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

GS1. communicate effectively with internal teams and external stakeholders to coordinate site readiness and equipment availability

GS2. analyze and interpret reports, logs, and real-time network data to ensure seamless deployment

GS3. prioritize tasks and manage time effectively in high-pressure deployment scenarios

GS4. read and comprehend technical standards, provisioning guides, and user manuals

GS5. adapt to evolving technologies and integrate new tools for deployment and testing

GS6. provide clear instructions and technical guidance to junior engineers and site personnel

GS7. identify and mitigate risks proactively to avoid delays or operational disruptions

GS8. utilize diagnostic tools to troubleshoot and resolve hardware or network-related issues efficiently

GS9. maintain organized documentation for compliance tracking and knowledge sharing

GS10. seek expert consultation and collaborate with cross-functional teams to ensure project success

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Pre-requisites for 5G mobile/radio networking	**10**	**17**	**-**	**5**
PC1. review and interpret 3GPP standards, project budget, architectural blueprints, and client-specific design documents	2	4	-	1
PC2. coordinate with cross-functional teams to translate high-level architecture into actionable deployment deliverables	2	3	-	1
PC3. assess and validate Multiple Input, Multiple Output (MIMO) antenna parameters such as diversity gain, MIMO capacity, and beamforming requirements	2	4	-	1
PC4. evaluate the radiation pattern of MIMO antenna and implement network slicing and Network Function Virtualization (NFV) strategies	2	3	-	1
PC5. conduct pre-deployment software testing using automated scripts and verify backhaul network integration with planned 5G site programs	2	3	-	1
Carry out 5G NR site hardware/equipment installation	**14**	**22**	**-**	**11**
PC6. verify the availability of passive equipment like battery bank, power plant, air conditioning etc, in case of a shelter site, single/dual/triple-band MIMO antennas, feeder and jumper cables, and mounting accessories	2	3	-	1.5
PC7. ensure active equipment, such as gNodeB, fibre based transmission networks of SDH or ethernet hierarchy, microwave link devices, and edge computing units, are ready for deployment at the site	2	3	-	1.5
PC8. validate the functionality and compatibility of utilities, including command centers, alarm managers, historical alarm reports, PM reports, and alarm correlation tools	2	3	-	1.5

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC9. implement orchestration among teams, Network Function Virtualization Infrastructure (NFVI), and cloud-native network functions to optimize site deployment	2	3	-	1.5
PC10. conduct impact assessment and risk analysis of solution lifecycle activities, including revisions and system upgrades as required	2	4	-	2
PC11. execute Proof of Concepts (PoC) and present findings to stakeholders to confirm deployment feasibility and alignment with requirements	2	3	-	1.5
PC12. install, configure, and commission the equipment at designated locations, ensuring compliance with safety and operational standards	2	3	-	1.5
Prepare site for 5G implementation	**6**	**11**	**-**	**4**
PC13. conduct signal strength analysis using antenna parameters to ensure compliance with customer specifications	2	3	-	1
PC14. adjust antenna tilt, zenith, and azimuth angles to optimize coverage and minimize interference	2	3	-	1
PC15. perform pre-activation checks to validate equipment readiness and network synchronization	1	3	-	1
PC16. document site conditions, equipment inventory, and test results for quality assurance and compliance tracking	1	2	-	1
NOS Total	**30**	**50**	**-**	**20**

National Occupational Standards (NOS) Parameters

NOS Code	TEL/N6319
NOS Name	Check Availability of Hardware Equipment at the Site Location
Sector	Telecom
Sub-Sector	Network Managed Services
Occupation	Project Engineering
NSQF Level	5
Credits	5
Version	2.0
Last Reviewed Date	08/05/2025
Next Review Date	30/04/2028
NSQC Clearance Date	08/05/2025

TEL/N6320: Perform Installation and Commissioning of 5G Tower Site

Description

This unit covers the installation, integration, and commissioning of 5G tower sites, ensuring proper equipment setup, cable routing, power connections, and network optimization.

Scope

The scope covers the following :

- Perform pre-installation activities and checks
- Inspect routing of power cables, IF, and RF Cables
- Carry out installation and commissioning of gNodeB

Elements and Performance Criteria

Perform pre-installation activities and checks

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

PC1. ensure the availability and integrity of all gNodeB and transmission units required for installation, ensuring they match the Bill of Materials (BoM)

PC2. verify the availability and suitability of transmission racks for installation purposes

PC3. interpret and assess the installation plan from the planning team, recommending modifications if necessary to meet site-specific requirements

PC4. identify and procure any additional equipment or accessories needed for a complete installation

PC5. measure the current capacity of cables and equipment using appropriate tools to ensure they meet the total load requirements

PC6. ensure the selection and installation of appropriate Miniature Circuit Breakers (MCBs) at the rack, corresponding to the equipment's power consumption

PC7. confirm that MCBs have –48 V DC and proper grounding connectivity with the equipment

PC8. execute the correct procedures for mounting antennas on various structures (e.g., Ground-Based Towers, Roof-Top Towers, pole mounts) as per design specifications

Inspect routing of power cables, IF, and RF Cables

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

PC9. ensure the proper arrangement and sequencing of equipment within the rack to facilitate optimal performance and maintenance

PC10. mount antennas securely on designated structures, ensuring alignment with network design parameters

PC11. connect various cables from the antenna to the tower shelter, transitioning appropriately between feeder cables and jumper/fiber cables

PC12. inspect and verify the interconnection of jumper, Common Public Radio Interface (CPRI), RF, and other cables at the site, ensuring proper functionality

PC13. route power and data cables according to the specified architecture and design, adhering to industry standards

PC14. label all cables accurately with appropriate markers to facilitate easy identification and maintenance

PC15. ensure that feeder and jumper cables are adequately supported and grounded to prevent signal loss and enhance safety

PC16. confirm the completion and secure termination of all electrical wiring, adhering to safety protocols

PC17. handle all cables and connectors with care during connection and disconnection to prevent damage and ensure longevity

Carry out installation and commissioning of gNodeB

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

PC18. install the gNodeB unit in designated indoor or outdoor locations as per planning guidelines, ensuring structural stability and accessibility

PC19. install and interconnect gNodeB and microwave equipment, ensuring seamless integration with existing network components

PC20. establish reliable power connections, verifying voltage levels and grounding to prevent electrical issues

PC21. identify and configure all equipment and network elements required for optimal operation

PC22. install 5G equipment in Non-Standalone (NSA) mode as per the installation design, facilitating coexistence with existing networks

PC23. configure network equipment to ensure proper data flow and connectivity as per technical specifications

PC24. measure and analyze Quality of Service (QoS) parameters, ensuring they meet the standards for Operations, Administration, and Maintenance (OAM)

PC25. execute network rollout activities and perform software upgrades on network nodes post-installation to enhance functionality

PC26. onboard and validate enterprise Virtual Network Functions (VNFs) to support diverse service requirements

PC27. integrate new sites and expand existing ones to alleviate network congestion and improve coverage

PC28. utilize scientific computation, data acquisition, and processing techniques to ensure successful site installation and commissioning in line with planning guidelines

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. radio network design principles, Key Performance Indicator (KPI) analysis, parameter tuning, and optimization techniques for technologies for LTE and 5G

KU2. application traffic generators and analyzers, including tools like iPerf and IxLoad, for assessing network performance

KU3. containerization technologies such as Kubernetes and Docker, and Continuous Integration/Continuous Deployment (CI/CD) tools like Ansible and Jenkins

KU4. Layer 2 and Layer 3 protocols relevant to 4G/LTE, and 5G networks, including Radio Resource Control (RRC), Radio Link Control (RLC), and Packet Data Convergence Protocol (PDCP)

KU5. performance parameters critical for daily network operations, particularly those pertinent to installation and commissioning activities

KU6. documentation practices for maintaining network logs and compliance reports

Generic Skills (GS)

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

GS1. read and interpret installation manuals, work instructions, and technical drawings

GS2. prepare installation reports, cable routing plans, and test result documentation

GS3. communicate effectively with the planning, network operations, and field engineering teams

GS4. work collaboratively with installation teams and technicians to ensure smooth execution

GS5. use analytical and problem-solving skills to identify and rectify installation issues

GS6. use hand tools, power tools, and electronic test equipment safely and efficiently

GS7. apply logical thinking to troubleshoot connectivity, power, and performance issues

GS8. comply with health, safety, and environmental regulations

GS9. manage time effectively and prioritize tasks to meet project deadlines

GS10. adapt to changing technologies and new network configurations

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Perform pre-installation activities and checks	**8**	**15**	**-**	**5**
PC1. ensure the availability and integrity of all gNodeB and transmission units required for installation, ensuring they match the Bill of Materials (BoM)	1	1.5	-	0.5
PC2. verify the availability and suitability of transmission racks for installation purposes	1	1.5	-	0.5
PC3. interpret and assess the installation plan from the planning team, recommending modifications if necessary to meet site-specific requirements	1	2	-	0.5
PC4. identify and procure any additional equipment or accessories needed for a complete installation	1	2	-	0.5
PC5. measure the current capacity of cables and equipment using appropriate tools to ensure they meet the total load requirements	1	2	-	0.5
PC6. ensure the selection and installation of appropriate Miniature Circuit Breakers (MCBs) at the rack, corresponding to the equipment's power consumption	1	2	-	0.5
PC7. confirm that MCBs have –48 V DC and proper grounding connectivity with the equipment	1	2	-	1
PC8. execute the correct procedures for mounting antennas on various structures (e.g., Ground-Based Towers, Roof-Top Towers, pole mounts) as per design specifications	1	2	-	1
Inspect routing of power cables, IF, and RF Cables	**9**	**17**	**-**	**7**
PC9. ensure the proper arrangement and sequencing of equipment within the rack to facilitate optimal performance and maintenance	1	1.5	-	0.5
PC10. mount antennas securely on designated structures, ensuring alignment with network design parameters	1	1.5	-	0.5

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC11. connect various cables from the antenna to the tower shelter, transitioning appropriately between feeder cables and jumper/fiber cables	1	2	-	0.5
PC12. inspect and verify the interconnection of jumper, Common Public Radio Interface (CPRI), RF, and other cables at the site, ensuring proper functionality	1	2	-	1
PC13. route power and data cables according to the specified architecture and design, adhering to industry standards	1	2	-	1
PC14. label all cables accurately with appropriate markers to facilitate easy identification and maintenance	1	2	-	0.5
PC15. ensure that feeder and jumper cables are adequately supported and grounded to prevent signal loss and enhance safety	1	2	-	1
PC16. confirm the completion and secure termination of all electrical wiring, adhering to safety protocols	1	2	-	1
PC17. handle all cables and connectors with care during connection and disconnection to prevent damage and ensure longevity	1	2	-	1
Carry out installation and commissioning of gNodeB	**13**	**18**	**-**	**8**
PC18. install the gNodeB unit in designated indoor or outdoor locations as per planning guidelines, ensuring structural stability and accessibility	2	1.5	-	1
PC19. install and interconnect gNodeB and microwave equipment, ensuring seamless integration with existing network components	2	1.5	-	1
PC20. establish reliable power connections, verifying voltage levels and grounding to prevent electrical issues	1	2	-	1
PC21. identify and configure all equipment and network elements required for optimal operation	1	2	-	0.5

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC22. install 5G equipment in Non-Standalone (NSA) mode as per the installation design, facilitating coexistence with existing networks	1	2	-	0.5
PC23. configure network equipment to ensure proper data flow and connectivity as per technical specifications	1	1.5	-	0.5
PC24. measure and analyze Quality of Service (QoS) parameters, ensuring they meet the standards for Operations, Administration, and Maintenance (OAM)	1	1.5	-	1
PC25. execute network rollout activities and perform software upgrades on network nodes post-installation to enhance functionality	1	1.5	-	1
PC26. onboard and validate enterprise Virtual Network Functions (VNFs) to support diverse service requirements	1	1.5	-	0.5
PC27. integrate new sites and expand existing ones to alleviate network congestion and improve coverage	1	1.5	-	0.5
PC28. utilize scientific computation, data acquisition, and processing techniques to ensure successful site installation and commissioning in line with planning guidelines	1	1.5	-	0.5
NOS Total	**30**	**50**	**-**	**20**

National Occupational Standards (NOS) Parameters

NOS Code	TEL/N6320
NOS Name	Perform Installation and Commissioning of 5G Tower Site
Sector	Telecom
Sub-Sector	Network Managed Services
Occupation	Project Engineering
NSQF Level	5
Credits	4
Version	2.0
Last Reviewed Date	08/05/2025
Next Review Date	30/04/2028
NSQC Clearance Date	08/05/2025

TEL/N6321: Perform Compliance and Quality Checks

Description

This unit covers compliance and quality checks for 5G network installation and commissioning, ensuring adherence to standards, troubleshooting issues, and documenting reports.

Scope

The scope covers the following :

- Conduct installation and commissioning checks
- Prepare compliance reports

Elements and Performance Criteria

Conduct installation and commissioning checks

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

PC1. verify site commissioning requirements as per network planning guidelines and technical specifications

PC2. conduct power-on tests and validate equipment configurations (e.g., gNodeB, microwave equipment, NSA 5G mode, software upgrades)

PC3. perform functional tests using industry-standard tools like IXIA, Spirent, and user equipment (UE) simulators

PC4. log and analyze test results in predefined report formats to ensure compliance with performance benchmarks

PC5. identify and document any technical issues, software bugs, or misconfigurations encountered during the test run

PC6. coordinate with the technical team to troubleshoot and resolve installation or commissioning issues

PC7. conduct a retest after issue resolution to validate corrective measures and confirm site stability

PC8. ensure all processes are executed in line with service provider guidelines, and confirm site readiness

PC9. document and report the final status of installation and commissioning activities to relevant stakeholders

Prepare compliance reports

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

PC10. identify and maintain required installation, commissioning, and test documentation, ensuring accuracy and completeness

PC11. prepare detailed compliance reports covering functional tests, site-specific deviations, and corrective actions taken

PC12. ensure all reports and logs are stored in appropriate formats (PDF, XML, HTML, DOC) for regulatory and operational use

PC13. submit compliance reports for review and approval by authorized personnel before site handover

PC14. obtain official sign-off from stakeholders confirming compliance, operational readiness, and closure of site installation

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. the applicable documentation requirements and the significance of maintaining accurate records

KU2. the consequences of non-compliance with network installation and quality assurance standards

KU3. the functionality, configuration, and testing of 5G gNodeB, microwave equipment, and NSA 5G deployment models

KU4. industry-standard test tools such as IXIA, Spirent, and their role in network traffic generation and performance analysis

KU5. use of UE simulators like Aeroflex TM500, Keysight for device testing and validation

KU6. debugging tools including QXDM, XCAL, and TEMS, and their role in network troubleshooting

KU7. network emulation technologies and their applications in simulating real-world network conditions

KU8. reporting standards, formats, and regulatory requirements for compliance documentation

KU9. site-specific safety and operational guidelines for 5G network infrastructure

KU10. coordination protocols for inter-team communication during commissioning and compliance verification

Generic Skills (GS)

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

GS1. interpret technical notifications, alerts, and system logs to identify issues in network performance

GS2. read, analyze, and summarize network test reports to ensure compliance with service provider standards

GS3. troubleshoot network issues by applying analytical and problem-solving skills in real-time

GS4. communicate effectively with team members, engineers, and stakeholders regarding compliance status and corrective actions

GS5. maintain detailed documentation and compliance logs for audit and operational tracking

GS6. use network diagnostic tools to assess system performance and detect anomalies

GS7. plan and organize work schedules to meet compliance deadlines and project timelines

GS8. adapt to new tools, software, and testing methodologies as per industry advancements

GS9. ensure all compliance procedures align with industry best practices and regulatory requirements

GS10. apply attention to detail in preparing reports, ensuring accuracy and completeness in compliance records

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Conduct installation and commissioning checks	**20**	**35**	**-**	**15**
PC1. verify site commissioning requirements as per network planning guidelines and technical specifications	2	4	-	1.5
PC2. conduct power-on tests and validate equipment configurations (e.g., gNodeB, microwave equipment, NSA 5G mode, software upgrades)	2.5	4	-	2
PC3. perform functional tests using industry-standard tools like IXIA, Spirent, and user equipment (UE) simulators	2.5	4	-	2
PC4. log and analyze test results in predefined report formats to ensure compliance with performance benchmarks	2.5	4	-	2
PC5. identify and document any technical issues, software bugs, or misconfigurations encountered during the test run	2.5	4	-	1.5
PC6. coordinate with the technical team to troubleshoot and resolve installation or commissioning issues	2	4	-	1.5
PC7. conduct a retest after issue resolution to validate corrective measures and confirm site stability	2	4	-	1.5
PC8. ensure all processes are executed in line with service provider guidelines, and confirm site readiness	2	4	-	1.5
PC9. document and report the final status of installation and commissioning activities to relevant stakeholders	2	3	-	1.5
Prepare compliance reports	**10**	**15**	**-**	**5**
PC10. identify and maintain required installation, commissioning, and test documentation, ensuring accuracy and completeness	2	3	-	1

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC11. prepare detailed compliance reports covering functional tests, site-specific deviations, and corrective actions taken	2	3	-	1
PC12. ensure all reports and logs are stored in appropriate formats (PDF, XML, HTML, DOC) for regulatory and operational use	2	3	-	1
PC13. submit compliance reports for review and approval by authorized personnel before site handover	2	3	-	1
PC14. obtain official sign-off from stakeholders confirming compliance, operational readiness, and closure of site installation	2	3	-	1
NOS Total	**30**	**50**	**-**	**20**

National Occupational Standards (NOS) Parameters

NOS Code	TEL/N6321
NOS Name	Perform Compliance and Quality Checks
Sector	Telecom
Sub-Sector	Network Managed Services
Occupation	Project Engineering
NSQF Level	5
Credits	4
Version	2.0
Last Reviewed Date	08/05/2025
Next Review Date	30/04/2028
NSQC Clearance Date	08/05/2025

TEL/N6322: Carry out Acceptance Testing and Site Monitoring

Description

This unit involves performing acceptance testing and continuous site monitoring to ensure the optimal functionality and compliance of 5G network sites with industry standards, client requirements, and regulatory norms.

Scope

The scope covers the following :

- Prepare for Acceptance Testing (AT) and monitoring
- Perform Acceptance Testing of new sites
- Monitor site performance and traffic
- Communicate test results and record findings

Elements and Performance Criteria

Prepare for Acceptance Testing (AT) and monitoring

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

PC1. develop a test strategy using available resources, test tools, and simulators based on project requirements

PC2. design comprehensive test cases for 5G Standalone (SA) and Non-Standalone (NSA) features, ensuring alignment with 3GPP standards and client specifications

PC3. analyze and document standard operating procedures for acceptance testing, ensuring clarity for all stakeholders

PC4. review and optimize test scripts using automation tools and devise practical approaches to simulate real-world scenarios

PC5. set up test environments, including hardware and software configurations, as per finalized test strategy

PC6. obtain site-specific documentation, including checklists, site specifications, and safety guidelines, from relevant teams

Perform Acceptance Testing of new sites

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

PC7. execute test cases and validate expected results against actual outcomes

PC8. ensure the availability and proper functionality of all test equipment required for acceptance testing

PC9. verify the installation of correct software versions on test devices (laptop, tablet, etc.) before testing

PC10. inspect the site for physical compliance, including structural integrity, weatherproofing, equipment placement, grounding, and cabling

PC11. identify and debug field data anomalies, replicating issues in lab environments for further analysis

PC12. perform logical tests, including VSWR levels, alarm connectivity, and end-to-end equipment connectivity

PC13. coordinate with infrastructure engineers and riggers to validate passive infrastructure elements such as antenna alignment, power backup systems, and connectivity

PC14. validate functional configurations and network parameters against project specifications

PC15. analyze and interpret test results, recommending corrective actions for any deviations

PC16. collaborate with development and infrastructure teams to resolve site issues effectively

Monitor site performance and traffic

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

PC17. conduct real-time performance monitoring of radio networks using authorized test instruments

PC18. perform network health checks, including radio node status, card functionalities, call performance, and sector-wise traffic analysis

PC19. diagnose and rectify network issues to optimize site performance and ensure service stability

PC20. take system backups before performing operations such as OMC stop/start, shutdowns, or database re-syncs

PC21. perform scheduled backups (daily, weekly, monthly) as per maintenance protocols

PC22. maintain system logs and test tool logs for future debugging and root cause analysis

PC23. analyze performance trends and identify recurring issues to implement proactive monitoring strategies

PC24. conduct logical fault analysis and ensure timely rectification to minimize downtime

Communicate test results and record findings

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

PC25. share test results with relevant stakeholders, including the NOC team, supervisors, and project teams

PC26. communicate pending site issues (punch points) that need resolution before handover

PC27. update site test records and maintain documentation as per organizational standards

PC28. ensure test reports and related documentation are accessible to authorized personnel for audits and inspections

PC29. maintain historical records of test results to support future troubleshooting and network optimization efforts

PC30. provide structured technical feedback to development teams regarding system performance and optimization opportunities

PC31. collect and analyze customer-reported issues to improve site reliability and service quality

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. the applicable documentation standards and their significance in quality assurance

KU2. the regulatory and industry standards applicable to 5G network site testing and monitoring

KU3. the principles of 5G gNodeB architecture, including SA and NSA configurations

KU4. test strategies and methodologies used for network acceptance and validation

KU5. common network performance indicators and troubleshooting techniques
KU6. site infrastructure requirements, including power supply, environmental protection, and connectivity
KU7. role of passive and active infrastructure elements in network performance
KU8. data logging, storage, and retrieval methods for test results and network monitoring
KU9. safety protocols and risk mitigation strategies in telecom site testing
KU10. communication protocols and procedures for coordinating with cross-functional teams

Generic Skills (GS)

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

GS1. read and interpret technical documents, reports, and notifications accurately
GS2. write clear and concise test reports and updates for stakeholders
GS3. communicate effectively with internal teams, clients, and regulatory bodies
GS4. use analytical reasoning to diagnose and resolve network issues
GS5. operate and interpret data from industry-standard test tools and simulators
GS6. manage time effectively to perform acceptance testing and monitoring within deadlines
GS7. work collaboratively with engineers, technicians, and project managers
GS8. adapt to evolving testing methodologies and emerging 5G technologies
GS9. identify and implement process improvements to enhance test efficiency
GS10. maintain focus and attention to detail when executing tests and analyzing results

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Prepare for Acceptance Testing (AT) and monitoring	**6**	**12**	**-**	**4**
PC1. develop a test strategy using available resources, test tools, and simulators based on project requirements	1	2	-	1
PC2. design comprehensive test cases for 5G Standalone (SA) and Non-Standalone (NSA) features, ensuring alignment with 3GPP standards and client specifications	1	2	-	1
PC3. analyze and document standard operating procedures for acceptance testing, ensuring clarity for all stakeholders	1	2	-	0.5
PC4. review and optimize test scripts using automation tools and devise practical approaches to simulate real-world scenarios	1	2	-	0.5
PC5. set up test environments, including hardware and software configurations, as per finalized test strategy	1	2	-	0.5
PC6. obtain site-specific documentation, including checklists, site specifications, and safety guidelines, from relevant teams	1	2	-	0.5
Perform Acceptance Testing of new sites	**10**	**20**	**-**	**8**
PC7. execute test cases and validate expected results against actual outcomes	1	2	-	0.5
PC8. ensure the availability and proper functionality of all test equipment required for acceptance testing	1	2	-	0.5
PC9. verify the installation of correct software versions on test devices (laptop, tablet, etc.) before testing	1	2	-	1
PC10. inspect the site for physical compliance, including structural integrity, weatherproofing, equipment placement, grounding, and cabling	1	2	-	1

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC11. identify and debug field data anomalies, replicating issues in lab environments for further analysis	1	2	-	1
PC12. perform logical tests, including VSWR levels, alarm connectivity, and end-to-end equipment connectivity	1	2	-	1
PC13. coordinate with infrastructure engineers and riggers to validate passive infrastructure elements such as antenna alignment, power backup systems, and connectivity	1	2	-	1
PC14. validate functional configurations and network parameters against project specifications	1	2	-	0.5
PC15. analyze and interpret test results, recommending corrective actions for any deviations	1	2	-	1
PC16. collaborate with development and infrastructure teams to resolve site issues effectively	1	2	-	0.5
Monitor site performance and traffic	**8**	**11**	**-**	**4**
PC17. conduct real-time performance monitoring of radio networks using authorized test instruments	1	1.5	-	0.5
PC18. perform network health checks, including radio node status, card functionalities, call performance, and sector-wise traffic analysis	1	1.5	-	0.5
PC19. diagnose and rectify network issues to optimize site performance and ensure service stability	1	1.5	-	0.5
PC20. take system backups before performing operations such as OMC stop/start, shutdowns, or database re-syncs	1	1.5	-	0.5
PC21. perform scheduled backups (daily, weekly, monthly) as per maintenance protocols	1	1.5	-	0.5
PC22. maintain system logs and test tool logs for future debugging and root cause analysis	1	1.5	-	0.5

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC23. analyze performance trends and identify recurring issues to implement proactive monitoring strategies	1	1	-	0.5
PC24. conduct logical fault analysis and ensure timely rectification to minimize downtime	1	1	-	0.5
Communicate test results and record findings	**6**	**7**	**-**	**4**
PC25. share test results with relevant stakeholders, including the NOC team, supervisors, and project teams	0.5	1	-	0.5
PC26. communicate pending site issues (punch points) that need resolution before handover	0.5	1	-	0.5
PC27. update site test records and maintain documentation as per organizational standards	1	1	-	0.5
PC28. ensure test reports and related documentation are accessible to authorized personnel for audits and inspections	1	1	-	0.5
PC29. maintain historical records of test results to support future troubleshooting and network optimization efforts	1	1	-	0.5
PC30. provide structured technical feedback to development teams regarding system performance and optimization opportunities	1	1	-	0.5
PC31. collect and analyze customer-reported issues to improve site reliability and service quality	1	1	-	1
NOS Total	**30**	**50**	**-**	**20**

National Occupational Standards (NOS) Parameters

NOS Code	TEL/N6322
NOS Name	Carry out Acceptance Testing and Site Monitoring
Sector	Telecom
Sub-Sector	Network Managed Services
Occupation	Project Engineering
NSQF Level	5
Credits	4
Version	2.0
Last Reviewed Date	08/05/2025
Next Review Date	30/04/2028
NSQC Clearance Date	08/05/2025

TEL/N9109: Follow sustainable practices in telecom infrastructure management

Description

This unit focuses on sustainability practices in telecom infrastructure management, covering e-waste management, green practices, hazardous and non-hazardous waste, and energy efficiency.

Scope

The scope covers the following :

- Manage hazardous and e-waste at telecom sites
- Adopt green energy and resource efficiency practices
- Follow waste reduction strategies
- Ensure compliance with environmental regulations

Elements and Performance Criteria

Manage hazardous and e-waste at telecom sites

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

PC1. identify, segregate, and categorize e-waste (batteries, cables, outdated equipment) and hazardous waste (lead-acid batteries, diesel residues, etc.)

PC2. dispose of or recycle waste following the applicable e-waste management guidelines

PC3. follow safe handling procedures for hazardous materials, including protective gear usage

PC4. maintain logs and records of disposed, recycled, or repurposed telecom waste

Adopt green energy and resource efficiency practices

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

PC5. optimize power usage through energy-efficient telecom equipment (e.g., LED lighting, smart cooling systems

PC6. assist in adopting solar-powered telecom towers and integration of hybrid energy systems (e.g. solar power and battery backup)

PC7. monitor and minimize fuel consumption in Diesel Generators (DG) sets through load balancing and regular maintenance

Follow waste reduction strategies

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

PC8. reduce packaging waste by promoting the reuse of telecom materials and accessories

PC9. follow rainwater harvesting and wastewater reuse practices in telecom cooling systems

PC10. promote structured cabling to reduce cable waste and optimize resource utilization

Ensure compliance with environmental regulations

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

PC11. follow Central Pollution Control Board (CPCB) guidelines for telecom site waste disposal

PC12. assist in conducting periodic environmental audits to ensure sustainability compliance

PC13. guide co-workers on eco-friendly practices and waste management policies at telecom sites

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. e-waste management rules (2022) applicable the telecom sector
KU2. Central Pollution Control Board (CPCB) hazardous waste disposal regulations
KU3. safety standards for battery handling and disposal (lead-acid, lithium-ion
KU4. the importance of structured cabling and cable reuse to minimize telecom waste
KU5. the techniques for energy optimization in telecom infrastructure (e.g., smart cooling, LED lighting, hybrid power systems
KU6. the role of solar energy and other renewable sources in reducing telecom carbon footprint
KU7. green telecom practices like fuel efficiency in DG sets and power-saving measures
KU8. best practices in telecom tower site waste management
KU9. the principles of water conservation and sustainable telecom site design
KU10. the importance of training telecom employees on environmental awareness and compliance

Generic Skills (GS)

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

GS1. explain sustainability practices to team members
GS2. identify and address issues in waste management and energy efficiency
GS3. maintain logs on waste disposal, recycling, and energy savings
GS4. analyze power consumption and propose efficiency improvements
GS5. select between disposal, recycling, or repurposing of telecom waste
GS6. adhere to the applicable environmental laws and guidelines
GS7. work with vendors and waste management partners for sustainable practices
GS8. adapt to new green technologies and sustainability policies
GS9. ensure prompt and efficient waste disposal and as per applicable schedules

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Manage hazardous and e-waste at telecom sites	**8**	**15**	**-**	**5**
PC1. identify, segregate, and categorize e-waste (batteries, cables, outdated equipment) and hazardous waste (lead-acid batteries, diesel residues, etc.)	2	4	-	2
PC2. dispose of or recycle waste following the applicable e-waste management guidelines	2	4	-	1
PC3. follow safe handling procedures for hazardous materials, including protective gear usage	2	4	-	1
PC4. maintain logs and records of disposed, recycled, or repurposed telecom waste	2	3	-	1
Adopt green energy and resource efficiency practices	**6**	**15**	**-**	**5**
PC5. optimize power usage through energy-efficient telecom equipment (e.g., LED lighting, smart cooling systems	2	5	-	2
PC6. assist in adopting solar-powered telecom towers and integration of hybrid energy systems (e.g. solar power and battery backup)	2	5	-	1
PC7. monitor and minimize fuel consumption in Diesel Generators (DG) sets through load balancing and regular maintenance	2	5	-	2
Follow waste reduction strategies	**8**	**10**	**-**	**5**
PC8. reduce packaging waste by promoting the reuse of telecom materials and accessories	3	4	-	2
PC9. follow rainwater harvesting and wastewater reuse practices in telecom cooling systems	3	3	-	2
PC10. promote structured cabling to reduce cable waste and optimize resource utilization	2	3	-	1
Ensure compliance with environmental regulations	**8**	**10**	**-**	**5**

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC11. follow Central Pollution Control Board (CPCB) guidelines for telecom site waste disposal	3	4	-	2
PC12. assist in conducting periodic environmental audits to ensure sustainability compliance	3	3	-	2
PC13. guide co-workers on eco-friendly practices and waste management policies at telecom sites	2	3	-	1
NOS Total	**30**	**50**	**-**	**20**

National Occupational Standards (NOS) Parameters

NOS Code	TEL/N9109
NOS Name	Follow sustainable practices in telecom infrastructure management
Sector	Telecom
Sub-Sector	
Occupation	Generic
NSQF Level	4
Credits	1
Version	1.0
Last Reviewed Date	08/05/2025
Next Review Date	30/04/2028
NSQC Clearance Date	08/05/2025

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

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

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

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Manage learning and self-direction	**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	-	-
Develop critical thinking and problem solving	**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	-	-
Perform work as per quality standards	**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
Maintain safe and secure working environment	**12**	**13**	**-**	**2**
PC11. identify organisation’s health, safety, security policies and procedures	3	3	-	-

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
Material / energy / electricity conservation practices	**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**

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	08/05/2025
Next Review Date	30/04/2028
NSQC Clearance Date	08/05/2025

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

Description

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

Scope

The scope covers the following :

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

Elements and Performance Criteria

Introduction to Employability Skills

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

PC1. identify employability skills required for jobs in various industries

PC2. identify and explore learning and employability portals

Constitutional values – Citizenship

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

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

PC4. follow environmentally sustainable practices

Becoming a Professional in the 21st Century

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

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

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

Basic English Skills

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

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

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

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

Career Development & Goal Setting

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

PC10. understand the difference between job and career

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

Communication Skills

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

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

PC13. work collaboratively with others in a team

Diversity & Inclusion

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

PC14. communicate and behave appropriately with all genders and PwD

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

Financial and Legal Literacy

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

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

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

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

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

Essential Digital Skills

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

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

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

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

Entrepreneurship

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

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

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

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

Customer Service

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

PC26. identify different types of customers

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

PC28. follow appropriate hygiene and grooming standards

Getting ready for apprenticeship & Jobs

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

PC29. create a professional Curriculum vitae (Résumé)

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

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

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

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

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

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

KU2. various constitutional and personal values

KU3. different environmentally sustainable practices and their importance

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

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

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

KU7. about effective communication

KU8. POSH Act

KU9. Gender sensitivity and inclusivity

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

KU11. how to compute income and expenditure

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

KU13. different legal rights and laws

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

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

KU16. how to identify business opportunities

KU17. types and needs of customers

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

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

Generic Skills (GS)

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

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

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

GS3. behave politely and appropriately with all
GS4. how to work in a virtual mode
GS5. perform calculations efficiently
GS6. solve problems effectively
GS7. pay attention to details
GS8. manage time efficiently
GS9. maintain hygiene and sanitization to avoid infection

Assessment Criteria

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

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

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

National Occupational Standards (NOS) Parameters

NOS Code	DGT/VSQ/N0102
NOS Name	Employability Skills (60 Hours)
Sector	Cross Sectoral
Sub-Sector	Professional Skills
Occupation	Employability
NSQF Level	4
Credits	2
Version	1.0
Last Reviewed Date	08/05/2025
Next Review Date	31/10/2025
NSQC Clearance Date	08/05/2025

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
TEL/N6319.Check Availability of Hardware Equipment at the Site Location	30	50	0	20	100	15
TEL/N6320.Perform Installation and Commissioning of 5G Tower Site	30	50	0	20	100	15
TEL/N6321.Perform Compliance and Quality Checks	30	50	0	20	100	15
TEL/N6322.Carry out Acceptance Testing and Site Monitoring	30	50	0	20	100	20
TEL/N9109.Follow sustainable practices in telecom infrastructure management	30	50	0	20	100	15
TEL/N9104.Manage Work, Resources and Safety at workplace	40	50	-	10	100	10
DGT/VSQ/N0102.Employability Skills (60 Hours)	20	30	-	-	50	10
Total	**210**	**330**	**-**	**110**	**650**	**100**

Acronyms

NOS	National Occupational Standard(s)
NSQF	National Skills Qualifications Framework
QP	Qualifications Pack
TVET	Technical and Vocational Education and Training
NCVET	National Council for Vocational Education and Training
QP	Qualification Pack
MC	Model Curriculum
NSQF	National Skills Qualification Framework
NSQC	National Skills Qualification Committee
NOS	National Occupational Standards
NCO	National Classification of Occupations
ES	Employability Skills
TSSC	Telecom Sector Skill Council
TRAI	Telecom Regulatory Authority of India
MIMO	Multiple Input, Multiple Output
NFV	Network Function Virtualization
NFVI	Network Function Virtualization Infrastructure
PoC	Proof of Concepts
VNF	Virtualized Network Function
BoM	Bill of Materials
MCB	Miniature Circuit Breakers
CPRI	Common Public Radio Interface
QoS	Quality of Service
OAM	Operations, Administration, and Maintenance
KPI	Key Performance Indicator

CI/CD	Continuous Integration/Continuous Deployment
RRC	Radio Resource Control
RLC	Radio Link Control
CPCB	Central Pollution Control Board

Glossary

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

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