NATIONAL SKILLS QUALIFICATION

LEVEL 2

TITLE:

Network Cabling, Installation and Maintenance

YEAR:

2024

NATIONAL SKILLS QUALIFICATION

NSQ LEVEL 2 - Network Cabling, Installation and Maintenance

GENERAL INFORMATION

QUALIFICATION PURPOSE

This Qualification is designed to equip individuals with the essential technical skills, safety knowledge, and teamwork abilities to perform network cabling tasks under supervision, ensuring efficient installation and basic maintenance of network infrastructures.

QUALIFICATION OBJECTIVES

The learner should be able to: -

i. Develop Technical Competence
ii. Ensure Adherence to Safety Standards
iii. Perform Basic Troubleshooting and Maintenance
iv. Enhance Communication Skills
v. Promote Teamwork and Collaboration
vi. Apply Industry Standards and Best Practices
vii. Build Professional Attitude and Work Ethics
viii. Ensure Basic Knowledge of Tools and Equipment
ix. Prepare for Further Learning

Mandatory Units

Unit No	Reference Number	NOS Title	Credit Value	Guided Learning Hours	Remark
Unit 001	ICT/NCI/001/L2	Safety Standards and Procedures in Network Cabling	1	10	*Mandatory*
Unit 002	ICT/NCI/002/L2	Teamwork in Network Cabling	1	10	*Mandatory*
Unit 003	ICT/NCI/003/L2	Communication Skills for Network Installation Project	1	10	*Mandatory*
Unit 004	ICT/NCI/004/L2	Introduction to Network Cabling and Infrastructure	2	20	*Mandatory*
Unit 005	ICT/NCI/005/L2	Cabling Installation Techniques	2	20	*Mandatory*
Unit 006	ICT/NCI/006/L2	Network Cabling Testing and Certification	2	20	*Mandatory*
Unit 007	ICT/NCI/007/L2	Basic Network Troubleshooting and Maintenance	2	20	*Mandatory*
Unit 008	ICT/NCI/008/L2	Introduction to Industry Standards and Best Practices	2	20	*Mandatory*
Unit 009	ICT/NCI/009/L2	Use of Tools and Equipment in Network Cabling	2	20	*Mandatory*
		Total	**15**	**150**	

Optional Units

Unit No	Reference Number	NOS Title	Credit Value	Guided Learning Hours	Remark

Notes:

Mandatory Units:

Mandatory Units 1-9 focus on core competencies required for proficient network cabling installation, maintenance, and troubleshooting. These units cover essential skills such as cable design and installation, system testing and certification, troubleshooting and maintenance, and the effective use of tools and equipment. Mastery of these units ensures foundational expertise and operational efficiency in network cabling practices.

*The learner must complete all the mandatory course units, which total **150 credit hours***

Optional Units:

Optional Unit provides additional professional development opportunities. Unit 10 guides learners in exploring future learning opportunities, career advancement, and adapting to industry changes. These units support broader career growth and personal development in the network cabling and technology fields.

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LEVEL 2: Network Cabling, Installation and Maintenance

Unit 001: Safety Standards and Procedures in Network Cabling

Unit Reference Number: ICT/NCI/001/L2

NSQ Level: 2

Credit Value: 1

Guided Learning Hours: 10

Unit Purpose:

This Unit is to equip learners with the knowledge and skills to identify hazards, follow safety protocols, use protective equipment, and respond to emergencies, ensuring a safe and compliant working environment during network cabling installations.

Unit assessment requirements/ evidence requirements:

Assessment must be carried out in real workplace environment in which learning and human development is carried out.

Assessment methods to be used include:

1. Direct Observation/oral questions (DO)
2. Question and Answer (QA)
3. Witness Testimony (WT)
4. Assignment (ASS), etc.

UNIT 001: Safety Standards and Procedures in Network Cabling

LEARNING OBJECTIVE (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type					Evidence Ref. Page No.			
LO 1: Understand the importance of safety standards in network cabling	1.1	Explain relevant safety standards and regulations in the network cabling industry (e.g., OSHA, ISO, NEC).									
	1.2	Explain the importance of following safety standards to prevent accidents, electrical hazards, and ensure personal and team safety.									
	1.3	Describe the consequences of non-compliance with safety standards in network installation projects.									
LO 2: Recognize potential hazards in the network installation environment	2.1	Identify common hazards in network cabling environments, such as electrical risks, tripping hazards, and sharp tools.									
	2.2	Assess risks in a work area before beginning cabling tasks to ensure safety.									
	2.3	Recommend appropriate mitigation strategies to reduce hazards during cabling and installation.									
LO 3: Use appropriate Personal Protective Equipment (PPE) for network cabling tasks	3.1	Identify the correct PPE required for network cabling tasks (e.g., safety gloves, safety glasses, hard hats).									
	3.2	Demonstrate the correct use of PPE to ensure personal safety during installation and maintenance.									
	3.3	Inspect PPE before use to ensure it is in good condition and meets safety requirements.									
LO 4: Follow safe work practices during network cabling installation	4.1	Apply lockout/tagout procedures to electrical systems to prevent electrical shock during cabling tasks.									
	4.2	Safely handle tools, such as cable cutters, strippers, and crimpers, following safety procedures.									
	4.3	Maintain a clean and organized work area to reduce the risk of accidents and ensure safe movement around the installation site.									

LEARNING OBJECTIVE (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type					Evidence Ref. Page No.			
LO 5: **Safely dispose of materials and equipment**	5.1	Identify the proper disposal methods for materials used in network cabling (e.g., cables, insulation, packaging).									
	5.2	Safely store and dispose of hazardous materials, such as batteries or chemicals, following environmental safety regulations.									
	5.3	Demonstrate the ability to clean up after installation tasks while adhering to environmental safety standards.									
Learner's Signature							Date				
Assessor's Signature							Date				
IQA's Signature							Date				
EQA's Signature							Date				

NATIONAL SKILLS QUALIFICATION

LEVEL 2: Network Cabling, Installation and Maintenance

Unit 002: Teamwork and Collaboration in Network Installations

Unit Reference Number: ICT/NCI/002/L2

NSQ Level: 2

Credit Value: 1

Guided Learning Hours: 10

Unit Purpose:

This Unit aims to develop learners' abilities to work effectively as part of a team during network cabling installations, emphasizing collaboration, task management, and following supervisory guidance to achieve successful project outcomes.

Unit assessment requirements/ evidence requirements:

Assessment must be carried out in real workplace environment in which learning and human development is carried out.

Assessment methods to be used include:

1. Direct Observation/oral questions (DO)
2. Question and Answer (QA)
3. Witness Testimony (WT)
4. Assignment (ASS), etc.

UNIT 002: Teamwork and Collaboration in Network Installations

LEARNING OBJECTIVE (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type					Evidence Ref. Page No.			
LO 1: **Understand the role of teamwork in network installation projects**	1.1	Explain the importance of teamwork in completing network installation tasks efficiently and on time.									
	1.2	Identify individual roles and responsibilities within a team during a network installation project.									
	1.3	Describe how effective teamwork contributes to safety and quality in network installation processes.									
LO 2: **Collaborate effectively with team members on network cabling tasks**	2.1	Communicate task objectives and responsibilities clearly with team members to ensure mutual understanding.									
	2.2	Demonstrate the ability to assist other team members in completing tasks to maintain project flow.									
	2.3	Resolve conflicts or disagreements with team members constructively, without disrupting project progress.									
LO 3: **Follow supervisory guidance and instructions during network installations**	3.1	Interpret instructions from supervisors or team leads accurately to ensure compliance with project requirements.									
	3.2	Demonstrate the ability to ask for clarification when instructions or tasks are not fully understood.									
	3.3	Execute tasks according to the supervisory plan, adjusting to changes in instruction as needed.									
LO 4: **Manage tasks and time effectively within a team environment**	4.1	Prioritize tasks based on project timelines and team objectives.									
	4.2	Monitor task progress and adjust work pace to ensure deadlines are met without compromising quality.									
	4.2	Coordinate with team members to ensure seamless task handovers and continuity of work.									
LO 5:	5.1	Show respect for diverse team members by valuing their input and contributions.									

LEARNING OBJECTIVE (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type					Evidence Ref. Page No.			
Demonstrate a positive attitude and work ethic in a team setting	5.2	Maintain a positive attitude, even in challenging situations, to foster a supportive team environment.									
	5.3	Uphold professional standards by being punctual, reliable, and committed to delivering high-quality work.									

Learner's Signature	Date
Assessor's Signature	Date
IQA's Signature	Date
EQA's Signature	Date

NATIONAL SKILLS QUALIFICATION

LEVEL 2: Network Cabling, Installation and Maintenance

Unit 003: Communication Skills for Network Installation Projects

Unit Reference Number: ICT/NCI/003/L2

NSQ Level: 2

Credit Value: 2

Guided Learning Hours: 20

Unit Purpose:

This Unit aims to equip learners with the communication skills necessary to interact effectively with supervisors, team members, and clients, ensuring the smooth execution of network cabling projects through clear reporting, collaboration, and professional conduct.

Unit assessment requirements/ evidence requirements:

Assessment must be carried out in real workplace environment in which learning and human development is carried out.

Assessment methods to be used include:

1. Direct Observation/oral questions (DO)
2. Question and Answer (QA)
3. Witness Testimony (WT)
4. Assignment (ASS), etc.

UNIT 003: Communication Skills for Network Installation Projects

LEARNING OBJECTIVE (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type					Evidence Ref. Page No.			
LO 1: **Understand the importance of communication in network cabling projects**	1.1	Explain why clear and effective communication is essential in coordinating tasks within network cabling projects.									
	1.2	Identify potential consequences of poor communication in network installation and maintenance activities.									
	1.3	Recognize the role of communication in ensuring safety, efficiency, and adherence to project specifications.									
LO 2: **Communicate effectively with supervisors and team members**	2.1	Demonstrate the ability to listen actively and follow verbal and written instructions from supervisors.									
	2.2	Use appropriate technical terminology when discussing project tasks with team members and supervisors.									
	2.3	Provide clear and concise updates on task progress, challenges, or delays to supervisors in a timely manner.									
LO 3: **Write clear and accurate reports and documentation**	3.1	Draft task reports that accurately reflect the status of network cabling work, including completed tasks and any issues encountered.									
	3.2	Ensure documentation is organized, legible, and free from errors, following standard formats for technical reporting.									
	3.3	Submit reports and documentation on time, as required by the project or supervisor.									
LO 4: **Engage in professional communication**	4.1	Demonstrate polite and professional communication when interacting with clients or stakeholders on-site.									
	4.2	Explain technical information or project status to clients in clear, non-technical language.									

LEARNING OBJECTIVE (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type					Evidence Ref. Page No.			
with clients or stakeholders	4.3	Handle client inquiries or concerns with a positive attitude, escalating issues to supervisors when necessary.									
LO 5: **Use digital communication tools effectively in network cabling projects**	5.1	Demonstrate proficiency in using email, messaging apps, and other digital tools to communicate project updates or instructions.									
	5.2	Ensure messages sent through digital tools are clear, concise, and professional.									
	5.3	Follow proper protocols for documenting and storing digital communication related to network cabling projects.									
Learner's Signature					Date						
Assessor's Signature					Date						
IQA's Signature					Date						
EQA's Signature					Date						

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LEVEL 2: Network Cabling, Installation and Maintenance

Unit 004: Introduction to Network Cabling and Infrastructure

Unit Reference Number: ICT/NCI/004/L2

NSQ Level: 2

Credit Value: 2

Guided Learning Hours: 20

Unit Purpose:

The purpose of this Unit is to provide learners with foundational knowledge about network cabling systems and infrastructure, including types of cables, network topologies, and the basic components used in network installations, to prepare them for more advanced topics in network cabling.

Unit assessment requirements/ evidence requirements:

Assessment must be carried out in real workplace environment in which learning and human development is carried out.

Assessment methods to be used include:

1. Direct Observation/oral questions (DO)
2. Question and Answer (QA)
3. Witness Testimony (WT)
4. Assignment (ASS), etc.

UNIT 004: Introduction to Network Cabling and Infrastructure

LEARNING OBJECTIVE (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type					Evidence Ref. Page No.			
LO 1: **Understand the fundamentals of network cabling systems**	1.1	Describe the different types of network cables, including twisted pair (e.g., Cat5e, Cat6), coaxial, and fiber optic cables.									
	1.2	Explain the basic principles of how network cables transmit data, including signal types and data rates.									
	1.3	Identify the components of a network cabling system, such as cables, connectors, patch panels, and network devices.									
	1.4	Compare the advantages and limitations of different types of cables for various networking scenarios.									
	1.5	Explain the role of cabling standards (e.g., TIA/EIA) in ensuring compatibility and performance.									
LO 2: **Recognize and describe different network topologies**	2.1	Define with illustrations, common network topologies, including star, bus, ring, and mesh.									
	2.2	Explain the advantages and disadvantages of each network topology in terms of scalability, reliability, and maintenance.									
	2.3	Identify the impact of network topology on cabling requirements and network performance.									
	2.4	Describe how topology influences network design decisions and the implementation of cabling infrastructure.									
LO 3: **Understand basic network design principles**	3.1	Explain the concept of structured cabling and its importance in network design.									
	3.2	Describe the role of network design documents, such as floor plans and cable diagrams, in planning and implementing cabling projects.									

LEARNING OBJECTIVE (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type					Evidence Ref. Page No.			
	3.3	Identify the factors that affect cable placement and routing, such as electrical interference, physical barriers, and distance limitations.									
	3.4	Discuss best practices for ensuring future scalability and flexibility in network design.									
LO 4: **Identify and use common network cabling tools and equipment**	4.1	List and describe the functions of tools commonly used in network cabling, such as cable testers, crimpers, and punch-down tools.									
	4.2	Demonstrate the correct usage of these tools for tasks like cable preparation, termination, and testing.									
	4.3	Explain how to maintain and calibrate network cabling tools to ensure accurate performance.									
	4.4	Identify safety precautions associated with using network cabling tools and equipment.									
LO 5: **Introduction to network cable installation and maintenance**	5.1	Describe the basic steps involved in installing network cables, including measuring, cutting, and terminating cables.									
	5.2	Explain routine maintenance tasks for network cabling, such as checking for wear and tear, and verifying cable performance.									
	5.3	Identify common issues in cable installation and maintenance and discuss methods for troubleshooting these issues.									
	5.4	Demonstrate proper cable management techniques to ensure organized and efficient cabling systems.									

Learner's Signature	Date
Assessor's Signature	Date
IQA's Signature	Date

EQA's Signature	Date

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LEVEL 2: Network Cabling, Installation and Maintenance

Unit 005: Cabling Installation Techniques

Unit Reference Number: ICT/NCI005/L2

NSQ Level: 2

Credit Value: 2

Guided Learning Hours: 20

Unit Purpose:

The purpose of this Unit is to provide learners with practical skills and techniques for the effective installation of network cabling. This includes laying, routing, and terminating cables, as well as installing essential network components such as connectors and patch panels.

Unit assessment requirements/ evidence requirements:

Assessment must be carried out in real workplace environment in which learning and human development is carried out.

Assessment methods to be used include:

1. Direct Observation/oral questions (DO)
2. Question and Answer (QA)
3. Witness Testimony (WT)
4. Assignment (ASS), etc.

UNIT 005: Cabling Installation Techniques

LEARNING OBJECTIVE (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type					Evidence Ref. Page No.			
LO 1: **Understand and apply cable routing and laying techniques**	1.1	Describe the principles of cable routing, including methods for minimizing signal interference and maintaining signal integrity.									
	1.2	Demonstrate the correct techniques for laying and securing cables in various environments (e.g., ceilings, walls, and floors).									
	1.3	Identify appropriate cable types and routing methods for different applications and environments.									
	1.4	Implement cable management practices, such as using cable ties, raceways, and conduits to organize and protect cables.									
	1.5	Ensure compliance with industry standards and regulations for cable routing and installation.									
LO 2: **Install connectors and terminations accurately**	2.1	Identify and select the appropriate connectors for different types of cables (e.g., RJ45 for twisted pair, LC/SC for fiber optic).									
	2.2	Demonstrate the correct procedure for terminating cables with connectors, including stripping, crimping, and securing.									
	2.3	Verify that terminations are done correctly by testing and inspecting connectors for proper alignment and secure connections.									
	2.4	Troubleshoot and resolve issues with connector terminations, such as poor connections or signal loss									
	2.5	Document the types and locations of connectors used in the installation for future reference and maintenance.									

LEARNING OBJECTIVE (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type					Evidence Ref. Page No.			
LO 3: **Install and configure network components**	3.1	Describe the installation process for network components such as patch panels, wall plates, and network jacks									
	3.2	Demonstrate how to mount and secure network components in racks, cabinets, or on walls according to industry best practices.									
	3.3	Connect and configure network components to ensure they function correctly with the installed cabling.									
	3.4	Perform cable testing and verification after installation to confirm that all components are properly connected and operational.									
	3.5	Ensure that installed network components are organized and labeled for easy identification and troubleshooting.									
LO 4: **Conduct post-installation checks and adjustments**	4.1	Perform a visual inspection of the installed cabling to ensure it meets installation standards and is free from damage.									
	4.2	Test network connections using appropriate testing equipment to verify signal strength, continuity, and performance.									
	4.3	Make any necessary adjustments to cables, connectors, or network components to correct issues identified during testing.									
	4.4	Document and report any issues or discrepancies discovered during post-installation checks and the steps taken to resolve them.									
Learner's Signature					Date						
Assessor's Signature					Date						
IQA's Signature					Date						

EQA's Signature	Date

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LEVEL 2: Network Cabling, Installation and Maintenance

Unit 006: Network Cabling Testing and Certification

Unit Reference Number: ICT/NCI/006/L2

NSQ Level: 2

Credit Value: 2

Guided Learning Hours: 20

Unit Purpose:

The purpose of this Unit is to equip learners with the skills necessary to test and certify network cabling installations, ensuring that all cables meet performance standards and are functioning correctly. This includes using testing tools, interpreting results, and performing troubleshooting and documentation.

Unit assessment requirements/ evidence requirements:

Assessment must be carried out in real workplace environment in which learning and human development is carried out.

Assessment methods to be used include:

1. Direct Observation/oral questions (DO)
2. Question and Answer (QA)
3. Witness Testimony (WT)
4. Assignment (ASS), etc.

UNIT 006: Network Cabling Testing and Certification

LEARNING OBJECTIVE (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type					Evidence Ref. Page No.			
LO 1: **Understand the importance and objectives of cabling testing and certification**	1.1	Explain the purpose of cabling testing and certification in ensuring network reliability and performance.									
	1.2	Describe the key performance parameters for network cabling, such as signal integrity, attenuation, and crosstalk.									
	1.3	Identify industry standards and certification requirements for network cabling (e.g., TIA/EIA, ISO/IEC).									
	1.4	Discuss the implications of failing to properly test and certify network cabling.									
LO 2: **Conduct comprehensive cabling tests**	2.1	Execute tests for continuity, signal strength, and performance using appropriate testing equipment.									
	2.2	Perform advanced tests for parameters such as impedance, attenuation, and near-end crosstalk (NEXT).									
	2.3	Interpret test results to identify issues such as cable faults, performance degradation, or improper terminations.									
	2.4	Document and report test results clearly, including any anomalies or issues detected.									
LO 3: **Troubleshoot and resolve cabling issues**	3.1	Analyse test results to diagnose common cabling issues, such as signal loss, short circuits, or interference.									
	3.2	Implement troubleshooting techniques to isolate and fix identified issues in the cabling system.									
	3.3	Re-test cables and connections after troubleshooting to ensure that issues have been resolved and performance meets standards.									
	3.4	Document the troubleshooting process and resolution steps for future reference.									

LEARNING OBJECTIVE (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type					Evidence Ref. Page No.			
LO 4: **Prepare and maintain certification documentation**	4.1	Compile and organize test results and certification reports according to industry standards and client requirements.									
	4.2	Ensure that all documentation is accurate, complete, and clearly formatted.									
	4.3	Maintain records of all testing and certification activities for future reference and compliance audits.									
	4.4	Explain the process for submitting certification reports to clients or regulatory bodies, including any required approvals or signatures.									
Learner's Signature							Date				
Assessor's Signature							Date				
IQA's Signature							Date				
EQA's Signature							Date				

NATIONAL SKILLS QUALIFICATION

LEVEL 2: Network Cabling, Installation and Maintenance

Unit 007: Basic Network Troubleshooting and Maintenance

Unit Reference Number: ICT/NCI/007/L2

NSQ Level: 2

Credit Value: 2

Guided Learning Hours: 20

Unit Purpose:

The purpose of this Unit is to provide learners with the foundational skills necessary to troubleshoot and perform basic maintenance on network cabling systems. This includes identifying and resolving common issues, performing routine maintenance tasks, and ensuring the ongoing reliability and functionality of network infrastructure.

Unit assessment requirements/ evidence requirements:

Assessment must be carried out in real workplace environment in which learning and human development is carried out.

Assessment methods to be used include:

1. Direct Observation/oral questions (DO)
2. Question and Answer (QA)
3. Witness Testimony (WT)
4. Assignment (ASS), etc.

UNIT 007: Basic Network Troubleshooting and Maintenance

LEARNING OBJECTIVE (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type					Evidence Ref. Page No.			
LO 1: **Identify and diagnose common network cabling issues**	1.1	Describe typical problems in network cabling systems, such as signal loss, intermittent connectivity, and physical damage.									
	1.2	Use diagnostic tools and techniques to identify the root causes of network issues, including continuity testers and network analyzers.									
	1.3	Analyze symptoms and test results to pinpoint specific cabling problems, such as shorts, opens, or miswiring.									
	1.4	Document observed issues and their potential causes to aid in troubleshooting and resolution.									
LO 2: **Perform basic repairs and maintenance on network cabling**	2.1	Demonstrate the ability to perform repairs on faulty cables, including splicing or replacing damaged sections.									
	2.2	Re-terminate connectors and reconfigure terminations as needed to resolve issues with connectivity or performance.									
	2.3	Conduct routine maintenance tasks, such as checking cable integrity, cleaning connectors, and verifying cable management.									
	2.4	Test repaired or maintained cables to ensure they meet performance standards and function correctly.									
LO 3: **Implement preventive maintenance strategies**	3.1	Develop and follow a preventive maintenance schedule to regularly inspect and service network cabling systems.									
	3.2	Identify and address potential issues before they cause significant problems, such as monitoring for signs of wear and tear or environmental factors affecting cabling.									

LEARNING OBJECTIVE (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type					Evidence Ref. Page No.			
	3.3	Apply best practices for cable management and organization to prevent future issues and ensure system longevity.									
	3.4	Educate team members or users about proper cable handling and maintenance practices to reduce the likelihood of damage.									
LO 4: **Use diagnostic tools effectively for troubleshooting**	4.1	Identify and operate various diagnostic tools, such as cable testers, network analysers, and optical time-domain reflectometers (OTDR).									
	4.2	Interpret the output of diagnostic tools to determine the nature and location of network issues.									
	4.3	Perform tests and measurements, such as cable length, signal attenuation, and bit error rate, to assess network performance.									
	4.4	Record results to guide troubleshooting efforts and verify that issues have been resolved.									
LO 5: **Document troubleshooting and maintenance activities**	5.1	Create detailed records of troubleshooting steps, repairs performed, and maintenance activities conducted.									
	5.2	Document any changes made to the network cabling system, including modifications to configurations or installations.									
	5.3	Maintain logs of recurring issues and resolutions to help identify patterns and inform future maintenance strategies.									
	5.4	Prepare and present reports on troubleshooting and maintenance activities for review by supervisors or clients.									
LO 6:	6.1	Adhere to safety protocols when working with network cabling									

LEARNING OBJECTIVE (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type					Evidence Ref. Page No.			
Follow safety procedures during troubleshooting and maintenance		systems, including using appropriate personal protective equipment (PPE).									
	6.2	Follow safe practices when handling tools and equipment to prevent accidents and injuries.									
	6.3	Ensure that the work area is safe and free from hazards during troubleshooting and maintenance activities.									
	6.4	Respond appropriately to emergencies or accidents, including reporting incidents and taking corrective actions as needed.									
Learner's Signature					Date						
Assessor's Signature					Date						
IQA's Signature					Date						
EQA's Signature					Date						

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LEVEL 2: Network Cabling, Installation and Maintenance

Unit 008: Introduction to Industry Standards and Best Practices

Unit Reference Number: ICT/NCI008/L2

NSQ Level: 2

Credit Value: 2

Guided Learning Hours: 20

Unit Purpose:

The purpose of this Unit is to introduce learners to key industry standards and best practices for network cabling and infrastructure. This unit aims to ensure that learners understand and can apply these standards to ensure high-quality, reliable, and compliant network installations and maintenance.

Unit assessment requirements/ evidence requirements:

Assessment must be carried out in real workplace environment in which learning and human development is carried out.

Assessment methods to be used include:

1. Direct Observation/oral questions (DO)
2. Question and Answer (QA)
3. Witness Testimony (WT)
4. Assignment (ASS), etc.

UNIT 008: Introduction to Industry Standards and Best Practices

LEARNING OBJECTIVE (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type					Evidence Ref. Page No.			
LO 1: **Understand key industry standards for network cabling**	1.1	Identify and describe the key industry standards related to network cabling, including TIA/EIA, ISO/IEC, and IEEE standards.									
	1.2	Explain the purpose of these standards and how they contribute to the quality, safety, and performance of network cabling systems.									
	1.3	Discuss the process of updating and revising standards and the impact of these changes on network installations.									
	1.4	Explain how compliance with these standards is verified and documented during network installations and inspections.									
LO 2: **Apply best practices for network cabling installation**	2.1	Describe best practices for cable routing, including minimizing bends, avoiding interference, and maintaining separation from electrical cables.									
	2.2	Demonstrate proper techniques for cable preparation and termination, ensuring adherence to standards for performance and reliability.									
	2.3	Implement best practices for cable management, including the use of cable trays, ties, and labels to organize and protect cables.									
	2.4	Follow recommended installation procedures for network components such as patch panels, jacks, and racks to ensure optimal performance and ease of maintenance.									
LO 3: **Ensure compliance with safety and**	3.1	Identify relevant safety regulations and guidelines for network cabling work, including those related to electrical safety and fire protection.									
	3.2	Apply environmental best practices, such as proper disposal of waste									

LEARNING OBJECTIVE (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type					Evidence Ref. Page No.			
environmental regulations		materials and minimizing environmental impact during installations.									
	3.3	Demonstrate knowledge of and compliance with workplace health and safety requirements, including the use of personal protective equipment (PPE) and safe work practices.									
	3.4	Explain how to conduct risk assessments and implement safety measures to address potential hazards in network cabling environments.									
LO 4: **Utilize documentation and reporting standards**	4.1	Create and maintain detailed documentation of network cabling installations, including design schematics, installation procedures, and component specifications.									
	4.2	Follow reporting standards for documenting compliance with industry standards and regulations, including test results and certification reports.									
	4.3	Ensure that all documentation is accurate, up-to-date, and accessible for future reference and audits.									
	4.4	Prepare clear and professional reports on network cabling projects, including summaries of compliance with standards and any deviations or issues encountered.									
LO 5: **Review and implement industry best practices for network maintenance**	5.1	Identify best practices for ongoing maintenance of network cabling systems, including regular inspections, testing, and troubleshooting procedures.									
	5.2	Apply best practices for updating and upgrading network infrastructure to accommodate new technologies or changing requirements.									
	5.3	Implement procedures for ensuring network cabling systems remain									

LEARNING OBJECTIVE (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type					Evidence Ref. Page No.			
		compliant with evolving industry standards and best practices.									
	5.4	Educate team members or clients on the importance of adhering to best practices and industry standards in maintaining network cabling systems.									

Learner's Signature	Date
Assessor's Signature	Date
IQA's Signature	Date
EQA's Signature	Date

NATIONAL SKILLS QUALIFICATION

LEVEL 2: Network Cabling, Installation and Maintenance

Unit 009: Use of Tools and Equipment in Network Cabling

Unit Reference Number: ICT/NCI009/L2

NSQ Level: 2

Credit Value: 2

Guided Learning Hours: 20

Unit Purpose:

The purpose of this Unit is to equip learners with the knowledge and practical skills required to effectively use a range of tools and equipment essential for network cabling installations and maintenance. This includes understanding tool functionality, demonstrating proper usage techniques, and ensuring safety and accuracy in their application.

Unit assessment requirements/ evidence requirements:

Assessment must be carried out in real workplace environment in which learning and human development is carried out.

Assessment methods to be used include:

1. Direct Observation/oral questions (DO)
2. Question and Answer (QA)
3. Witness Testimony (WT)
4. Assignment (ASS), etc.

UNIT 009: Use of Tools and Equipment in Network Cabling

LEARNING OBJECTIVE (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type					Evidence Ref. Page No.			
LO 1: **Identify and describe common tools and equipment used in network cabling**	1.1	List and describe the functions of essential network cabling tools, including cable testers, crimpers, punch-down tools, and cable strippers.									
	1.2	Explain the purpose and use of specialized equipment such as optical time-domain reflectometers (OTDR), network analyzers, and cable certifiers.									
	1.3	Identify various hand tools and power tools used in cabling installations, such as drills, wire cutters, and scissors.									
	1.4	Describe the features and benefits of each tool or piece of equipment in relation to its application in network cabling.									
LO 2: **Demonstrate correct usage of tools and equipment**	2.1	Show proper handling techniques for tools to prevent damage to cables and ensure safety during use.									
	2.2	Demonstrate the correct procedures for using cable testers and certifiers to evaluate cable performance and identify faults.									
	2.3	Use crimpers and punch-down tools accurately to terminate cables and secure connections, ensuring proper alignment and functionality.									
	2.4	Perform cable stripping and preparation using appropriate tools, maintaining cable integrity and preparing for termination or connection.									
LO 3: **Perform maintenance and calibration of tools and equipment**	3.1	Conduct regular maintenance on network cabling tools, including cleaning, lubricating, and inspecting for wear and tear.									
	3.2	Calibrate testing equipment as needed to ensure accuracy and reliability in measurements and results.									

LEARNING OBJECTIVE (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type					Evidence Ref. Page No.			
	3.3	Identify and address common issues with tools and equipment, such as misalignment, malfunction, or damage.									
	3.4	Replace or repair tools and equipment as necessary to maintain optimal performance and safety standards.									
LO 4: **Ensure safety and compliance during tool and equipment use**	4.1	Follow safety protocols for using tools and equipment, including wearing appropriate personal protective equipment (PPE) and adhering to safety guidelines.									
	4.2	Demonstrate knowledge of safety practices related to electrical hazards, tool handling, and working in confined or elevated spaces.									
	4.3	Store tools and equipment properly when not in use to prevent accidents and damage.									
	4.4	Report and document any safety incidents or equipment malfunctions, following appropriate procedures for incident management and resolution.									

Learner's Signature	Date
Assessor's Signature	Date
IQA's Signature	Date
EQA's Signature	Date

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