REPUBLIC OF KENYA

NATIONAL OCCUPATIONAL STANDARDS

FOR

ICT TECHNICIAN

KNQF LEVEL 5

PROGRAMME ISCED CODE: 061 2454A

PERFORM NETWORK DESIGN AND MANAGEMENT

UNIT CODE: 0612 451 07A

UNIT DESCRIPTION

This unit covers the competencies required to perform network design and management. It involves designing computer network, installing computer network, testing computer network and performing computer network maintenance.

ELEMENTS AND PERFORMANCE CRITERIA

ELEMENT	PERFORMANCE CRITERIA
These describe the key outcomes which make up workplace functions	These are assessable statements which specify the required level of performance for each of the elements *(Bold and italicized terms are elaborated in the range)*
1. Design computer network	1.1 User needs are collected as per the workplace procedure.
	1.2 Physical network design is developed as per user requirements.
	1.3 Logical network design is developed as per user requirements.
	1.4 Computer network design is mapped out as per user requirements.
2. Install computer network	2.1 *Safety measures* are observed as per workplace procedure.
	2.2 *Computer network components* are identified as per the network design.
	2.3 Computer network is set up as per the network design.
	2.4 Computer network is configured as per the network design.
	2.5 Computer network is documented as per the network design.

ELEMENT These describe the key outcomes which make up workplace functions	PERFORMANCE CRITERIA These are assessable statements which specify the required level of performance for each of the elements *(Bold and italicized terms are elaborated in the range)*
	2.6 Computer network components are **disposed** as per workplace procedures.
3. Test computer network	3.1 **Network testing tools** and equipment are identified as per the work requirement.
	3.2 Network components are tested as per the workplace procedure.
	3.3 Network testing report is developed as per the work requirement.
4. Perform computer network maintenance.	4.1 Computer network maintenance schedule is prepared as per workplace procedure.
	4.2 Computer network is monitored as per maintenance schedule.
	4.3 Computer network is optimized as per the user requirements.
	4.4 Computer network maintenance report is developed as per workplace procedure.

RANGE

This section provides work environment and conditions to which the performance criteria apply. It allows for different work environment and situations that will affect performance.

Variable	Range
1. Computer network components may include but are not limited to:	• Hubs • Switches • Routers • Modem • Repeaters
2. Network testing tools may include but are not limited to:	• Ping • Traceroute • Cable tester • Wireshark
3. Safety measures may include but are not limited to:	Personal Protective Equipment: • Overall/apron/dust coat • Antiglare screens • Dust mask • Gloves • Safety boots • Antistatic equipment • Ergonomics • First AID kit
4. Disposed may include but are not limited to:	• E- waste • Pollution • Hazards • Disposal methods

REQUIRED KNOWLEDGE AND SKILLS

This section describes the knowledge and skills required for this unit of competency.

Required Knowledge

The individual needs to demonstrate knowledge of:

- System analysis and design
- Documentation processes
- Computer and devices settings
- Cyber security threats and measures
- Technology trends in computer networking
- Troubleshooting techniques
- Types of Maintenance techniques
- Data protection laws

Required skills

The individual needs to demonstrate the following skills:

- Report Writing
- Data collection
- Analytical skills
- Problem solving skills
- Communication skills
- Time management
- Critical thinking

EVIDENCE GUIDE

This provides advice on assessment and must be read in conjunction with the performance criteria, required knowledge and skills range.

1. Critical aspects of competency	Assessment requires evidence that the candidate:
	1.1. Developed **network design** as per users' requirements.
	1.2. Set up computer network as per the network design.
	1.3. Configured computer network as per the network design.

		1.4.Tested network components as per the workplace procedure.
		1.5.Optimized computer network as per the user requirements.
2.	Resource implications	The following resources should be provided:
		2.1.Appropriately simulated environment where assessment can take place.
		2.2.Access to relevant work environment.
		2.3.Resources relevant to the proposed activities or tasks.
3.	Methods of assessment	Competency may be assessed through:
		3.1 Practical
		3.2 Projects
		3.3 Third Party Reports
		3.4 Portfolio of evidence
		3.5 Written tests
4.	Context of assessment	Competency may be assessed in a workplace or in a simulated workplace.
5.	Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace job role is recommended.