REPUBLIC OF KENYA

COMPETENCY BASED MODULAR CURRICULUM

FOR

NETWORK SYSTEM TECHNICIAN
KNQF LEVEL 5

PROGRAMME CODE: 0612 454A

COMPUTER NETWORK SETUP

UNIT CODE: 0612 451 06A

Relationship to Occupational Standards

This unit addresses the Unit of Competency: Setup Computer Network

Unit Duration: 200 Hours

Unit Description

This unit covers the competencies required to setup a computer network. It involves setting up computer network, testing computer network connectivity, documenting computer network configurations and conducting computer network user training.

Summary of Learning Outcomes

LEARNING OUTCOMES	DURATION (HOURS)
1. Setup Computer Network	50
2. Test Computer Network Connectivity	50
3. Document Computer Network Configurations	50
4. Conduct Computer Network User Training	50
TOTAL	**200**

Learning Outcomes, Content and Suggested Assessment Methods

Learning Outcome	Content	Suggested Assessment Methods
1. Setup computer network.	1.1 Network Components 1.1.1 Introduction to network components 1.1.2 Examples of network components 1.1.2.1 Router 1.1.2.2 Switch 1.1.2.3 Hub	● Practical test ● Project ● Portfolio of evidence ● Oral questioning ● Interviews

	1.1.2.4 Modem 1.1.2.5 Firewall 1.1.2.6 Access point 1.1.2.7 Server 1.1.2.8 Cable 1.1.2.9 Wireless adapter 1.1.3 Identifications of network tools 1.1.3.1 Crimping tool 1.1.3.2 Cable tester 1.1.3.3 Wire stripper 1.1.3.4 Multimeter 1.1.3.5 Screwdriver set 1.1.3.6 Ethernet cable and connectors 1.2 Networking standards 1.2.1 Introduction to Cable termination IEEE 802.3 standards 1.2.2 Type of cable termination standards 1.2.2.1 T568A, 1.2.2.2 T568B 1.2.3 Methods of cable termination 1.2.3.1 Crimped termination 1.2.3.2 Compression termination 1.2.3.3 Wire-wrap termination 1.2.3.4 Insulation displacement 1.3 Network components and network devices configuration as per IEEE standards ➢ IP addressing ➢ Routing configuration	● Third party report ● Written tests ● Case study

	➢ Network security 1.3.1 Wireless network configuration	
2. Test Computer network connectivity	2.1 Network Component performance testing 2.1.1 Types of computer network component tests 2.1.1.1 Performance testing 2.1.1.2 Functionality testing 2.1.1.3 Security testing 2.1.1.4 Resilience and Recovery Testing 2.1.1.5 connectivity testing 2.1.1.6 Media testing 2.1.1.7 Bandwidth testing 2.2 Network Performance test 2.3 Network testing reports 2.3.1 Types of network reporting. 2.3.1.1 Network performance test report 2.3.1.2 Security vulnerability assessment report 2.3.1.3 Quality of service test report 2.3.1.4 Incidence response exercise report 2.4 Computer network Transmission media 2.4.1 Introduction to transmission media 2.4.2 Categories of transmission media 2.4.2.1 Bound/wired 2.4.2.2 Unbound/wireless 2.4.3 Types of transmission media	● Practical test ● Project ● Portfolio of evidence ● Oral questioning ● Interviews ● Third party report ● Written tests ● Case study

	2.4.3.1 Coaxial cable 2.4.3.2 Fibre Optic 2.4.3.3 Twisted pair 2.4.3.4 Satellite 2.4.3.5 Microwave 2.4.4 Selection criteria for transmission media 2.4.5 Types of network transmission media testing 2.4.5.1 Cable continuity testing 2.4.5.2 Crosstalk test 2.4.5.3 Bandwidth and throughput testing 2.4.5.4 Signal quality testing 2.4.5.5 Wireless media testing	
3. Document Computer network configurations	3.1 Network component configuration documentation 3.1.1. Importance of network configuration documentation. 3.1.2. Types of documentations. 3.1.2.1 Device configuration 3.1.2.2 Network topologies 3.1.2.3 Security configuration. 3.2 Introduction Network data points 3.2.2 Types of Network Data Points 3.2.2.1 Ethernet ports 3.2.2.2 Coaxial cable outlets 3.2.2.3 Fibre optic terminals 3.2.3 Importance of Network Data Points	● Practical test ● Project ● Portfolio of evidence ● Oral questioning ● Interviews ● Third party report ● Written tests ● Case study ● Written tests ● Case study

	3.2.4 Factors to Consider When Installing Network Data Points 3.2.5 Common Applications of Network Data Points 3.2.6 Best practices for data points management 3.3 Labelling of Network topology designs	
4. Conduct Computer Network user training	4.1 Basic network navigation training 4.1.1 Importance of network user training. 4.1.2 Types of network training materials 4.1.3 Preparing for the network user training. 4.1.4 Types of user training. 4.1.5 Conducting network user training. 4.2 Network troubleshooting 4.2.1 Importance of network trouble shooting 4.2.2 Common issues in network trouble shooting 4.2.3 Network troubleshooting process 4.2.4 Network troubleshooting tools 4.2.5 Troubleshooting methodology 4.3 Data backup and recovery 4.3.1 Data identification and classification 4.3.2 Backup strategy design 4.3.3 Selection of backup solutions	● Practical test ● Project ● Portfolio of evidence ● Oral questioning ● Interviews ● Third party report ● Written tests ● Case study

	4.3.4 Implementation of backup procedures 4.3.5 Regular backup execution 4.3.6 Monitoring and verification	

Suggested Methods of delivery

- Role playing
- Viewing of related videos
- Group discussions.
- Instructor led facilitation using active learning strategies.
- Projects.
- Demonstrations.
- Site visits.

Recommended Resources for 25 Trainees

S/No.	Category/Item	Description/ Specifications	Quantity	Recommended Ratio (Trainee: Item)
A	**Learning Materials**			
1.	Textbooks		13 pcs	2:1
2.	Installation manuals			
3.	Flip Charts			
4.	PowerPoint presentations	For trainer's use		
B	**Learning Facilities & infrastructure**			
5.	Lecture/theory room		1	25:1
6.	Laboratory		1	25:1
C	**Consumable materials**			

7.	Printing papers		1 ream	1:20
8.	Toners/Cartridges		2 pcs	13:1
9.	Assorted colour of whiteboard markers			
D	**Tools and Equipment**			
1.	Computers		25 pcs	1:1
2.	Projector		1 pc	25:1
3.	Signal testers		5 pcs	5:1
4.	Header checker		25 pcs	1:1
5.	Crimping tools		13 pcs	2:1
6.	Cable tester		5 pcs	5:1
7.	Punch Downs		5 pcs	5:1
8.	Switches		5pcs	5:1
9.	Repeaters		5pcs	5:1
10.	Routers/modem		5pcs	5:1
11.	Network tool kit		25 pcs	1:1
12.	Gateways		5pcs	5:1
13.	Packets of RJ45		300 pcs	1:10
14.	Fibre Modules (SFP)		5pcs	5:1
15.	UTP Ethernet Cable		300 meters	1:10
16.	Antistatic gloves		25 pairs	1:1