

NETWORKING

UNIT CODE: IT/CU/ICT/CR/1/6

Relationship to Occupational Standards

This unit addresses the unit of competency: **Performing Computer Networking**

Duration of Unit:180hours

Unit description

This unit specifies the competencies required to perform computer Networking. It involves Identification of network types and Components, Connection of networking devices, configuration of network devices, network testing, configuration of network types, perform network security, monitor network connectivity and maintain network.

Summary of Learning Outcomes

1. Identify network type and components
2. Connection network devices
3. Configuration of network devices
4. Network testing
5. Configuration of Network types
6. Perform Network security
7. Monitor Network connectivity and performance
8. Maintain Network

Learning Outcomes, Content and Suggested Assessment Methods

Learning Outcome	Content	Suggested Assessment Methods
1. Identify network type and components	<input type="checkbox"/> Definition of Network <input type="checkbox"/> Definition of network terms <input type="checkbox"/> Network topologies <ul style="list-style-type: none">✓ Star✓ Ring✓ Mesh✓ Hybrid✓ Point to Point <input type="checkbox"/> Network types <ul style="list-style-type: none">✓ WAN	<ul style="list-style-type: none">• Practical exercises• Observation• Oral

	<ul style="list-style-type: none"> ✓ LAN ✓ PAN ✓ MAN <input type="checkbox"/> Components of a network <ul style="list-style-type: none"> ✓ switches/hubs ✓ routers ✓ ports ✓ media ✓ computers <input type="checkbox"/> Categories of computer network <ul style="list-style-type: none"> ✓ peer ✓ client server 	
2. Connect network devices	<ul style="list-style-type: none"> <input type="checkbox"/> Definition of network devices <input type="checkbox"/> Identification of Network connection Media <ul style="list-style-type: none"> ✓ Wired ✓ Wireless <input type="checkbox"/> Characteristics of connection medium <input type="checkbox"/> Network devices <ul style="list-style-type: none"> ✓ switches/hubs ✓ routers ✓ ports ✓ computers <input type="checkbox"/> connect network devices 	<ul style="list-style-type: none"> • • Practical • Observation • Written • Oral • Practical
3 Configure network devices	<ul style="list-style-type: none"> <input type="checkbox"/> Definition of configuration <input type="checkbox"/> Network Architecture <ul style="list-style-type: none"> ✓ OSI ✓ TCP/IP Protocol Suite ✓ Ethernet <input type="checkbox"/> Network protocols <ul style="list-style-type: none"> ✓ TCP/IP ✓ UDP ✓ HTTP ✓ FTP ✓ DCIP 	<ul style="list-style-type: none"> • Practical • Oral • Observation • Written

	<ul style="list-style-type: none"> ✓ DHCP <input type="checkbox"/> Network Operating system <input type="checkbox"/> Connect and configure network devices 	
4 Perform Network testing	<ul style="list-style-type: none"> <input type="checkbox"/> Outline network test plan <input type="checkbox"/> Network testing tools <ul style="list-style-type: none"> • Clamp meter • Voltmeter • Cable tester • Signal tester <input type="checkbox"/> Test network components <input type="checkbox"/> Test the network <input type="checkbox"/> Test report 	<ul style="list-style-type: none"> • Practical exercises with observation checklists conducted by trainer. • Oral questioning with checklist conducted by trainer to assess underpinning knowledge. • Short tests to assess underpinning knowledge. • Learner to perform project
5 Configure network types e.g. LAN, WAN	<ul style="list-style-type: none"> <input type="checkbox"/> Determine appropriate Network type <input type="checkbox"/> Types of Network types <input type="checkbox"/> Assemble prerequisite components and medium <input type="checkbox"/> Network Components Configuration procedures <input type="checkbox"/> Network protocols Configuration procedures 	<ul style="list-style-type: none"> • Practical • Oral • Observation • Written
6 Perform Network Security	<ul style="list-style-type: none"> <input type="checkbox"/> Definition of network security <input type="checkbox"/> Network threats <ul style="list-style-type: none"> ✓ Internal ✓ External <input type="checkbox"/> Prevention measures <ul style="list-style-type: none"> • Firewalls • User accounts 	<ul style="list-style-type: none"> • Practical • Observations

	<ul style="list-style-type: none"> control • Security policies • Anti-viruses • Encryption <input type="checkbox"/> Enforce network security measures <input type="checkbox"/> Network Security Policy	
7 Monitor Network connectivity and Performance	<input type="checkbox"/> Monitoring tools and software <ul style="list-style-type: none"> ✓ Ping ✓ Tracert ✓ NSLookup ✓ Ipconfig ✓ Speed test 	<ul style="list-style-type: none"> • Practical exercises with observation checklists conducted by trainer. • Oral questioning with checklist conducted by trainer to assess. Underpinning knowledge.
8 Maintain Network	<input type="checkbox"/> Maintenance schedule plan <input type="checkbox"/> maintenance tools <ul style="list-style-type: none"> ✓ Console ✓ Wireshark ✓ Nmap ✓ <input type="checkbox"/> corrective/preventive measures	<ul style="list-style-type: none"> • Practical • Oral • Observation • Written

Suggested Methods of Delivery

- Presentations and practical demonstrations by trainer;
- Guided learner activities and research to develop underpinning knowledge;
- Supervised activities and projects in a workshop;

The delivery may also be supplemented and enhanced by the following, if the opportunity allows:

- Visiting lecturer/trainer from the ICT sector;
- Industrial visits.

Recommended Resources

Tools

1. Network tool kit
2. Signal testers
3. Spam Blacklists
4. URL Encode
5. Header checker
6. LanTEK III cable certifier
7. Crimpers (RJ45, Hex Coax)
8. Punch Down Tools.
9. Wire Strippers & Cutters.
10. Network Testers.
11. Tone & Probes.
12. Cable Installation Tools.
13. Coaxial & RG6 Tools.

Equipment

- Computer
- Cables
- Switches
- Routers/modem
- Bridges
- Repeaters
- Fibre modules
- Antistatic gloves
- Ports
- RJ45
- NIC
- Gateways
- Microwave dishes

Materials and supplies

Consumables for maintaining Network including:

- RJ45
- Fibre Modules

- Cables

Replacement parts including:

- Points
- Switches
- Routers
- NIC
- Modem
- Cables

Cleaning materials;

Hand cleaner.

Reference materials

Manufacturers service manuals for Network equipment

easytvvet.com