

## COMPUTER NETWORKING

**UNIT CODE: IT/CU/ICT/CR/1/5**

### **Relationship to Occupational Standards**

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

**Duration of Unit:** 300 hours

### **Unit description**

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

### **Summary of Learning Outcomes**

1. Identify network type and components
2. Connect network devices
3. Configure network devices
4. Configure LAN Network type
5. Perform Network testing

### **Learning Outcomes, Content and Suggested Assessment Methods**

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

|                               |  |   |
|-------------------------------|--|---|
|                               | <ul style="list-style-type: none"> <li>✓ MAN</li> <li>• components of a network <ul style="list-style-type: none"> <li>✓ switches/hubs</li> <li>✓ routers</li> <li>✓ ports</li> <li>✓ media</li> <li>✓ computers</li> </ul> </li> </ul>  |   |
| 2. Connect network devices    | <ul style="list-style-type: none"> <li>• Definition of network devices</li> <li>• Identification of Network connection Media <ul style="list-style-type: none"> <li>✓ Wired</li> <li>✓ Wireless</li> </ul> </li> <li>• Characteristics of connection medium</li> <li>• Network devices <ul style="list-style-type: none"> <li>✓ switches/hubs</li> <li>✓ routers</li> <li>✓ ports</li> <li>✓ computers</li> </ul> </li> <li>• connect network devices</li> </ul> | <ul style="list-style-type: none"> <li>• Practical</li> <li>• Oral</li> <li>• Observation</li> <li>• Written</li> </ul> |
| 2 Configure network devices   | <ul style="list-style-type: none"> <li>• Definition of configuration</li> <li>• Network Architecture <ul style="list-style-type: none"> <li>✓ TCP/IP Protocol Suite</li> <li>✓ Ethernet</li> </ul> </li> <li>• Network protocols <ul style="list-style-type: none"> <li>✓ TCP/IP</li> </ul> </li> <li>• Network Operating system</li> <li>• Connect and configure network devices</li> </ul>   | <ul style="list-style-type: none"> <li>• Practical</li> <li>• Oral</li> <li>• Observation</li> <li>• Written</li> </ul> |
| 3 Configure LAN network types | <ul style="list-style-type: none"> <li>• Assemble prerequisite components and medium</li> <li>• Connect to establish the network</li> <li>• Configure individual network components</li> <li>• Configure network protocols</li> </ul>  | <ul style="list-style-type: none"> <li>• Practical</li> <li>• Oral</li> <li>• Observation</li> <li>• Written</li> </ul> |

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| <p>4 Perform Network testing</p> | <ul style="list-style-type: none"> <li>• Outline network test plan</li> <li>• Network testing tools <ul style="list-style-type: none"> <li>✓ Clamp meter</li> <li>✓ Voltmeter</li> <li>✓ Cable tester</li> <li>✓ Signal tester</li> </ul> </li> <li>• Test network components</li> <li>• Test the network</li> <li>• Test report</li> </ul> | <ul style="list-style-type: none"> <li>• Practical exercises with observation checklists conducted by trainer.</li> <li>• Oral questioning with checklist conducted by trainer to assess underpinning knowledge.</li> <li>• Short tests to assess underpinning knowledge.</li> <li>• Learner to perform project</li> </ul> |
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### 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. URL Encode
4. Header checker
5. Crimping tools
6. Cable tester
7. Punch Downs

### **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.