



**COMPETENCY BASED CURRICULUM**

**FOR**

**INFORMATION COMMUNICATION TECHNOLOGY**

**KNQF LEVEL 5**

**PROGRAMME ISCED CODE: 061 2454A**

## COMPUTER NETWORK SETUP

**UNIT CODE:** 0612 351 03A

**Duration of unit:** 200 hours

### Relationship to Occupational Standards

This unit addresses the unit of competency: Setup Computer Network

### Unit Description:

This unit covers the competencies required in setup computer network. It involves the ability to terminate network cables, connect network cables and perform computer network Maintenance.

### Summary of Learning Outcomes

| Learning Outcomes                       | Duration (Hours) |
|---|------------------|
| 1. Terminate Computer network cables    | 70               |
| 2. Connect Computer network cables      | 70               |
| 3. Perform Computer network Maintenance | 60               |
| <b>Total Hours</b>                      | <b>200</b>       |

### Learning outcomes, Content and Suggested Assessment Methods

| Learning outcome                     | Content   | Suggested Methods  | Assessment |
|--------------------------------------|---|--|------------|
| 1. Terminate Computer network cables | 1.1 Selecting Network devices<br>1.1.1 Introduction to computer networks<br>1.1.2 Types of network topologies<br>1.1.3 Types of network devices | <ul style="list-style-type: none"><li>Practical</li><li>Oral questions</li><li>Written tests</li><li>Observation</li></ul> |            |

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|  | <p>1.1.4 Components of a computer networks</p> <p>1.1.5 Types of network tools</p> <p>1.1.6 Cable colour coding</p> <p>1.2 Network cable trunking</p> <p>1.2.1 Definition cable trunking</p> <p>1.2.2 Types of cable trunking</p> <p>1.2.3 Tools used in cabling trunking</p> <p>1.2.3.1 Measuring tape</p> <p>1.2.3.2 Pencil</p> <p>1.2.3.3 Cable ties</p> <p>1.2.3.4 Wire cutters</p> <p>1.2.3.5 Safety equipment</p> <p>1.2.3.6 Spirit level</p> <p>1.2.3.7 Drill</p> <p>1.2.3.8 Screwdriver</p> <p>1.3 Network cable termination</p> <p>1.3.1 Definition of networking cable termination</p> <p>1.3.2 Tools for cable termination</p> <p>1.3.2.1 RJ45 connectors</p> <p>1.3.2.2 Crimping tool</p> <p>1.3.2.3 Wire stripper</p> <p>1.3.2.4 Cable cutter</p> <p>1.3.2.5 Process of cable termination</p> <p>1.3.2.1 Cable stripping</p> <p>1.3.2.2 Colour coding</p> <p>1.3.2.3 Cable crimping</p> | <ul style="list-style-type: none"> <li>• Portfolio of evidence</li> </ul> |
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|---|---|--|
| <p>2. Connect Computer network cables</p> | <p>2.1 Observing safety measures in networking</p> <p>2.1.1 Computer network safety measures</p> <p>2.1.1.1 Overall/apron/dust coat</p> <p>2.1.1.2 Gloves</p> <p>2.1.1.3 Safety boots</p> <p>2.1.1.4 Ergonomics</p> <p>2.1.1.5 First AID kit</p> <p>2.2 Setup network devices</p> <p>2.4.1 Router</p> <p>2.4.2 Switch</p> <p>2.4.3 Bridge</p> <p>2.4.4 Hub</p> <p>2.4.5 Patch panels</p> <p>2.4.6 Access point</p> <p>2.3 Network cable testing</p> <p>2.3.1 Cable testing methods</p> <p>2.3.2 Continuity Testing</p> <p>2.3.3 Wire Mapping</p> <p>2.3.4 Cable Length Testing</p> <p>2.3.5 Fault Detection</p> <p>2.3.6 Cable testing tools</p> <p>2.3.6.1 Cable tester</p> <p>2.3.6.2 Multimeter</p> <p>2.3.6.3 Crimping tool</p> <p>2.3.6.4 Wire Stripper and cutter</p> <p>2.4 Network cable connection</p> <p>2.4.1 Networking standards</p> <p>2.4.1.1 HTTP</p> <p>2.4.1.2 IEEE 802.1</p> | <ul style="list-style-type: none"> <li>• Practical</li> <li>• Oral questions</li> <li>• Written tests</li> <li>• Observation</li> <li>• Portfolio of evidence</li> </ul> |
|---|---|--|

|   |   |  |
|---|---|--|
|   | <p>2.4.1.3      TCP/IP</p> <p>2.5 Network connection establishment</p> <p>2.6 Network testing</p>   |  |
| 3. Perform Computer Network Maintenance | <p>3.1 Monitoring computer network</p> <p>3.1.1      Introduction to computer network monitoring and maintenance</p> <p>3.1.2      Computer network monitoring physical tools</p> <p>3.1.2.1      Cable testers</p> <p>3.1.2.2      Crimping tool</p> <p>3.1.2.3      Stripping tool</p> <p>3.1.3      Physical networking device status monitoring</p> <p>3.1.3.1      Port and interface</p> <p>3.1.3.2      Cable and connection</p> <p>3.1.3.3      Power supply</p> <p>3.1.3.4      Network optimization</p> <p>3.2 Troubleshooting Computer network</p> <p>3.3 Optimizing Computer network</p> <p>3.3.1      Upgrading network hardware devices</p> <p>3.3.2      Upgrading computer network cables</p> | <ul style="list-style-type: none"> <li>• Practical</li> <li>• Oral questions</li> <li>• Written tests</li> <li>• Observation</li> <li>• Portfolio of evidence</li> </ul> |

## **Suggested Delivery Methods**

- In Instructor led facilitation of theory
- Demonstration by trainer
- Practical work by trainee
- Viewing of related videos
- Group discussions
- Simulation

## **Recommended resources for 25 trainees**

| S/No.    | Category/Item                                   | Description/Specifications | Quantity | Recommended Ratio<br>(Trainee: Item) |
|----------|---|----------------------------|----------|--------------------------------------|
| <b>A</b> | <b>Learning Materials</b>                       |                            |          |                                      |
| 1.       | Textbooks                                       | For trainee's use          | 13 pcs   | 13:1                                 |
| 2.       | Installation manuals                            | For trainer's use          | 5pcs     | 5:1                                  |
| 3.       | Charts  | For trainer's use          | 5pcs     | 5:1                                  |
| 4.       | PowerPoint presentations                        | For trainer's use          | 5pcs     | 5:1                                  |
| <b>B</b> | <b>Learning Facilities &amp; infrastructure</b> |                            |          |                                      |
| 5.       | Lecture/theory room                             | For training               | 1        | 25:1                                 |
| 6.       | Computer Laboratory                             | For training               | 1        | 25:1                                 |
| 7.       | Internet Connection                             | For training               |          |                                      |
| <b>C</b> | <b>Consumable materials</b>                     |                            |          |                                      |

|          |                                       |                |            |      |
|----------|---------------------------------------|----------------|------------|------|
| 8.       | Printing papers                       | For printing   | 1 ream     | 1:20 |
| 9.       | Toners                                | For printers   | 2 pcs      | 13:1 |
| 10.      | Assorted colour of whiteboard markers | For writing    |            |      |
| <b>D</b> | <b>Tools and Equipment</b>            |                |            |      |
| 1.       | Computers                             | For training   | 25 pcs     | 1:1  |
| 2.       | Projector                             | For projecting | 1 pc       | 25:1 |
| 3.       | Signal testers                        | For training   | 5 pcs      | 5:1  |
| 4.       | Header checker                        | For training   | 25 pcs     | 1:1  |
| 5.       | Crimping tools                        | For training   | 25 pcs     | 1:1  |
| 6.       | Cable tester                          | For training   | 5 pcs      | 5:1  |
| 7.       | Switches                              | For training   | 5pcs       | 5:1  |
| 8.       | Repeaters                             | For training   | 5pcs       | 5:1  |
| 9.       | Routers/modem                         | For training   | 5pcs       | 5:1  |
| 10.      | Network tool kit                      | For training   | 25 pcs     | 1:1  |
| 11.      | RJ45                                  | For training   | 300 pcs    | 1:10 |
| 12.      | UTP Ethernet Cable                    | For training   | 300 metres | 1:10 |
| 13.      | Antistatic gloves                     | For training   | 25 pairs   | 1:1  |