

**Course Title:** Fundamentals of Networking

**Course Code:** IT105

**Credits:** 3

**Lecturer:**

**Duration:** 45 hours

**Prerequisite(s):** None

## **Rationale**

This course has been included in the programme of study of the ICT Associate degree programme because it provides instruction that equips students with the basic skill set that they will need to perform the job of network technician, network administrator, and network engineer. The content knowledge therein presents students with the skills necessary to succeed in Caribbean networking-related degree programs and helps them prepare for external certification.

## **Course Description**

The course introduces students to data communication and computer networking. It provides opportunities to develop deeper understandings of network technologies, media, topologies and devices, than they would have encountered during CSEC. It focuses on basic network management tools, data communication and network security.

## **Learning Outcomes**

On completion of this course students will be able to:

- Apply common networking terms.
- Determine reasons to create an onsite network for a company.
- Identify the layers and functions of the OSI model.
- Write cabling specifications for a given project.
- Name the various types of network topologies and the advantages and disadvantages of each.
- Identify telecommunications network components.
- Calculate bandwidth needs for wide area networks.
- Describe how information travels through the network.
- Design a wide area network using existing hardware components.
- Summarize common network protocols.

- Determine common applications that business users require in a networked office.
- Summarize remote access techniques.
- Justify a remote access solution.
- Analyze basic network security principles.
- Assess potential solutions for disaster recovery.
- Describe different backup and disaster recovery solutions.
- Prepare a backup and disaster recovery plan.
- Outline the pros and cons of various network design techniques.
- Prepare a comprehensive network design plan.

## **Content Knowledge**

1. Overview of Networks and Terminology
  - Common networking terms
  - Local Area Network
2. Network layers and functions of the OSI model Network Topologies:
  - Cabling specifications • Types of network topologies
3. Wide Area Network Equipment:
  - Telecommunications network components
  - Bandwidth needs for wide area networks
4. Wide Area Network Design:
  - Principles of Network Communication • Wide Area Network hardware components
5. Business Uses for Networks:
  - Common network protocols
6. Common applications in a networked office Network Remote Access:
  - Remote access techniques
  - Remote access solutions
7. Securing the Network:

- Basic network security principles • Potential solutions for disaster recovery
8. Backup and Disaster Recovery:
- Backup and disaster recovery solutions • Backup and disaster recovery plan.
9. Network Design Techniques:
- The pros and cons of various network design techniques
  - Network design plan

## **Assessment Procedures**

### ***Coursework (60%)***

[Written assignments 30 marks]

[Project 30 marks]

### ***Examination (40%)***

## **Textbooks and References**

Muller, S., & Ogletree, W. T. (2004). *Upgrading and repairing of networks* (4<sup>th</sup> ed.). Que Books.