

## Module: Network Development 161

<b>Module name:</b>	Network Development 161
<b>Code:</b>	NWD161
<b>NQF level:</b>	5
<b>Type:</b>	Core – Diploma in Information Technology (all stream)
<b>Contact Time:</b>	34 hours
<b>Structured Time</b>	6 hours
<b>Self-directed time</b>	40 hours
<b>Notional hours:</b>	80 hours
<b>Credits:</b>	8
<b>Prerequisites:</b>	Computer Architecture 161

### Purpose

This module serves as a general introduction for students to acquire a foundation in current networking technologies for local area networks (LANs), wide area networks (WANs), and the Internet. The course is a hands-on conducted in an open networking lab, students can explore how computer networks operate, discover how data is sent around the internet. Students can put into practice their understanding on concepts learnt using network simulator.

### Outcomes

Upon successful completion of this module, the student will be able to:

- Demonstrate an informed understanding of networks including key terms, concepts and facts and current IT infrastructure components.
- Show awareness of literacy knowledge in respect to advanced networking concepts, basic taxonomy, and terminology of computer networking.
- Select and apply the core concepts and methods underlying IP networks to solve network design and connectivity problems.
- Identify and evaluate the different core elements of IT network infrastructure solutions based on how they relate to different network systems.
- Analyse ethical considerations on security and business continuity implications of IT network infrastructure solutions.
- Demonstrate an informed understanding of the major types of network implementations.

### Assessment

- Continuous evaluation of theoretical work through two written assignments, one formative test, and one summative test.
- Continuous evaluation through tracking of progress, offering support, guidance and provision of constant stream of opportunities to prove mastery of subject material and pursuing more challenging work as they master the basics.
- Final assessment through an examination.
- The assignments or projects collectively will count 20% of your class mark.
- All tests will collectively account for 80% of your class mark.

- Your class mark contributes 30% towards your final mark for the subject, while the final assessment accounts for 70% of your final mark.

## Teaching and Learning

### Learning materials

#### Prescribed Book (EBSCO)

 **Ferguson, B., 2015. CompTIA Network+ Review Guide: Exam N10-006.**

 **Simulation Software (Packet Tracer)**

#### Additional Material

 **Lowe, D., 2016. Networking All-in-one for Dummies. John Wiley & Sons.**

### Learning activities

Learning will be facilitated by the lecturer with student centred activities that involve problem-based learning where pupils are presented with challenges that replicate the situation in the real-world environment. This will be achieved through a combination between presentation of theoretical concepts, guided exercises, group work and discussions together with two mandatory assignments to be completed during the module.

### Notional learning hours

Activity	Units	Contact Time	Structured Time	Self-Directed Time
Lecture		27.0		19.0
Formative feedback		7.0		
Project				
Assignment	2			6.0
Test	2		4.0	8.0
Exam	1		2.0	7.0
		<b>34.0</b>	<b>6.0</b>	<b>40.0</b>

### Syllabus

- Network features, hardware, and software components.
- Network topologies, technologies, and communication protocols.
- Peer-to-peer and server-based networks including: – servers, clients, peers, shared resources, operating systems, administration, security, central support systems.
- Internet access technologies: – DSL, Broadband (ADSL), PSTN (dial-up), Satellite, Wireless.
- Selecting cable or wireless systems for connection.
- Hardware components for a peer-to-peer network including: – interface cards, hubs/switches, cables, connectors, tools and anti-static equipment.
- Connecting network printers.
- Testing networks, resolving routine problems associated with installation

- Designing and Installing a Network
- Establishing Network Shares and Accounts
- Elements of Network Connectivity