Module: Network Development 161

Module name:	Network Development 161
Code:	NWD161
NQF level:	5
Type:	Core – Diploma in Information Technology (all stream)
Contact Time:	48 hours
Structured Time	8 hours
Self-directed time	24 hours
Notional hours:	80 hours
Credits:	8
Prerequisites:	Computer Architecture 161 - COA161

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 one written assignment, one formative test, and a 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.

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 during the module.

Notional learning hours

Contact	Distance	Other	Type of learning activities	% Learning
y	y	n	Lectures (face-to-face, limited interaction or technologically mediated)	40%
y	y	n	Tutorials: individual groups	20%
n	y	n	Syndicate groups	10%
n	y	n	Independent self-study of standard texts and references (study guides, books, journal articles)	10%
n	y	n	Independent self-study of specially prepared materials (case studies, multi-media, etc.	20%

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