

MODULE CODE: ACCC4005
TITLE: Network Principles
DATED: 03/06/2014

LEVEL: 4
CREDITS: 20

JACS CODE: I120

AIM(S)

- To provide the student with a fundamental knowledge of OSI reference model and TCP/IP protocol model. Students will gain a detailed understanding of the various hardware devices used in modern network design and will understand the fundamental technical principles of protocols used in various layers of OSI model and IP Addressing.

LEARNING OUTCOMES

Upon the successful completion of this module, the student should be able to demonstrate the ability to:

1. Demonstrate a knowledge and understanding of network principles and protocols used in OSI and TCP/IP model.
2. Implement simple LANs, perform basic configurations for routers and switches, and implement IP addressing schemes.

INDICATIVE CONTENT

- Network principles and definition of a network
- Exploring of networks e.g. LAN, WAN, Internet, etc.
- ISO OSI reference model
- TCP/IP protocol model
- Network protocols and communications
- Networks access and configuring network operating system
- Ethernet, IEEE 802.3, LLC and MAC sub layers, CSMA/CD

LEARNING AND TEACHING STRATEGY

The majority of factual material will be presented in lectures using handouts, guided reading and use of internet and intranet material as required.

Tutorial classes will concentrate on the technical design

Laboratories will be used to allow students to gain advanced routing and switching skills with the aid of lab equipment and appropriate software such as Packet tracer, GNS, etc.

The allocation of teaching to deliver the module is:

Activity type	Hours	Percentage
Scheduled learning	70	35%
Independent learning	130	65%
Placement learning	0	
TOTAL	200	100%

ASSESSMENT

Description of each assessment component and its weighting, together with an example for new forms of assessment:

Assessment Component 1 – Written - 50%

Complete a written exam to demonstrate fundamental knowledge on theoretical principles of networking

Assessment Component 2 – Practical- 50%

This assessment will require students to implement and test a simple LAN and perform basic configuration on Cisco routers and switches. This will be assessed by a lab based practical exam.

Assessment Summary

Activity type	Percentage
Written	50%
Coursework	0%
Practical	50%
TOTAL	100%

BIBLIOGRAPHY

Essential

Introduction to Networks Companion Guide by Cisco Networking Academy (2013)

Introduction to Networks Course booklet by Cisco Networking Academy (2013)

M.A. Dye, R. McDonald and A. W. Rufi, (2011) *Network Fundamentals: CCNA exploration companion guide*, Cisco Press.

Background

A. S Tanenbaum and D. J. Wetherall, (2010) *Computer Networks (5th Ed)*, Prentice Hall.

N. Olifer and V. Olifer (2006) *Computer Networks Principles, Technologies and Protocol for Network Design*, John Wiley and Sons, Ltd.

P. J. Irving, (2010) *Computer Networks (3rd Ed)*, Lexden Publishing.

D. E. Comer, (2009) *Computer Networks and Internets*, Upper Saddle River, N.J Pearson education.

H. Bidgoli, (2008) *Handbook of computer networks: key concepts, data transmission, and digital and optical networks*, Hoboken, N.J. Wiley.

Computer networks: the international journal of computer and telecommunications networking

Websites

<http://www.netacad.com> (username and password required)