

Liverpool John Moores University

Title: NETWORKING
Status: Definitive
Code: **3003BELCM** (101119)
Version Start Date: 01-08-2011

Owning School/Faculty: Arts, Professional and Social Studies
Teaching School/Faculty: Bellerby's College - Brighton

Team	Leader
Jarmila Hickman	Y

Academic Level: FHEQ3 **Credit Value:** 12.00 **Total Delivered Hours:** 68.00
Total Learning Hours: 120 **Private Study:** 52

Delivery Options

Course typically offered: Standard Year Long

Component	Contact Hours
Lecture	66.000

Grading Basis: 40 %

Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Technology	AS1	Assessed practical projects	20.0	
Exam	AS2	Closed book examinations	80.0	2.00

Aims

The course aims to give students a broad overview of the technologies and techniques used in both local and wide area computer networking in addition to a general understanding of electronic communication methods.

Learning Outcomes

After completing the module the student should be able to:

- 1 Understand the principles of physical data transfer.
- 2 Understand the different layers in an operating system and how each plays a different part with respect to networking.
- 3 Identify and understand different methods of local area networking in terms of methodology, hardware and the physical medium (cabling / radio waves).
- 4 Identify and understand different methods of wide area networking in terms of methodology, hardware and cabling.
- 5 Understand how the Internet works in practice with a larger emphasis on physical equipment and addressing.
- 6 Understand security aspects of computer networks, the way in which networks can be breached and how they may be secured.
- 7 Know different storage methods for networked data and the different methods of the backup and recovery process.
- 8 Understand current and future developments in computer networking.

Learning Outcomes of Assessments

The assessment item list is assessed via the learning outcomes listed:

technology	1	2	3	4	5	6	7
EXAM	8						

Outline Syllabus

1. Communicating Data

- (a) *The principles of binary data and its transfer*
- (b) *The difference between synchronous and asynchronous transfer and baseband & broadband*
- (c) *Multiplexing techniques*
- (d) *Modulation methods*
- (e) *The concept of packet data*
- (f) *Errors - Error sources, error detection and error handling*

2. Computer Networks

- (a) *An overview of network protocols*
- (b) *The client and server model*
- (c) *OSI and non OSI models*
- (d) *Physical cabling*

3. Local Area Networking

- (a) *Ethernet and token ring methods*
- (b) *Hubs and switches*
- (c) *Addressing*
- (d) *Wireless networking and protocols including Bluetooth and spread spectrum methods*

4. Connecting Networks

- (a) *Bridges and routers*
- (b) *Fibre Distributed Data Interface*
- (c) *ATM technology*
- (d) *ISDN*
- (e) *ADSL*

- (f) MANs
- (g) Current trends in implementation in this and other countries
- 5. The Internet
 - (a) Client-server approach
 - (b) Application layers
 - (c) TCP / IPv6
 - (d) Extranets
 - (e) Virtual Private Networking (VPN)
 - (f) E-Commerce (from a technical / networking aspect)
- 6. Securing Networks
 - (a) Risks
 - (b) Backup technology and backup methods
 - (c) Aspects of access restriction methods - to include biometrics, physical methods and passwords
 - (d) Types and methods of attack on Networks

Learning Activities

Study of theoretical networking methods including the nature of basic data transfer, hardware and software.

Study of storage and access methods in addition to emergency planning.

Inspection of differing Local and Wide Area Networks in place today – Both from a theoretical and practical point of view. Looking at how these networks have evolved, why they have evolved in a particular way and assessing whether they would have been designed in this way if it was a completely new network.

Field trip to at least one business to understand how computer networking and security is implemented.

Study of likely future developments in networking.

References

Course Material	Book
Author	Tanenbaum, A S
Publishing Year	2002
Title	Computer Networks
Subtitle	
Edition	4th Edition
Publisher	Prentice Hall
ISBN	9780130384881

Course Material	Book
Author	Kurose, J
Publishing Year	2007
Title	Computer Networking
Subtitle	A Top-down Approach Featuring the Internet
Edition	4th Edition

Publisher	Pearson Higher Education
ISBN	

Notes

This module provides students with an introduction to both local and wide area computer networking and the technologies and techniques involved.