

Faculty of Computing Engineering and Technology

MODULE HANDBOOK 2009-10

Module title: Networks and Protocols

Module code : CE00997-3

Tutors: Chris Howard
c.howard@staffs.ac.uk
Room:K216 Ext:3304

John Cowley
j.cowley@staffs.ac.uk
Room: K216 Ext: 3466

This module starts with an overview of the development and operation of computer networks covering data communication and network infrastructure. Then it moves on to communication architecture and protocol layering to prepare the grounds for computer networking software, services and protocols.

This module is also supported by practical work which involves work areas of computer networks. It uses tools such as network simulation software and students will be able to model and simulate appropriate computer networks.

This handbook contains the following:

- Module Specification form
- Lecture/tutorial /laboratories guidance
- Student centred learning guidance
- Teaching plan
- Module Assessment
- Module Monitoring and Feedback
- Resources

Module Specification

Communication architecture and network protocol layering.

Network hardware - local area networks and wide area networks with consideration of alternative methods and newer communication technologies such as ISDN, ATM, wireless and cellular networking technology, and satellite networks.

LAN Topologies (e.g. bus, ring, star), LAN standards (e.g. IEEE802.x series).

Network Protocols - hierarchical protocol layer models. The ISO OSI model (layers 1-7).

General concepts of routing, flow control and error recovery.

Internetworking - principal concepts and architecture of heterogeneous networks and internetworking protocols such as ARP, HTTP, ICMP, IP, TCP and UDP.

WAN technologies and services (e.g. leased lines, ISDN, Frame Relay)

Application-layer software (e.g. e-mail, FTP, Web browsers and Web servers)

Network management (e.g. network management categories, SNMP, MIB, RMON)

Lecture/Tutorial /Laboratories Guidance

You will receive two 1 hour formal lectures per week for twelve weeks supported by one 2 hour tutorial which will be predominantly practical work building upon the theory from the lectures.

Student Centred Learning Guidance

Outside the taught classes you will be expected to undertake background reading from a number of sources such as the internet, books, papers, conference extracts, RFC's etc.

Attendance

Students are expected to attend all scheduled classes, be they lectures, tutorials or laboratory sessions. Please note that under the regulations of the University you may be withdrawn from your module if you miss more than 4 consecutive sessions as detailed in Section 1.3 of the Undergraduate Modular Framework (http://www.staffs.ac.uk/images/ugrad_mod_fram_tcm68-12695.pdf).

Staff will ensure that attendance is monitored in the module.

Teaching Plan

The table on the following page shows the teaching plan for the modules. This will enable you to identify what is being covered in each of the scheduled sessions, but just as importantly what you should be working on in your own study time for the module:

All the lectures will be given by Chris Howard and the tutorials by John Cowley.

Week	Lecture 1	Tutorial 1	Lecture 2	Tutorial 2
1	Intro to module and networks		OSI 7 layer model Vs TCP/IP	
2	Network Hardware (routers, hubs, Switches)		LAN's CSMA/CD, Bus, Star, Ring etc...	
3	DHCP, ARP, DNS		Peer-to-Peer, Client Server. TCP/IP	
4	Classful addressing		Classless Addressing	
5	WAN overview ISDN		Frame Relay, ATM, DSL, Cable	
6	Project brief		Wireless	
7	Cellular		Routing - general, flow control...	
8	Distance vector routing		link state routing	
9	Network Management		SNMP	
10	Security, firewalls		VPN, Remote access	
11	network design		Network design	
12	Surgery		In class test	

Module Assessment

This module is assessed by:

A class test taken in the last lecture of the series. This will be in the format of a small number of multiple choice questions and a number of short answer/essay questions. This will be weighted at 30%

Additionally you will be set a case study weighted at 70% in week 6 and is to be submitted in week 12. This will be an individual effort and will be subject to plagiarism checks and needs to be fully referenced using the Harvard method.

Please note that you will need to achieve at least 30% in each component of assessment, with an overall average of 40% (50% for M-level) in order to pass the module.

Please see Student Handbook regarding late submission, ill health, and extenuating circumstances.

Module Monitoring and Feedback

You will have the opportunity to provide feedback on this module at the end, by completing a module feedback survey.

Last year this is what our students said about this module:

This is the first year that this module will run

This is what we have changed for this year in response to comments:

N/A

Resources

Opnet IT Guru Academic edition.

Communications and Networking: An Introduction, John Cowley, 2007, Springer, ISBN: 1-84628-488-0

Computer Networks and Internets with Internet Applications, Douglas E Comer and Ralph E Droms, 2004, 4th Ed, Prentice Hall, ISBN: 013123627

X

Computer Networks, 4th Edition (International Edition), Andrew Tanenbaum, Publisher: Prentice Hall PTR, 2003, ISBN: 0-13-038488-7