

new/minor/major

Napier University Module Descriptor

Module Number Credit Value :

Module Title

Module Leader

School Date of Approval

Indicative Student Workload [in Notionally Efficient Student Hours (NESH)]

	Contact	Flexible	Weighting of Assessment Components		
Lectures	<input type="text" value="24"/>	<input type="text"/>	Supervised	<input type="text"/>	%
Tutorials/Seminars	<input type="text"/>	<input type="text"/>	Continuous	<input type="text" value="100"/>	%
Practical	<input type="text" value="12"/>	<input type="text"/>	Indicative Assessment	Week (s)	LO's
			Covered		
			Catalogue		
Supervised assessment	<input type="text" value="0"/>	<input type="text"/>	<input type="text" value="Assessment 1"/>	<input type="text" value="5"/>	<input type="text" value="L1"/>
Student cent'd learning	<input type="text" value="112"/>	<input type="text"/>	<input type="text" value="Assessment 2"/>	<input type="text" value="8"/>	<input type="text" value="L2, L3"/>
Other (specify)	<input type="text"/>	<input type="text"/>	<input type="text" value="Assessment 3"/>	<input type="text" value="12"/>	<input type="text" value="L4, L5"/>
TOTAL WORKLOAD	<input type="text" value="150"/>	<input type="text" value="150"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

Timetable Details:

Prerequisite(s) [400 characters, normally module numbers and titles]

Aims of Module

The main aim of the module is to develop a structured approach to analysing the component parts and overall interconnection of networks, in an abstract way. This includes the understanding of how data transfers from one computer to another, over interconnected networks.

Learning Outcomes [maximum 5, contained in 1000 characters]

On completion of the module the student will be able to:

- L1** Outline the key elements of network infrastructures and networking components.
- L2** Develop an understanding of network addressing, and how networks can be subnetted.
- L3** Understand the fundamentals of network programming, and identify the key elements of client/server and peer-to-peer programming.
- L4** Identify the key elements of router configuration and routing protocols.
- L5** Identify the main elements, and parameters involved, in networks which have mobile devices.

new/minor/major

Description of Module Content [maximum 100 words contained in 500 characters]

Network elements. Topologies, networking elements (switches, routers, bridges, and so on), firewalls, ARP, network infrastructure, network modeling and analysis, Ethernet, ATM, vLANs, tied architectures, VPNs.

Network addressing: IP format, IP addressing, routing, subnetting, subnet design, subnet masks, classless addressing, IPv6, NAT.

Transport protocols. TCP; UDP; Three-way handshaking; WinSock; Event-driven and object-oriented network programming; client/server programming; peer-to-peer programming.

Router programming and routing protocols. IOS programming, routing protocols types, routing problems.

Mobile networks and devices. Ad-hoc and infrastructure networks, broadband wireless, wireless security, GSM networks.

Formal Examination No - If yes, duration in Hrs/Mins :

LTA Approach:

- Academic material. The academic part of the module will be delivered with an integrated teaching pack. This will include notes, related WWW material, presentation slides, lecture text, tutorials, and exercises. All the material will also be available on-line.
- Laboratory material. This will involve an integrated lab development, where students follow set practical exercises.

The taught material will involve a mixture of traditional teaching, with slides, animations, and lectures, and a series of demonstrations of networking technology.

Assessment:

Students will be continually assessed using class tests and on-line assessments. The main elements of the assessments will be:

- Assessment of knowledge, analytical skills and design skills.
- Assessment results will be scaled to a normal distribution with an average mark of between 55% and 60%, with a typical standard deviation. Students will receive a graded mark in the form of A+, A, A-, B+, B, B-, C+, C, C- (40%), D, E and F. The overall mark will be an average of the three assessments.
- Students who receive an overall mark of less than 40%, will be allowed to take an overall test which is a compilation of all the material. A pass in this test will gain a final mark of 40%.

Laboratory resources:

Integrated multimedia package. Router emulators. Cisco equipment.

Reference material:

Buchanan WJ, Mastering Computing, Palgrave, 2002, ISBN 0-333-74806-9.

Buchanan WJ, "Distributed Systems and Networks", McGraw-Hill, 2000, ISBN 0-077-09583-9.

Buchanan WJ, "Mastering Networks", Macmillan, 1999. ISBN 0-333-748042.