

Module Code	Pre-requisite Module codes	Co-Requisite Modules code(s)	ISCED Code	Subject Code	ECTS Credits	NFQ Level (CPD)#
CMPU 3001	CMPU 2002				10	7
Module Title	Advanced Computer Networking					

Advanced Computer Networking

School Responsible:	School of Computing
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Module Overview:

This module builds upon the student's knowledge of computer networks. In particular it focuses on issues relating to network access from a hardware and software perspective. It examines network access technologies and the impact of networked applications on network performance. Essentially the module provides a deeper understanding of networking issues that need to be addressed in today's changing communications environment as well as providing a theoretical and practical understanding of how applications use networks.

The aim of this module is to provide the student with a broader understanding of both lower-level and higher-level computer communicate on technologies and concepts as well as providing a grounding in networked application development and monitoring.

Learning Outcomes (LO):

On Completion of this module, the learner will be able to

1	Describe a variety of access technologies.
2	Discuss the network performance challenges posed by networked multimedia Applications.
3	Discuss the client-server computing paradigm.
4	Describe the purpose of the transport layer and the services provided by this layer.
5	Describe the functionality associated with common network applications.
6	Produce iterative and concurrent networked applications.
7	Demonstrate and evaluate the operation of the transport layer using networked Applications.
8	Demonstrate the use of standard network monitoring tools.

Indicative Syllabus:

- Network access technologies and concepts

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<ul style="list-style-type: none"> • Network performance issues • The Client-server model <ul style="list-style-type: none"> ○ Concepts ○ Concurrent server-class machines/programs • The Transport Layer <ul style="list-style-type: none"> ○ Services and protocols ○ Transport addresses ○ Transport connections ○ Transport layer operational concepts • The Application Layer <ul style="list-style-type: none"> ○ Address resolution ○ Common networked applications • The Berkeley Sockets API <ul style="list-style-type: none"> ○ The Socket Abstraction ○ The Socket interface/primitives ○ Addressing ○ Remote and local process-to-process communications ○ Networked application development

Learning and Teaching Methods:	
The course delivery involves a combination of lectures and labs which may incorporate the use of blended learning techniques as appropriate throughout the delivery.	
Total Teaching Contact Hours	39
Total Self-Directed Learning Hours	148

Module Delivery Duration:
This module is delivered over one semester

Assessment		
Assessment Type	Weighting (%)	LO Assessment (No.)
Final Exam	70	1-5, 7 and 8
In class examination	30	1-5, 7 and 8

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Module Specific Assessment Arrangements (if applicable)	
(a) Derogations from General Assessment Regulations	
(b) Module Assessment Thresholds	
(c) Special Repeat Assessment Arrangements	

Essential Reading: (author, date, title, publisher)
<ul style="list-style-type: none"> • Data Communications and Networking, 5th edition, Behrouz A. Forouzan. McGraw-Hill International Edition. • Data and Computer Communications, 8th edition. William Stallings. Prentice Hall • Computer Networks, 5th edition, Andrew Tanenbaum. Prentice Hall • TCP/IP Sockets in C - Practical Guide for Programmers, 2nd Edition, Donahoo, Michael J. and Calvert, Kenneth L.

Version No:		Amended By	
Commencement Date		Associated Programme Codes	

Modules that are to be offered as Stand-Alone CPD Programmes must have an NFQ level assigned

*Details of the assessment schedule should be contained in the student handbook for the programme stage.

Date of Academic Council approval

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