

Pre-Requisite Modules code(s)	Co-Requisite Modules code(s)	ECTS Credits	Module Code	Module Title
		5	CMPU3027	Network Programming

8.3.7. Network Programming

Module author: Ken O'Brien

Module Description:

This module introduces students to application programming interfaces using TCP/IP protocols and the Sockets programming interface.

Module aim

The aim of this module is to equip the student with a basic understanding of network programming using TCP/IP communication protocols.

Learning Outcomes:

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

- create simple client and server programs using the Socket Interface
- list the major protocols in a TCP/IP protocol stack
- describe the functions of the different protocols

Learning and Teaching Methods:

Lectures will be used to present the material and pace the learning process throughout the module. Laboratory exercises will be used to reinforce the learning experience.

Practical assignments will be given throughout the module to allow students to gain experience practical network programming

Module content:

Use of TCP/IP, Designing Applications for a distributed environment, the client/server model and software design, concurrency in clients and servers, program interface to protocols, the socket interface, algorithms and issues in client software design, examples of client software, algorithms and issues in server software design , iterative connectionless servers, iterative connection-oriented servers, concurrent connection-oriented servers, remote procedure call mechanism, emerging networking technologies.

Module Assessment

Written examination 70%. Continuous assessment 30%

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Essential Reading:

Comer D.E, Stevens D.L. (2003) Interworking with TCP/IP Volume 3 Client-Server Programming And Applications Linux/Posix Sockets Version, Prentice-Hall

Supplemental Reading:

Tanenbaum A. (2011) Computer Networks, Prentice Hall

Further Details:

Two hour lectures, one hour lab, To be delivered in one semester

Date of Academic Council approval