

4. Dublin Institute of Technology

| Pre-Requisite Modules code(s) | Co-Requisite Modules code(s) | ECTS Credits | Module Code | Module Title |
|--|---|------------------------------|--------------------|--------------------------|
| CMPU2014 | | 5 | CMPU2015 | Networking 3 - Switching |

8.2.9. Networking 3 – Switching

Module author: Paul Doyle

Module Description:

This course focuses on LAN switching and wireless LANs. The goal is to develop an understanding of how a switch communicates with other switches and routers in a small- or medium-sized business network to implement VLAN segmentation. This course focuses on Layer 2 switching protocols and concepts used to improve redundancy, propagate VLAN information, and secure the portion of the network where most users access network services. The module is structured to cover both fundamental theory and practical laboratory experience in building and diagnosing issues related to network routing.

Module aim

The goal is to develop an understanding of how switches are interconnected and configured to provide network access to LAN users and to enable students to integrate wireless devices into a LAN.

Learning Outcomes:

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

- Explain Switch Concepts and configurations
- Demonstrate how to manage and configure VLANs
- Design and configure a simple LAN and internetwork.
- Compare and contract key characteristics of LAN environments

Learning and Teaching Methods:

The on-line course delivery involves a combination of lectures, self-paced study, weekly online continuous assessment and practical laboratory sessions with both simulators and physical routing equipment.

Module content:

- Switching Concepts
- LAN Design
- VLANs
- VTP & STP
- Inter-VLAN routing

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- Basic Wireless Concepts and Configurations

Module Assessment

Assessment will be through a combination of continuous assessment and a written exam.

Marks will be allocated as follows

- Continuous Assessment (50%)
- Written Exam (50%)

Continuous Assessment (50%): The continuous assessment element of this course utilises the CCNA online assessment facility.

Written Exam (50%): The written exam will be conducted under normal DIT Exam regulations and will be based on the theory covered during lectures.

Essential Reading:

Cisco Systems, 2009, "CCNA Exploration Course Booklet: LAN Switching and Wireless, Version 4.0" Cisco Press

COMER, Douglas E. 2001, "Computer Networks and Internets with Internet Applications", Prentice Hall.

HALSALL, Fred. 2005, "Computer Networking and the Internet", Addison Wesley.

TANNENBAUM, Andrew, S. 1996, "Computer Networks", Prentice Hall

LAMMLE, Todd. 1998, "CCNA Cisco Certified Network Associate Study Guide, Illustrated Edition", Sybex

Supplemental Reading:

Cisco Systems, 2004, "CCNA 1 and 2 Lab Companion, Revised (Cisco Networking Academy Program) (3rd Edition), Cisco Press

HALSALL, Fred. "Computer Networking and the Internet", Addison Wesley.

THOMAS, Tom., 2004, "Network Security First Step", Cisco Press

Web references, journals and other:

<http://www.cisco.com>

<http://www.cisco.com/web/learning/netacad/index.html>

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http://www.cisco.com/en/US/learning/netacad/course_catalog/CCNA.html

Further Details:

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| Duration: | Single Semester Module |
| Contact Hours: | 4 hours per week (2 hours of lecture, 2 hours of laboratory work.) |
| Class Size: | Labs should run with a maximum of 24 students per lab supervisor |

Date of Academic Council approval