

MODULE DESCRIPTOR

MODULE TITLE	Network Management		
MODULE CODE	CO2516 (L5)	CREDIT VALUE	20 credits / 10 ECTS
SCHOOL	SCHOOL OF SCIENCE		

MODULE AIMS

This module aims to introduce students to the principles and practices of IT systems management. It starts with the basics of managing a single operating system and moves onto large-scale systems. Where appropriate automated methods will be favoured over manual configuration. The module introduces current practice as well as evolving topics that are currently being applied.

The module aims are:

1. To introduce operating system theory and practice
2. To demonstrate the importance of automation in effective IT systems management
3. To examine a range of techniques/methods for systems management
4. To investigate current and evolving topics in IT systems management

MODULE CONTENT

Operating systems

Concepts e.g. kernel, memory management, scheduler, filesystems
 Deployment e.g. PXE, imaging, WSUS
 Patch management
 Change management e.g. puppet or chef

User management

Creation, deletion, updating
 Single sign on
 Federated identity management

Directory services

Active directory, LDAP, nis, DNS

Network Services

Email, Web, File, DNS, VoIP
 Monitoring, restarting
 Virtualisation and Cloud

Network monitoring

Desktop/server/service monitoring
 Network packet/flow monitoring
 QoS

Security

Secure protocols within network services e.g. TLS, SSL
 Port scanners

Documentation

Automating system administration

Scripting language e.g. ruby, python, perl

INTENDED LEARNING OUTCOMES

On successful completion of this module a student will be able to:

1. Evaluate Operating Systems and applications for a network infrastructure
 2. Create and maintain a networked infrastructure
 3. Accurately document a networked infrastructure
 4. Apply scripting languages to automate network management tasks
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TEACHING METHODS

The module will be delivered as a set of lectures and laboratory sessions. The lectures will introduce the theoretical content for the module whilst the labs will allow the students to consolidate the theory in a practical setting.

The intention is that the module will give the students the practical and theoretical knowledge they need to create and manage network infrastructures in an Operating System agnostic manner. Systems management and automation will be explored using recent Windows and appropriate Unix variants (Linux, Solaris, BSD).

The assessments will take two forms. There will be a series of lab worksheets that will re-enforce the theoretical material presented in labs. Students will submit a subset of fully documented and completed lab sheets for assessment. The second assessment will take the form of a network implementation; students will create a small test network to demonstrate their implementation of a high level network description.

ASSESSMENT METHODS

This module is assessed through a Lab book (50%) and a Network Implementation (50%).