

Module Code:	COM546
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Module Title:	Server Technologies
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Level:	5	Credit Value:	20
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Cost Centre(s):	GACP	JACS3 code:	G410
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Faculty:	Arts, Science and Technology	Module Leader:	Dr. Paul Comerford
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Scheduled learning and teaching hours	30 hrs
Guided independent study	170 hrs
Placement	0 hrs
Module duration (total hours)	200 hrs

Programme(s) in which to be offered (not including exit awards)	Core	Option
BSc (Hons) Computer Networks and Security	✓	<input type="checkbox"/>
BSc (Hons) Cyber Security	✓	<input type="checkbox"/>
BSc (Hons) Applied Cyber Security	✓	<input type="checkbox"/>

Pre-requisites
None.

Office use only

Initial approval: 30/08/2018

Version no:2

With effect from: 01/09/2018

Date and details of revision: Jan 22: addition of BSc Applied Cyber Security

Version no:

Module Aims

This module aims to introduce students to the more advanced issues of planning, designing and building computer servers. This module will enable students to design and implement systems with appropriate software solutions. It provides an understanding of the operation of the underlying hardware and software and gives practical systems-level experience of client server-based applications.

Intended Learning Outcomes

Key skills for employability

KS1	Written, oral and media communication skills
KS2	Leadership, team working and networking skills
KS3	Opportunity, creativity and problem solving skills
KS4	Information technology skills and digital literacy
KS5	Information management skills
KS6	Research skills
KS7	Intercultural and sustainability skills
KS8	Career management skills
KS9	Learning to learn (managing personal and professional development, self-management)
KS10	Numeracy

At the end of this module, students will be able to

Key Skills

		KS1	KS2
1	Demonstrate an understanding of the operation and features of Network Operating Systems, compare and evaluate the most common examples.	KS3	
2	Design a practical computer server system with a large number of nodes and explain how it could be implemented and managed.	KS1	KS2
		KS3	KS4
3	Apply appropriate levels of Security and understand the use of network gateways.	KS2	KS3
		KS4	
4	Set up User Accounts and Print Services on a Network, user applications such as Web Server, Email, file servers, etc.	KS2	KS3
		KS4	
5	Select appropriate system software to fulfil server tasks.	KS2	KS3
		KS4	
6	Implement appropriate security measures at server operating system level.	KS2	KS3
		KS4	

Transferable skills and other attributes

- Personal motivation, organisation and time management
- Ability to collaborate and plan
- Written and verbal communication skills
- Research and analytical skills

Derogations

None.

Assessment:

Indicative Assessment Tasks:

The case study involves the building of servers and configuring key services. All of the tasks involved in the building of servers, will be documented. A written report will be required which will focus on migration techniques involving two or more sites running dissimilar network operating systems.

Assessment number	Learning Outcomes to be met	Type of assessment	Weighting (%)	Duration (if exam)	Word count (or equivalent if appropriate)
1	1,2,3,4,5,6	Case Study	100%		4000

Learning and Teaching Strategies:

Teaching and learning will be delivered through lectures, tutorials, workshops, laboratory group tasks, self-directed study and research.

Each topic will be introduced in lectures, followed by tutorials/workshops to deepen the theoretical principles with practical applications. Some of the tutorials will be group based and some individual

Students will have access to lecture materials, and ancillary resources, via the University's VLE platform.

Syllabus outline:

The module will deal with the design principles and implementation practices of Network Operating systems and the practices and technologies of setting up a medium sized network containing multiple servers.

Open Systems versus proprietary solutions.

Planning and Maintaining Network Security and a Security Infrastructure.

Designing secure networks in a multi-server environment.

Managing and Implementing Disaster Recovery.

Suitable backup strategies.

Installing & Configuring Operating systems and the Network infrastructure including printing Techniques for user account management and scripting.

Implementation of common applications and services typically Web Servers, FTP, Email, relational databases. etc.

The uses of Cloud Computing and Virtualisation.

Current issues in networking for example Bring Your Own Device to work (BYOD).

Indicative Bibliography:

Essential reading

There are no essential texts; the module will use relevant online reference material.

Other indicative reading

Thomas, O. (2017), *Windows Server 2016 Inside Out*. Washington: Microsoft Press.

Rosen, R. (2013), *Linux Kernel Networking: Implementation and Theory*. New York: Apress.

Windows Server technical content library

<https://docs.microsoft.com/en-us/windows-server/windows-server>

Linux.org

<https://www.linux.org/>

Android Developer Guides

<https://developer.android.com/guide/index.html>