Module Title **Data Networks** **Keywords** Packet Switching Networks, WAN And LAN Architecture And Operation, Network Protocols, Internet	Reference EN3531 SCQF SCQF Level 9 SCQF Points 15 ECTS Points 7.5 Created May 2002 Approved March 2004 Amended January 2012 Version No. 3

This Version is No Longer Current

The latest version of this module is available here

Prerequisites for Module

Introduction to Telecommunications (EN2520) or Introduction to Data Networks (EN2521) or equivalent

Corequisite Modules

None.

Precluded Modules

None.

Aims of Module

To provide the student with the ability to appraise the techniques and systems used in data networks and current network technology.

Indicative Student Workload

Contact Hours	Full Time	Part Time
Assessment	3	3
Lectures/Tutorials	36	36
Directed Study	23	23
Private Study	88	88

Mode of Delivery

This is a lecture based course supplemented with tutorials and student-centred learning.
Various topics will be supported by self-directed student work using simulation tools.

Assessment Plan

Learning Outcomes for Module

On completion of this module, students are expected to be able to:

1. Identify the factors that affect the design and operating characteristics of wide area data networks.
2. Assess the factors influencing the design and performance of wide area data networks to improve the performance of an established network.
3. Explain the operating principles of Local Area Networks, and select appropriate technology to meet a need, and identify the critical factors in improving performance.

Indicative Module Content

Introduction to protocols and protocol reference models: Physical, Datalink, Network, Transport and Application layers. Internet working and protocols. Physical Transmission protocols: parallel and serial, asynchronous and synchronous. Factors affecting datalink performance: bsndwidth, attenuation, noise and errors. Line coding. Errors in data communications, error

	Learning Outcomes Assessed
Component 1	1,3
Component 2	1,2,3

Component 2 is a formal, closed book, exam. (50% weighting)

Component 1 consists of a Cisco computer based learning course with online, closed book, assessment. (50% weighting)

Indicative Bibliography

1. This module represents Course 1 of the four course CCNA (Cisco Certified Networking Associate) Routing and Switching Curriculum.The material for the course is provided by Cisco to the University in the form of web-based learning and assessment mechanisms as well as lab equipment in the form of routers and switches for practical training.
2. STALLINGS, W., 2014. Data and Computer Communications, 10th Ed, New Jersey:Prentice Hall.

detection and correction. Datalink protocols: idle ARQ and continuous ARQ. Packet and Circuit switching network operation. Local Area Networks: topology, design and performance.