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Title: Networks and Protocols
 Status: Definitive
 Code: **7018ELE** (121038)
 Version Start Date: 01-08-2016

Owning School/Faculty: Electronics and Electrical Engineering
 Teaching School/Faculty: Electronics and Electrical Engineering

Team	Leader
Ronan McMahon	Y

Academic Level: FHEQ7 **Credit Value:** 20 **Total Delivered Hours:** 62
Total Learning Hours: 200 **Private Study:** 138

Delivery Options

Course typically offered: Semester 2

Component	Contact Hours
Lecture	24
Practical	24
Tutorial	12

Grading Basis: 50 %

Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Exam	Exam	exam	60	2
Report	Report	report	20	
Presentation	Presentati	presentation	20	

Aims

To develop an extensive knowledge of network architectures and the protocols which are used therein.

Learning Outcomes

After completing the module the student should be able to:

- 1 Model and evaluate network scenarios
- 2 Critically evaluate aspects of network architecture and design
- 3 Demonstrate an extensive knowledge and understanding of network performance issues

Learning Outcomes of Assessments

The assessment item list is assessed via the learning outcomes listed:

Exam	2	3
Report	1	
Presentation	1	

Outline Syllabus

Introduction: applications of networks, network functions, protocols and layering, network architectures, layer models, circuit and packet switching.

Physical and data link layers; protocols and functionality, Medium Access Control (MAC), Local Area Networking, e.g Ethernet.

*User applications: Performance requirements – Bandwidth, Errors, Delay, Jitter
QoS implementations - DiffServ, IntServ, MPLS*

Multiple Access – Random, Reservation, Polling, Tokens

Network Routing – Static, dynamic, DVP, LSP

Network Management – FCAPS; MIBs, SNMP, Architecture

Security – Confidentiality, Integrity, Availability.

Wide Area Network and Access Networks – e.g. ADSL, SDH

Internet – Architecture, IP, UDP, TCP, Internet application layers,

Mobile Networks – Architecture, capacity, protocols, function distribution e.g. 3G/4G

Learning Activities

By a series of lectures, labs, tutorials and assignments.

Notes

This module provides the student with an extensive knowledge of the concepts of networks, protocols and the environments in which they operate.