Liverpool John Moores University

Title: Networks and Protocols
Status: Definitive
Code: **7318ELEM**   (121632)
Version Start Date: 01-08-2019

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:**	57
Total Learning Hours:	200	**Private Study:**	143		

Delivery Options
Course typically offered: Semester 2

Component	Contact Hours
Lecture	22
Practical	22
Tutorial	11

Grading Basis: 50 %

Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Exam	Exam	Exam	70	2
Report	Report	2000 words	30	

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 critically evaluate complex network scenarios
2   Critically evaluate aspects of network architecture and design
3   Demonstrate an extensive and comprehensive 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

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/5G
Industrial Applications e.g. Rail Industry, Police etc.

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.