Module Title:	Computer Networks 1
Language of Instruction:	English

Credits:	5

NFQ Level:	7

Module Delivered In	3 programme(s)

Teaching & Learning Strategies:	The module will be delivered using lectures, tutorials and laboratory sessions to illustrate the concepts under study. The Institutes VLE will be used to evaluate the students understanding of these concepts at the end of each section using multiple choice questions. Self test question sheets will be issued to the students at the end of each section.

Module Aim:	To provide a study of Local Area Networks (LANs) and Wide Area Networks (WANs) in an IPv4 environment. This module provides opportunities for students to gain the skills and hands-on experience needed to design and test enterprise LANs and WANs.

Learning Outcomes
On successful completion of this module the learner should be able to:

LO1	Test structured cabling plant to current industry standards.
LO2	Configure industry standard switches and Routers in an IPv4 environment.
LO3	Design, configure and test wired LANs and WANs.
LO4	Use an industry standard simulation package to simulate LANs and WANs.

Pre-requisite learning
Module Recommendations *This is prior learning (or a practical skill) that is recommended before enrolment in this module.*
No recommendations listed
Incompatible Modules *These are modules which have learning outcomes that are too similar to the learning outcomes of this module.*
No incompatible modules listed
Co-requisite Modules
No Co-requisite modules listed
Requirements *This is prior learning (or a practical skill) that is mandatory before enrolment in this module is allowed.*
No requirements listed

Module Content & Assessment

Indicative Content
1. Circuit switched and Packet switched Networks Describe and contrast circuit and packet switched networks.
2. Flow and error control Stop and wait, Go back-N, Selective reject, Windowing.
3. Network Topologies Bus, Ring, Mesh, Star, Hybrid.
4. Structured Cabling Implement a structured cabling installation, Test a structured cable installation to industry standards (EIA/TIA 568-D).
5. Configure an industry standard switches and routers Use a CLI to configure and test: E.G. configure VLAN's on a switch. Configure OSPF and RIP on routers.
6. Use an industry standard simulation package Use a simulation package to design, configure and test LANs and WANs
7. IPv4 addressing Understand the need for layer 3 addressing. Describe IPv4 address structure.
8. HDLC Requirement, Frame structure and operation.
9. Layer 4 operation Understand: The structure and need for layer 4 addressing, The basic operation of UDP and TCP.
10. Network Analyses Use an industry standard analyser to examine packets traversing a LAN.

Assessment Breakdown	%
Continuous Assessment	60.00%
Practical	40.00%

Continuous Assessment

Assessment Type	Assessment Description	Outcome addressed	% of total	Assessment Date
Examination	A mixture of written class tests and MCQ's using the Institute's MLE at the end of each major section.	1,2,3	60.00	n/a

No Project

Practical

Assessment Type	Assessment Description	Outcome addressed	% of total	Assessment Date
Practical/Skills Evaluation	Students will complete practical assignments and practical exams Students will submit written reports on the assignments.	1,2,3,4	40.00	n/a

No End of Module Formal Examination

SETU Carlow Campus reserves the right to alter the nature and timings of assessment

Module Workload

Workload: Full Time		
Workload Type	*Frequency*	*Average Weekly Learner Workload*
Lecture	Every Week	3.00
Practicals	Every Week	2.00
Independent Learning Time	Every Week	2.50
	Total Hours	7.50

Module Delivered In

Programme Code	Programme	Semester	Delivery
CW_EESYS_B	Bachelor of Engineering (Honours) in Electronic Engineering	5	Mandatory
CW_EEROB_B	Bachelor of Engineering (Honours) in Robotics and Automated Systems	5	Mandatory
CW_EEROO_D	Bachelor of Engineering in Robotics and Automated Systems	5	Mandatory

Programme Code	Programme	Semester	Delivery
CW_EESYS_B	Bachelor of Engineering (Honours) in Electronic Engineering	5	Mandatory
CW_EEROB_B	Bachelor of Engineering (Honours) in Robotics and Automated Systems	5	Mandatory