

MODULE DESCRIPTION FORM

Module Information			
Module Title	Computer Networking 1		Module Delivery
Module Type	Core		☒ Theory ☒ Lecture ☒ Lab ☐ Tutorial ☐ Practical ☐ Seminar
Module Code			
ECTS Credits	6		
SWL (hr/sem)	150		
Module Level	3	Semester of Delivery	1
Administering Department	Computer Science	College	Science.
Module Leader		e-mail	
Module Leader's Acad. Title		Module Leader's Qualification	
Module Tutor		e-mail	
Peer Reviewer Name		e-mail	
Scientific Committee Approval Date		Version Number	1.0

Relation with other Modules			
Prerequisite module	None	Semester	
Co-requisites module	None	Semester	

Module Aims, Learning Outcomes, and Indicative Contents	
Module Aims	This course provides a technical and operational overview of digital computer networks, the foundation for all modern information systems and services.

Module Learning Outcomes	The student will learn about the major software and hardware technologies used on home and enterprise computer networks and the global Internet. The student will understand how information is in digital packets and transported across local networks and other global networks interconnecting over the Internet backbone.
Indicative Contents	Indicative content includes the following. <u>Theoretical direction</u>

Introduction: Data communications, classification of computer networks, computer network topologies, communication protocols, and standards, layered tasks, the OSI model and layers, TCP/IP protocol suite, addressing. [6 hrs]

In Physical Layer: Data and signals, analog and digital, analog and digital signals, signals and communication, digital signals, transmission of digital signals, transmission impairments, data rate limits and transmission and performance, digital to digital conversion, , connecting devices: Hub, Switches, Repeaters, Bridges, Routers, Gateways and Routers. [9 hrs]

In Data Link Layer: Error detection and correction: introduction, CRC and checksum, framing, flow and error control. [6 hrs]

In Network Layer: Class full and classless addressing, internetworking, routing concepts, IP routing, routing table, routing components, routing algorithm types (Static V.S. Dynamic, Source routing V.S. Hop-by-hop, Centralize V.S. Distributed, and Distance vector V.S. Link state). [9 hrs]

In Transport Layer: Process to process delivery, Protocols: UDP, TCP and SCTP, congestion control, quality of service. [6 hrs]

In Application Layer Functionality and Protocols: How do the functions of the three upper OSI model layers provide network services to end-user applications?, How do the TCP/IP application layer protocols provide the services specified by the upper layers of the OSI model?, How do people use the application layer to communicate across the information network?, What are the functions of well-known TCP/IP applications, such as the World Wide Web and e-mail, and their related services (HTTP, DNS, DHCP, STMP/POP, and Telnet)?. [9 hrs]

Revision problem classes [6 hrs]

Part B - Practical direction

Fundamentals Study of different types of Network cables and practically implements the cross-wired cables and straight-through cables using a clamping tool. [8 hrs]

Study of network addressing and How to connect the computers to LAN. [8 hrs]

	Introduction to packet tracer program [8 hrs] Learn how basic switch and router configuration. Also, Learn router configuration in small network. [15 hrs]
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Learning and Teaching Strategies	
Strategies	The primary strategy that will be adopted in delivering this course is to encourage student's participation in the exercises while simultaneously refining and expanding their skills in the networking field. This will be achieved through classes and scientific laboratories. In addition to exploring the capabilities and limitations of today's most popular networks, including Ethernet, Wi-Fi, and Cellular, it also covers topics closely related to networks.

Student Workload (SWL)			
Structured SWL (h/sem)	75	Structured SWL (h/w) ¹	5
Unstructured SWL (h/sem)	75	Unstructured SWL (h/w) ¹	5
Total SWL (h/sem)	150		

Module Evaluation					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	5, 10	LO #1, 2, 10 and 11
	Assignments	2	10% (10)	2, 12	LO # 3, 4, 6 and 7
	Projects / Lab.	1	10% (10)	Continuous	
	Report	1	10% (10)	13	LO # 5, 8 and 10
Summative assessment	Midterm Exam	2 hr	10% (10)	7	LO # 1-7
	Final Exam	2hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

