



MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information				
معلومات المادة الدراسية				
Module Title	Computer Networks		Module Delivery	
Module Type	B		☒ Theory ☒ Lecture ☒ Lab ☐ Tutorial ☐ Practical ☐ Seminar	
Module Code	AI0014			
ECTS Credits	8			
SWL (hr/sem)	150			
Module Level	1	Semester of Delivery		1
Administering Department	Type Dept. Code	College	Type College Code	
Module Leader	Amjed Baqer Jumaah		e-mail	Amjad.baqer@alayen.edu.iq
Module Leader's Acad. Title	Assistant lecture		Module Leader's Qualification	M.sc
Module Tutor			e-mail	
Peer Reviewer Name	Name		e-mail	E-mail
Scientific Committee Approval Date	28/10/2024		Version Number	1.0

Relation with other Modules				
العلاقة مع المواد الدراسية الأخرى				
Prerequisite module	None		Semester	
Co-requisites module	None		Semester	



Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Objectives أهداف المادة الدراسية	1. Design simple and complex models of networks 2. Identify the elements and components of the network to be implemented 3. Use the program to get results 4. Knowledge of designing and implementing different types of networks 5. Knowledge of network simulations and performing tests on them to obtain results that can be compared to reality 6. Knowledge of modeling and simulation of methods for connecting computer networks 7. Using packet tracer program to access the design application
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Recognize computer networks. 2. List computer network topologies. 3. Explain each computer network topology physically or logically. 4. List required hardware to constitute computer network. 5. Explain the mission of each computer network. 6. Recognize essential computer network protocols. 7. Explain OSI working principles. 8. Constitute a computer network. 9. Design a computer network according to needs. 10. Identify the necessary hardware to constitute a designed computer network. 11. Identify the necessary software to constitute a designed computer network. 12. Manage a computer network. 13. Use a network operational system. 14. Use tools of network trapping 15. Compose a network user 16. Define a new group in the network. 17. Define permissions to users and groups in the network.
Indicative Contents المحتويات الإرشادية	<u>Part A- Definition of Computer Network</u> 1.Introduction of common terms used in local area network. 2.Identification of LAN installation requirements. 3. Apply Basics of computer networking 4. Set up a LAN and shared devices <u>Part B- Perform Cabling</u> 1. Identification of materials, Tools and equipment. Interactive Content 2. Trunking of LAN Cables Interactive Content 3. Mounting of LAN Equipment Interactive Content 4. Connecting LAN Devices <u>Part C - Conduct site survey</u> 1.Introduce Network Interactive Content 2.Identify components, devices, tools, connectors and media Interactive Content

	3. Identify Security requirements Interactive Content 4. Design and interpret Building blueprint Part D- Configure and troubleshoot a SOHO LAN 1. Configure IOS Interactive Content 2. Configure SOHO LAN IP settings Interactive Content 3. Troubleshoot local area network
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Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	The main strategy that will be adopted in delivering this module is to encourage students' participation in the exercises, while at the same time refining and expanding their critical thinking skills. This will be achieved through classes, interactive tutorials and by considering types of simple experiments involving some sampling activities that are interesting to the students.

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	65	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	5
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	85	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	6
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	150		

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

Total assessment	100% (100 Marks)		
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Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Introduction to Networks
Week 2	Network Core: Packet and Circuit Switching
Week 3	Delay, Loss, Throughput in Networks
Week 4	Protocol Layers and Service Model
Week 5	Principles of Network Applications
Week 6	Week 6 Web and HTTP FTP
Week 7	Electronic Mail: SMTP, POP3, IMAP
Week 8	Week 8 DNS and P2P
Week 9	Transport Layer: Services
Week 10	Multiplexing and DE multiplexing
Week 11	Reliable Data Transfer RDT
Week 12	Connectionless Transport Protocol: UDP
Week 13	Connection-oriented transport: TCP
Week 14	TCP Congestion Control
Week 15	Flow Control
Week 16	Preparatory week before the final Exam

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Introduction to Network Components and Configurations
Week 2	Analyzing Network Topologies
Week 3	Configuring and Testing Network Protocols
Week 4	Socket Programming
Week 5	HTTP and FTP
Week 6	Flow Control and Congestion Control
Week 7	Quality of Service (QoS) Configuration
Week 8	Network Security and Firewalls

Week 9	Virtual Private Networks VPNs
Week 10	Network Monitoring and Troubleshooting
Week 11	SMTP, IMAP and POP3
Week 12	Network Address Translation NAT
Week 13	DNS Configuration and Domain Setup
Week 14	Network Virtualization
Week 15	Network Performance Testing and Optimization

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	James F. Kurose and Keith W. Ross. Computer Networking: A Top-Down Approach, Eighth edition, 2020.	Yes
Recommended Texts	• L. L. Peterson and B. S. Davie. Computer Networks, A Systems Approach. Morgan Kaufman, Fourth edition, 2006. • A. S. Tanenbaum. Computer networks. Prentice-Hall, Fifth edition, 2010	No
Websites	https://www.netacad.com/catalogs/learn/networking	

Grading Scheme مخطط الدرجات				
Group	Grade	التقدير	Marks %	Definition
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	FX – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required
Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.				