MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information				
معلومات المادة الدراسية				
Module Title	**Computer Networks**		**Module Delivery**	
Module Type	**Core**		☒ Theory ☐ Lecture ☒ Lab ☐ Tutorial ☐ Practical ☐ Seminar	
Module Code	**UOMU0302056**			
ECTS Credits	5			
SWL (hr/sem)	125			
Module Level	3	**Semester of Delivery**		5
Administering Department	الأنظمة الطبية الذكية	**College**	العلوم	
Module Leader	ا.د مهدي عبادي مانع	**e-mail**	mahdi.ebadi@uomus.edu.iq	
Module Leader's Acad. Title	Lecturer	**Module Leader's Qualification**		Ph.D.
Module Tutor	ا.د مهدي عبادي مانع	**e-mail**	mahdi.ebadi@uomus.edu.iq	
Peer Reviewer Name	ا.د مهدي عبادي مانع	**e-mail**	mahdi.ebadi@uomus.edu.iq	
Scientific Committee Approval Date	1/10/2025	**Version Number**	2.0	

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	UOMU0302013	**Semester**	1
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents	
أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	1. Build an understanding of the fundamental concepts of computer networking. 2. Familiarize the student with the basic taxonomy and terminology of the computer networking area. 3. Introduce the student to advanced networking concepts, preparing the student for entry Advanced courses in computer networking. 4. Allow the student to gain expertise in some specific areas of networking such as the design and maintenance of individual networks. 5. explain the means and methods contained in the computer network, where the course deals with explaining the means of communication and indicating their quality and efficiency, 6. knowing how to develop the methods of improving the network performance and the factors affecting on the network
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. This course is to provide students with an overview of the concepts and fundamentals of data communications and computer networks. 2. Explain data communication concepts and techniques in a layered network architecture. 3. Recognition on communications switching and routing, types of communication, network congestion, network topologies, network configuration and Management. 4. Explaining in detail about the layered network models (OSI reference model, TCP/IP networking architecture) and their protocols, 5. Types of networks (LAN, MAN, WAN and Wireless networks) and their protocols.
Indicative Contents المحتويات الإرشادية	The module includes four main requirements that the student must complete in order to successfully pass the course. **1. Readings:** Students must weekly read each lecture before presenting it in the classroom in order to be able to interact and discuss. The content of the course includes two main parts, and each part includes a group of sections whose topics are illustrated in weekly syllabus, which includes: **PART ONE:** Introduction to Networking (Data Communication), Network Models, Categories of Networks, Network Classification, Network topologies: THE INTERNET A Brief History, The Internet Today, Protocols and standards, OSI model TCP/IP Protocol Suite, Addressing **PART TWO:** Subnetting, Transmission Impairment, Data Rate Limits, Transmission Media, Guided Media, Unguided Media(wireless), Digital Transmission, Analog Transmission, Bandwidth Utilization, Error Detection, Correction & Multiple Access, UDP, TCP, DNS, Remote Logging, EMail, FTP ,WWW and HTTP

2. Discussion: We will use discussion as the main form of interaction in the class. Students' responses to the weekly readings, their individual assignments, and their thoughtful responses to their classmates' posts show their level of understanding. Their active participation in the discussions is the best way to get the most out of the course!

3. Oral Presentations: The purpose of this assignment is to allow students to explore a topic in more detail for each lecture and to share the results with their classmates. Each student is required to submit a short report in slideshow format (10 slides not including title and reference slides) on a topic relevant to one of the course lecture. The proposed topics are presented in the classroom, but the student can choose other related topics (but after the approval of the teacher). Presentations should be based on scientific sources of information (be sure to include an appropriate list of references). And we should delve deeper into an interesting topic for each section. Try to use non-text materials in your presentation (videos or online examples, tables, charts, and graphs) as a way to group and present the main ideas and themes. If some text is necessary, please limit it to very short paragraphs and bulleted lists. Although not a requirement, all presentations will be posted to Google Classroom and a resource for other class participants. The student is expected to answer the questions of his classmates.

4. Project: This assignment requires the submission of a project by a group of students within a team work that employs all the theoretical concepts studied in the theoretical lectures, SQL topics, and advanced experience in dealing with complex SQL expressions to design and implement an EHR system in the real world.

Learning and Teaching Strategies
استراتيجيات التعلم والتعليم

Strategies	The main strategy that will be adopted in the delivery of this module is to encourage students to participate in discussions, while improving and expanding their critical thinking skills. This will be achieved through discussions during the weekly lectures and after the oral presentations by answering the questions of their colleagues. Enhancing the principle of teamwork by participating in the implementation of the EHR system implementation project.

Student Workload (SWL)

الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	63	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	4
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	62	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	4
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	125		

Module Evaluation تقييم المادة الدراسية					
		Time/ Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment	**Quizzes**	2	10% (10)	4,10	LO #1,2,3 and 12
	Project Assignment	2	10% (10)	12	LO # 13,14 and 15
	Lab. Assignment	1	10% (10)	Continuous	LO # 13, 14 and 15
	Seminar	1	10% (10)	The student chooses the week and the topics	All
Summative assessment	**Midterm Exam**	3hr	10% (10)	7	LO # 1-8
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Introduction to Networking) Data Communication
Week 2	Network (Distributed Processing, Network Criteria, Physical Structures, Network Components: NIC, Repeater HUB, Bridge, Router, GATEWAY

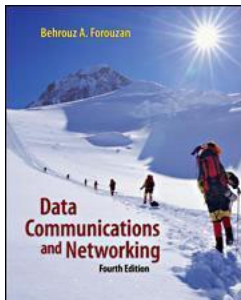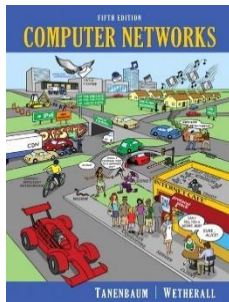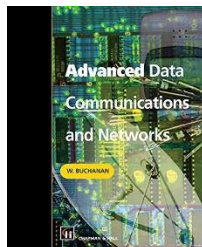|	
Week 3	Network Models, Categories of Networks, Network Classification, LAN, MAN and WAN Network topologies:
Week 4	THE INTERNET A Brief History, The Internet Today, PROTOCOLS AND STANDARD
Week 5	Network Models 2.1 LAYERED TASKS Sender, Receiver, and Carrier, Hierarchy - 2.2 THE OSI MODEL
Week 6	TCP/IP Protocol Suite, Addressing
Week 7	**Midterm Exam**
Week 8	Subnetting
Week 9	Transmission Impairment, Data Rate Limits
Week 10	Transmission Media, Guided Media, Unguided Media(wireless)
Week 11	Digital Transmission
Week 12	Analog Transmission, Bandwidth Utilization
Week 13	Error Detection, Correction & Multiple Access
Week 14	UDP, TCP, DNS, Remote Logging, EMail, FTP
Week 15	WWW and HTTP

Delivery Plan (Weekly Lab. Syllabus)	
المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1-2	introduction to cisco packet tracer + install the program
Week 3-4	Create Simple Networks on packet tracer
Week 5-6	Create 2 different network and connect them
Week 7	Set (host name, enable password, Ip& subnet mask, save)
Week 8	Assign vlan protocol &trunk vlan
Week 9	Implement Telnet &SSH protocols
Week 10	Implement port security
Week 11	Implement port security + vlan protocols
Week 12	Implement vtp + vlsm ip
Week 13-14	Inter-VLAN Routing (Router on a Stick)
Week 15	Implement cisco discovery protocol

Learning and Teaching Resources		
مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	Data communication and networking: Book by Behrouz A. Forouzan,4th edition COMPUTER NETWORKS", 5th edition, ANDREW S. TANENBAUM, DAVID J. WETHERALL, PRENTICE HALL, 2011 	Yes
Recommended Texts	● Advanced Data Communications and Networks: First Edition, Bill Buchanan 	No
Recommended Websites	https://en.wikipedia.org/wiki/Computer_networking https://www.udemy.com/course/introduction-to-networking-for-complete-beginners/?utm_source=aff-campaign&utm_medium=udemyads&LSNPUBID=bt30QTxEyjA&ranMID=47901&ranEAID=bt30QTxEyjA&ranSiteID=bt30QTxEyjA-Q6iiO48YOK3piuI769KNfw https://www.coursera.org/learn/computer-networking?irclickid=1LHxmUSupxyNWT%3AQ-	

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.