

نموذج رقم (١٢)

جامعة: دمياط
كلية: الحاسبات والمعلومات
قسم: تكنولوجيا المعلومات

توصيف مقرر دراسي فصل ثان

١- بيانات المقرر :		
المستوي: الثاني	اسم المقرر: شبكات الحاسبات	الرمز الكودي: ٢٤١ تمع
عدد الساعات المعتمدة: (٣) نظري: (٢) تمارين/عملي: (٢)		التخصص: تكنولوجيا المعلومات

<p>By the end of this course the student be able to:</p> <ol style="list-style-type: none"> 1- Understand and apply the principles and practices of computer network. 2- Identify the different types of network topologies and protocols. 3- Understand good network design: simplicity, scalability, performance, and the end-to-end principle. 4- Provide education and training of high quality in Computer Networks. 5- Understand the OSI and Internet layers. 6- Understand protocols and routing algorithms. 7- Demonstrate an understanding of Ethernet fundamentals. 8- Explain routing and routing protocols. 9- Compare and contrast the OSI and TCP/IP models. 10- Create network addressing schemes using sub-netting and all classes of IP addresses. 	<p>2- Course Objectives أهداف المقرر</p>
<p>3- Intended Learning Outcomes of Course (ILOs) المخرجات التعليمية المستهدفة من المقرر</p>	
<p>By the end of this course the student be able to:</p> <ol style="list-style-type: none"> a.1 Describe the main concepts, definitions of Network systems. a.2 Define computer networks terminologies. a.3 Recognize computer networks protocols and component. a.4 List the IP addresses. a.5 Recognize all possible algorithms present at each layer and applications of computer networks. 	<p>a. Knowledge and Understanding المعرفة/ الفهم</p>
<p>By the end of this course the student be able to:</p> <ol style="list-style-type: none"> b.1 Manipulate and apply appropriate theories, principles and concepts relevant to Computer Networks. b.2 Compare and evaluate between different routing protocols. b.3 Apply appropriate mathematical methods to analyze networked systems. b.4 Explain and apply the knowledge of design of computer networks for LAN, MAN and WAN b.5 Assess different solutions for computer networks 	<p>b. Intellectual /Cognitive Skills القدرة الذهنية</p>
<p>By the end of this course the student be able to:</p> <ol style="list-style-type: none"> c.1 Design, configure/construct, test and evaluate computer network systems and applications. c.2 Identify benefits and drawbacks of existing network configurations. 	<p>c. Professional and Practical Skills مهارات مهنية و عملية</p>

<p>c.3 Apply IP addressing for different network devices. c.4 Use programming techniques for understand routing protocols. c.5 Present specialized research reports for computer networks.</p>																																																																																																															
<p>By the end of this course the student be able to:</p> <p>d.1 Demonstrate ability to work as a team member. d.2 Solve problems relevant to Computer Networks using ideas and techniques some of which are at the forefront of the discipline. d.3 Learn Critical thinking. d.4 Acquire and use communications and research skills. d.5 Learn within a setting of self-learning through discussion.</p>						<p>d. General and transferable skills المهارات العامة والقابلة للنقل</p>																																																																																																									
<p>Part I: Theoretical</p> <table border="1"> <thead> <tr> <th>م</th> <th>المحتويات</th> <th>الأسبوع</th> <th>نظري</th> <th>تمرين</th> <th>عملي</th> <th>المجموع</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Course objective, course description. Introduction to networks.</td> <td>1</td> <td>2</td> <td>0</td> <td>0</td> <td>2</td> </tr> <tr> <td>2</td> <td>Physical network topologies. Topology selection, backbone, and segments.</td> <td>2</td> <td>2</td> <td>0</td> <td>0</td> <td>2</td> </tr> <tr> <td>3</td> <td>The Open Systems Interconnection Specifications (OSI reference model)</td> <td>3</td> <td>2</td> <td>0</td> <td>0</td> <td>2</td> </tr> <tr> <td>4</td> <td>Introduction to Encapsulation. Modulation techniques</td> <td>4</td> <td>2</td> <td>0</td> <td>0</td> <td>2</td> </tr> <tr> <td>5</td> <td>Physical media and cable properties.</td> <td>5</td> <td>2</td> <td>0</td> <td>0</td> <td>2</td> </tr> <tr> <td>6</td> <td>Wiring standards. Installing wiring distributions.</td> <td>6</td> <td>2</td> <td>0</td> <td>0</td> <td>2</td> </tr> <tr> <td>7</td> <td>Ethernet basics. Ethernet at data link layer.</td> <td>7</td> <td>2</td> <td>0</td> <td>0</td> <td>2</td> </tr> <tr> <td>8</td> <td>Midterm Exam.</td> <td>8</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>9</td> <td>Ethernet at physical layer. Ethernet over other standards.</td> <td>9</td> <td>2</td> <td>0</td> <td>0</td> <td>2</td> </tr> <tr> <td>10</td> <td>Common network connectivity devices.</td> <td>10</td> <td>2</td> <td>0</td> <td>0</td> <td>2</td> </tr> <tr> <td>11</td> <td>Internet Protocols.</td> <td>11</td> <td>2</td> <td>0</td> <td>0</td> <td>2</td> </tr> <tr> <td>12</td> <td>IP Addressing.</td> <td>12</td> <td>2</td> <td>0</td> <td>0</td> <td>2</td> </tr> <tr> <td>13</td> <td>Sub netting basics. Introduction to Network Address Translation (NAT).</td> <td>13</td> <td>2</td> <td>0</td> <td>0</td> <td>2</td> </tr> <tr> <td>14</td> <td>Introduction to IP routing and routing protocols.</td> <td>14</td> <td>2</td> <td>0</td> <td>0</td> <td>2</td> </tr> </tbody> </table>						م	المحتويات	الأسبوع	نظري	تمرين	عملي	المجموع	1	Course objective, course description. Introduction to networks.	1	2	0	0	2	2	Physical network topologies. Topology selection, backbone, and segments.	2	2	0	0	2	3	The Open Systems Interconnection Specifications (OSI reference model)	3	2	0	0	2	4	Introduction to Encapsulation. Modulation techniques	4	2	0	0	2	5	Physical media and cable properties.	5	2	0	0	2	6	Wiring standards. Installing wiring distributions.	6	2	0	0	2	7	Ethernet basics. Ethernet at data link layer.	7	2	0	0	2	8	Midterm Exam.	8					9	Ethernet at physical layer. Ethernet over other standards.	9	2	0	0	2	10	Common network connectivity devices.	10	2	0	0	2	11	Internet Protocols.	11	2	0	0	2	12	IP Addressing.	12	2	0	0	2	13	Sub netting basics. Introduction to Network Address Translation (NAT).	13	2	0	0	2	14	Introduction to IP routing and routing protocols.	14	2	0	0	2	<p>4- Course Contents محتويات المقرر</p>
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Part II: Practical

م	المحتويات	أسبوع	نظري	تمرين	عملي	مجموع
1	Overview of the Packet Tracer Program. Exploring LANs, WANs, and Internets.	1	0	0	2	1
2	Navigating the IOS. Basic Connections, Accessing the CLI and Exploring Help. Exploring EXEC Modes. Setting the Clock.	2	0	0	2	1
3	Configuration initial switch settings. Verify default switch configuration. Create a basic switch configuration.	3	0	0	2	1
4	Configure MOTD Banner. Save Configuration Files to NVRAM.	4	0	0	2	1
5	Implement Basic Connectivity. Perform a Basic Configuration on PCs. Configure the Switch Management Interface. Skills Integration challenge.	5	0	0	2	1
6	Investigating TCP/IP and OSI models in Action. Examine HTTP Web traffic. Display Elements of the TCP/IP Protocol Suite.	6	0	0	2	1
7	Explore the network. Examine Internetwork Traffic at Branch. Examine Internetwork Traffic to Central. Examine Internet Traffic from Branch.	7	0	0	2	1
8	Midterm Exam.	8				
9	Connecting Wired and Wireless LAN. Connect to the cloud. Connect to router. Examine physical topology. Investigate Unicast, Broadcast, and Multicast Traffic.	9	0	0	2	1
10	Identify Mac and IP address. Examine ARP table. Examine the ARP Process in Remote Communications. Configuring IPv6 Addressing.	10	0	0	2	1
11	Configure Layer 3 Switch. Configure, Deploy, and Test the New Multilayer Switch. Verifying IPv4 and IPv6 Addressing.	11	0	0	2	1
12	Exploring Internetworking Devices. Identify Physical Characteristics of Internetworking Devices. Select Correct Modules for Connectivity.	12	0	0	2	1

					Troubleshooting IPv4 and IPv6 Addressing.			
1	2	0	0	13	Configure Initial Router Settings. Verify the Default Router Configuration. Save the Running Configuration File. TCP and UDP Communications. Pinging and Tracing to Test the Path.	13		
1	2	0	0	14	Connect a Router to a LAN. Configure Router Interfaces. Troubleshooting Default Gateway Issues. Verify Network Documentation and Isolate Problems. Subletting scenarios.	14		
1. Lectures: 2 Hours per week (2H/W) 2. Practical: 2 Hours per week (2H/W) 3. Discussion								٥-أساليب التعليم والتعلم :
لقاءات خاصة خلال الساعات المكتبية.								٦-أساليب التعليم والتعلم للطلاب ذوي القدرات المحدودة : ٧-تقويم الطلاب :
Types		Assessment					أ. الأساليب المستخدمة:	
Midterm exam		a1, a2, a3, b1, b2, c1, c2, c3, d1, d2.						
Practical exam		a3, a4, b2, b4, c1, c2, c3, c4, c5, d4.						
Oral Exam		a1, a2, b2,b3, c1,c2,d1						
Final written exam		a1, a2, a3, a4, a5, b1,b2,b3,b4,b5, c2,d2						
Assessment 1	Midterm exam	Week 8					ب. التوقيت :	
Assessment 2	Practical exam	Week 15						
Assessment 3	Oral exam	Week 16						
Assessment 4	Final written exam	Week 16						
Midterm examination:		20 %					ج. توزيع الدرجات:	
Practical/laboratory examination:		20 %						
Oral examination		10%						
Final term examination:		50 %						
Total:		100 %						
٨-قائمة الكتب الدراسية والمراجع:								
Lecture notes prepared by academic staff members in the department.							أ. مذكرات	
CompTIA, Network+, Study Guide, Fourth Edition, John Wiley & Sons, Inc., Indianapolis, Indiana, 2018.							ب. كتب ملزمة	

<ol style="list-style-type: none"> 1- "Computer Networking – A Top-Down Approach Featuring the Internet", by James F. Kurose and Keith W. Ross, ISBN-10: 0132856204 or ISBN-13: 978-0132856201. 6th Edition. Publisher is Addison Wesley. 2- "Communication Networks", by Sharam Hekmat, 2005. 3- "Data communications and networking:, (5th ed.). New York, NY: McGraw-Hill. 4- "Computer Networks”, 5th edition, by Tanenbaum and Wetherall, Prentice Hall, 2011. 5- "Computer Networks---A Systems Approach” (4th edition) by Peterson and Davie. 6- Stallings, W., "Wireless Communications and Networks", 2nd Ed., Prentice Hall, 2005. 7- Smith, C., and Collins, D., "3G Wireless Networks", McGraw Hill, 2007. 8- Yacoub, M. D., "Wireless Technology: Protocols, Standards and Techniques", CRC, 2002. 9- Sheikh, A. U. H., Wireless Communications: Theory and Techniques, Springer, 2004. 	<p>كتب مقترحة</p>
<ol style="list-style-type: none"> 1- https://www.coursera.org/learn/fundamentals-network 2- https://alison.com/courses?query=network 3- https://networklessons.com/?s=network 4- https://www.edx.org/ 5- https://www.skillshare.com/search?query=network 6- https://www.lynda.com/search?q=network 7- https://www.udemy.com/course/complete-networking-fundamentals-course-ccna-start/ 8- https://study.com/academy/lesson/hybrid-networking-topologies-types-uses-examples.html 9- https://www.classcentral.com/course/computer-networking-10222 10- https://alison.com/course/diploma-in-computer-networking 11- https://www.free-online-training-courses.com/networking/ 12- https://www.youtube.com/watch?v=QKfk7YFILws 13- https://www.youtube.com/watch?v=0j6-QFnnwQk 14- https://www.youtube.com/watch?v=L3ZzkOTDins 15- https://www.youtube.com/watch?v=qiQR5rTSshw 16- https://www.youtube.com/watch?v=0PbTi_Prpgs 17- https://www.youtube.com/watch?v=gvelDgxodto 18- https://www.youtube.com/watch?v=B4BXL6izd7o 19- https://www.netacad.com/ar/courses/packet-tracer/introduction-packet-tracer 	<p>ج. دوريات علمية أو نشرات... الخ</p>

أستاذ المقرر