

نموذج رقم (١٢)

جامعة: دمياط
كلية: الحاسبات والمعلومات
قسم: تكنولوجيا المعلومات

توصيف مقرر دراسي فصل ثاني

١- بيانات المقرر :		
المستوي: الثالث	اسم المقرر: تكنولوجيا الاتصالات	الرمز الكودي: ٣٤٢ 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 different communication technologies. 2- Identify the different types of multiplexing. 3- Understand Digitalization techniques. 4- Provide education and training of framing and formatting. 5- Understand Circuit-Switched Technology. 6- Demonstrate different transmission network media. 7- Explain SONET basics. 8- Understand Spread Spectrum. 	<p>2- Course Objectives أهداف المقرر</p>
<p>3- Intended Learning Outcomes of Course (ILOs)</p>	
<p>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 communication technologies. a.2 Define optical networking. a.3 Recognize Regenerators operations. a.4 List SONET tributary . a.5 Recognize SDH basics. 	<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 different communication technologies. b.2 Compare and evaluate between different multiplexing techniques. b.3 Apply appropriate ISDN technologies standards. b.4 Explain and apply the knowledge of design of optical networking. b.5 Assess different solutions for Digitalization techniques. 	<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 different optical networks. c.2 Identify benefits and drawbacks of existing services and protocols. c.3 Apply different ISDN technologies. c.4 Use appropriate simulator for understand multiplexing techniques. c.5 Present specialized research reports for SONET. 	<p>c. Professional and Practical Skills مهارات مهنية و عملية</p>
<p>By the end of this course the student be able to:</p> <ol style="list-style-type: none"> d.1 Demonstrate ability to work as a team member. d.2 Solve problems relevant to optical network design using ideas and techniques some of which are at the forefront of the discipline. 	<p>d. General and transferable skills المهارات العامة والقابلة للنقل</p>

- 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.

Part I: Theoretical

م	المحتويات	الاسبوع	نظري	تمرين	عملي	المجموع
1	Multiplexing, Frequency-Division Multiplexing, Wavelength-Division Multiplexing,	1	2	0	0	2
2	Synchronous Time-Division Multiplexing, Statistical Time-Division Multiplexing.	2	2	0	0	2
3	Digitization techniques, Framing, Fixed-Size Framing, Variable-Size Framing, Flow Control, Error Control.	3	2	0	0	2
4	SONET basics, Architecture, SONET Devices, Connections.	4	2	0	0	2
5	SONET Layers, SONET Frames.	5	2	0	0	2
6	SONET networks, Virtual tributaries.	6	2	0	0	2
7	SDH basics, SDH standards, SDH layers, Future of SDH.	7	2	0	0	2
8	Midterm Exam.	8				
9	Regenerator, Integrated Services Digital Network (ISDN), ISDN Device,	9	2	0	0	2
10	ISDN Service, ISDN Specification, ISDN protocol.	10	2	0	0	2
11	B-ISDN future of telecommunications, Broadband ISDN protocol,	11	2	0	0	2
12	Signaling system 7 (SS7), SS7 link types, Layers of SS7 protocol, Addressing SS7 network.	12	2	0	0	2
13	Optical technology, Optical networking, Optical Layer, Optical Packet Switching, Network Evolution.	13	2	0	0	2
14	Propagation of Signals in Optical Fiber, Intermodal Dispersion, Chromatic Dispersion. Optical Fiber as a Waveguide	14	2	0	0	2

Part II: Practical

م	المحتويات	اسبوع	نظري	تمرين	عملي	مجموع
1	What is Wireshark?, Building and Installing Wireshark under Windows, Installation Components, Install Location.	1	0	0	2	1
2	User Interface, Start Wireshark, Main Window, Wireshark Menu.	2	0	0	2	1

4- Course Contents
محتويات المقرر

1	2	0	0	3	Main Toolbar, Filter Toolbar, Packet List pane, Packet Details pane, Packet Bytes pane, Status bar.	3		
1	2	0	0	4	Capturing Live Network Data, Start capturing, Capture option, Manage Interface, Compiled filter output. Capture files, Files modes. Link-layer header type, Filtering while capturing. Automatic Remote Traffic Filtering	4		
1	2	0	0	5	File Input, Output, And Printing, Open capture files, input file formats, saving capture packets, output file formats. Merging capture files. Import Hex dumps, Encapsulation,	5		
1	2	0	0	6	List Files, Exporting data, Printing packets, Packet range frame, and packet format frame.	6		
1	2	0	0	7	Working With Captured Packets, Pop-up Menus, Filtering Packets While Viewing, Building Display Filter Expressions, Display Filter Expression, Defining And Saving Filters. Defining And Saving Filter Macros, Finding Packets.	7		
				8	Midterm Exam.	8		
1	2	0	0	9	Go To A Specific Packet, Marking Packets, Ignoring Packets. Time Display Formats, Time References, Following Protocol Streams.	9		
1	2	0	0	10	Show Packet Bytes, Expert Information, TCP Analysis, Time Stamps, Time Zones, Packet Reassembly.	10		
1	2	0	0	11	Name Resolution, Checksums, Statistics, Resolved Addresses, Conversations, Endpoints, Packet Lengths, I/O Graphic.	11		
1	2	0	0	12	Service Response Time, DHCP (BOOTP) Statistics, NetPerfMeter Statistics, TCP Stream Graphs, UDP Multicast Streams. IPv4 Statistics, IPv6 Statistics.	12		
1	2	0	0	13	Telephony, Playing VoIP Calls, VoIP Calls Window, ANSI, GSM Windows, LTE, SCTP Windows. Wireless, Bluetooth Devices, WLAN Traffic.	13		
1	2	0	0	14	Customizing Wireshark, Packet colorization, Control Protocol dissection, MaxMind Database Paths, IKEv2 decryption table, Object Identifiers, MATE, AVPL,	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
1- DATA COMMUNICATIONS AND NETWORKING , Behrouz A. Forouzan, McGraw-Hill Forouzan Networking Series, 2007.			ب. كتب ملزمة
2- Wireshark User' s Guide Version 3.7.0, Richard Sharpe, Ed Warnicke, Ulf Lamping, 2019.			
1- Optical Networks, A Practical Perspective, Third Edition, Rajiv Ramaswami, Kumar N. Sivarajan, Galen H. Sasaki, AMSTERDAM, 2010.			كتب مقترحة
1- https://www.javatpoint.com/multiplexing-in-computer-network			ج. دوريات علمية أو نشرات... الخ
2- https://www.cisco.com/c/en/us/support/docs/optical/synchronous-optical-network-sonet/13567-sonet-tech-tips.html			
3- https://www.javatpoint.com/wireshark			

أستاذ المقرر

د/ أحمد محمد ربيع سيد