Republic of Iraq
The Ministry of Higher Education
& Scientific Research

University: Anbar
College: CS & IT
Department: CS & IT
Stage: 3rd
Instructor name: Dr. Salah Awad Salman
Academic status: Assistant Prof.
Qualification: PhD
Place of work:

UNIVERSITY OF ANBAR

Course Weekly Outline

Course Name : Communications and Networks Fundamentals

Course Instructor	Dr. Salah Awad Salman
E-mail	Salah_eng1996@yahoo.com
Title	Communications and Networks Fundamentals – CS, Computer Networks II-IS
Course Coordinator	-
Course Objective	The students will be able to: 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.
Course Description	This course is to provide students with an overview of the concepts and fundamentals of data communication and computer networks. Topics to be covered include: data communication concepts and techniques in a layered network architecture, communications switching and routing, types of communication, network congestion, network topologies, network configuration and Management, network model components, layered network models (OSI reference model, TCP/IP networking architecture) and their protocols, various types of networks (LAN, MAN, WAN and Wireless networks) and their protocols.
Textbook	Data Communications and Networking, 3, 4 /e, Behrouz A Forouzan
References	Computer Networks, Fourth Edition, Andrew S. Tanenbaum.

Course Assessments	Term Tests	Laboratory	Quizzes	Project	Final Exam
	25	**15**	**10**	**-**	**50**

General Notes	The course is supplemented by a practical component

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Week	Date	Topics Covered	Lab. Experiment Assignments	Notes
1-2		**PART 2: Physical Layer - Chapter: 5 Digital Transmission** **5.1 DIGITAL-TO-DIGITAL CONVERSION** 　Line Coding, Block Coding, Scrambling **5.2 ANALOG-TO-DIGITAL CONVERSION** 　Pulse Code Modulation (PCM), Delta Modulation (DM) **5.3 TRANSMISSION MODES** 　Parallel Transmission, Serial Transmission	Lab1: Coding	
3-4		**Chapter: 6 Analog Transmission & Bandwidth Utilization** **6.1 DIGITAL-TO-ANALOG CONVERSION** 　ASK, FSK, PSK, QAM **6.2 ANALOG-TO-ANALOG CONVERSION** 　AM, FM, PM **6.3 MULTIPLEXING** 　FDM, WDM, STDM, S TDM **6.4 SPREAD SPECTRUM** 　FHSS, DSSS	Lab2: Modulation &SSS	
5-6		**PART 3: Data Link Layer- Chapter: 7 Error Detection, Correction & Multiple Access** **7.1 INTRODUCTION** 　Types of Errors, Redundancy, Detection Versus Correction, Coding, Modular Arithmetic **7.2 BLOCK CODING** 　Error Detection, Error Correction **7.3 CYCLIC CODES** 　Cyclic Redundancy Check, Hardware Implementation **7.4 MAC** **7.5 CHANNELIZATION** 　FDMA,TDMA, CDMA	Lab4:TCP/IP Programming	
7-8		**Chapter8: Wired LANs & Wireless LANs** **8.1 Wired LANs: Ethernet** 　8.1.1 IEEE STANDARDS, 　8.1.2 STANDARD ETHERNET **8.2 Wireless LANs** 　8.2.1 IEEE 802. 　8.2.2 BLUETOOTH	Lab6:TCP/IP Programming	
9-10		**PART 4 Network Layer- Chapter 9: Logical Addressing** **9.1 IPv4ADDRESSES** **9.2 IPv6 ADDRESSES** **9.3 Internet Protocol** 　**9.3.1 IPv4** 　Datagram, Fragmentation, Checksum, Options, 　 **9.3.2 IPv6** 　Advantages, Packet Format, Extension Headers	Lab7:TCP/IP Programming	
11		**Chapter 10: Address Mapping & Routing** **10.1 ADDRESS MAPPING** 　ARP, RARp, BOOTP, and DHCP **10.2 UNICAST ROUTING PROTOCOLS** 　Intra- and Inter-domain Routing, Distance Vector Routing, Link State Routing, Path Vector Routing **10.1 MULTICAST ROUTING PROTOCOLS** 　Unicast, Multicast, and Broadcast, Applications, Multicast Routing, Routing Protocols	Lab7:TCP/IP Programming	
12-13		**PART 5 Transport Layer- Chapter 11: UDP, TCP** **11.1 PROCESS-TO-PROCESS DELIVERY** **11.2 USER DATAGRAM PROTOCOL (UDP)** User Datagram, Checksum, UDP Operation, Use of UDP **11.3 TCP** TCP Services, TCP Features, Segment, A TCP Connection , Flow Control	Lab8:Network Programming	

14-15		**PART 6 Application Layer- Chapter 12 DNS, Remote Logging, E-Mail, and FTP** **12.1 NAME SPACE** **12.2 DOMAIN NAME SPACE** Label , Domain Narne, Domain **12.3 RESOLUTION** Resolver, Mapping Names to Addresses, Mapping Address to Names **12.4 REMOTE LOGGING:** TELNET **12.5 ELECTRONIC MAIL** **12.6 FILE TRANSFER** FTP, Anonymous FTP	Lab9:Network Programming	

16		**Chapter 13 WWW and HTTP**
		13.1 ARCHITECTURE
		    Client (Browser), Server, Uniform Resource Locator, Cookies
		13.2 WEB DOCUMENTS
		    Static Documents, Dynamic Documents, Active Documents
		13.3 HTTP
		    HTTP Transaction, Proxy Server
			Lab9:Network Programming	

Instructor Signature: **Dean Signature:**