KOMAR UNIVERSITY OF SCIENCE AND TECHNOLOGY
(KUST)

COURSE SYLLABUS FOR Local Area Networks (LAN)			
Course Title	**Local Area Networks (LAN)**		
Course Code	**INF 4325**	**No. of Credits**	**(3 CHs)**
Department	**Business Administration**	**Collage**	**College of Business**
Pre-requisites Course Code	**Introduction to Computer (CMP 1200) System Analysis and Design (INF 4320)**	**Co-requisite Course Code**	**None**
Course Instructor	**Adnan H. M. Al-Helali , PhD**		
Email	**adnan.hadi@komar.edu.iq**	**Office No: 208**	**IP : 148**
Course Other Teacher(s) /Tutor(s)	**None**		
Teaching Hours	**Sunday and Tuesday from 8:00 to 9:30 AM (** Lab. B - 04 -05)		
Contact Hours	**Tuesday from 11:00 to 12:00 Or by appointment, also you can send an email at any time.**		
Course Type	**❒ Information Management Requirement**		
Offer in Academic Year	**☐ Spring Semester 2015/2016**		

COURSE DESCRIPTION:

This course will be taught using the top-down approach. Topics covered include concepts and terminology of data communications and computer networks, LAN classification, and OSI model. An in-depth analysis is presented of the Network layer design issues, Logical and physical realization of computer networks. LAN IEEE standards and protocols (token ring, token bus, and Ethernet), physical layer basics, data link layer, framing protocols, error detecting and correcting, routing algorithms, flow control, congestion control algorithms are presented.

COURSE OBJECTIVES:

As part of this course, students

1. Will be introduced to network classification, standards and Models.
2. Will be introduced to networks design issues.
3. Will learn and understand networks architecture, protocols, and design principles
4. Will understand and apply the principle of internetworking.
5. Will understand and apply the end-to-end principle.
6. Will Practice some wire and wireless LANs.

COURSE LEARNING OUTCOMES (CLO):

After successfully completing the course, students will be able to

1. Use Computer network terminologies [ABET Program Outcome I, J].
2. Classify and Compare with different types of networks [ABET Program Outcome D].
3. Apply knowledge of mathematics, probability, and statistics for network design issues [ABET

Program Outcome A].
4. Design, implement, and analyze simple LAN networks [ABET Program Outcome B].
5. Operate some TCP/IP standard Protocols for LAN networks [ABET Program Outcome K].

COURSE CONTENT:

Course topics include:

1. Introduction to Computer Networks
2. Networks Classifications
3. Networks Models and standardization
4. Networks Design Issues
5. Static and dynamic channel allocation in LAN
6. LAN Communication equipment's
7. Wireless LANs
8. TCP/IP Protocols Standard

GRADING POLICY

Grades	Letter	GPA	Grades	Letter	GPA
95-100%	**A**	4.0	70-74%	**C**	2.0
94-90%	**A-**	3.7	**65-69%**	**C-**	1.7
87-89%	**B+**	3.3	60-64%	**D+**	1.3
83-86%	**B**	3.0	55-59%	**D**	1.0
80-82%	**B-**	2.7	50-54%	**D-**	0.7
75-79%	**C+**	2.3	0-49%	**F**	0.0
Withdrawal	**W**	-	Incomplete	**I**	-

Note: Passing Grade is 65% and above

COURSE TEACHING AND LEARNING ACTIVITIES

1. **Lectures**: The lectures provide a broad introduction to each topic and emphasis key concepts.
2. **Case Studies:** the numerous Case Studies are an important learning tool, integrated closely with the theoretical materials presented in each chapter.
3. **Labs**: Every two weeks students will take one Lab.
4. **Quick Quizzes**: There are some announced quizzes.
5. **Feedback**: Feedback on student progress will be given throughout the course.
6. **Examinations**: Examinations (mid-term and final) are all comprehensive in nature.

COURSE ASSESSMENT Tools

Assessment Tool	Description	Weight
Homework and Assignments	Homework must be turned in at the specified due date prior to the beginning of class. No late homework assignments will be accepted.	**15%**
Quizzes	There are Four quizzes, which the students are supposed to appear in (one is optional).	**20%**
Lab Test	Students will take one Lab test	**10%**
Mid-Term	One mid-term exam will be conducted (theoretical and problems solving).	**25%.**
Final Exam	The final examination will be comprehensive of all the course materials.	**30%.**

ESSENTIAL READINGS: (textbooks, website addresses etc.)

Textbook	i. J. Kurose & K. Ross, *Computer Networking: A Top-Down Approach Featuring the Internet*, 6th Edition, Addison Wesley, 2013.
Additional Resource	i- Computer Networks, by Andrew S. Tanenbaum, 5th Edition Prentice-Hall, Inc. 2010. ii-Fred Halsall, "Computer Networking and the Internet", 5th Edition, ADDISON-WESLEY, 2005. iii. Olivier Bonaventure "Computer Networking : Principles, Protocols and Practice" The Saylor Foundation, 2013.

COURSE POLICY *(including plagiarism, academic honesty, attendance etc)*

Attendance Policy	KUST Academic Policy http://sar.komar.edu.iq/files/Student%20hand%20Book%202013.pdf Attendance: ❖ Students are expected to **attend all lectures** and must **attend all examinations, quizzes, and practical exercises.** ❖ Faculty **need not** give substitute assignments or examination to students who miss classes **without official permission.** ❖ Student must arrange with the faculty to **make-up** the missed class. ❖ Students are subject to the regulation and policies mentioned in the **KUST Student Handbook**. ❖ KUST guidelines for **l**ateness are as follows: **Three occasions of lateness count as one absence**. (you can be considered in lateness from the 10th minute).

GUIDELINES FOR SUCCESS

The following points may help the students to success:

i. Attend all lectures, pay attention, participate during the classes, and keep asking questions.
ii. Be preparing for the classes, quizzes, and examinations ahead of time schedule.
iii. Need not to memorize everything, instead of that try to understand and enhance your knowledge.
iv. Ask for help from your teacher or classmates and don't feel shy for acquire of knowledge and understanding of subject matter.
v. Take note during the lecture.

NOTE: students are required to bring their notebooks, pens and not to engage themselves with cell-phones.

REVISION TO THE SYLLABUS

This syllabus is subject to change, it is the responsibility of the instructor to let the students be informed and aware of such change, if, happened, in a timely fashion after the approval of Quality Assurance Office (QAO).

Course calendar: Please check the academic calendar for 2015/2016 (Subject to Change)

Week	Beg/End Dates	Topics (Chapters)	CLO	Course Requirements
1	Feb 28- Mar 3 2016	Chapter 1 Introduction to Computer Networks 1-1 Introduction 1-2 Definition of Computer Network	**1**	
2	Mar 6- Mar 10 2016	1-3 Block Diagram of Computer Network 1-4 Computer Network Standards • OSI Standard • TCP/IP Chapter 2 Classifications of Computer Networks 2-1 Classifications Based on Occupied Area • PAN Network: • LAN Network • MAN Network • WAN Network • Internet Network	**1, 2**	**Assignment #1**
3	Mar 13- Mar 17 2016	2-2 Classifications Based on Topology • BUS Network • Star Network: • Ring Network • Mesh Network • Tree Network • Hybrid Network • Other Topologies 2-3 Classifications Based on Transmission Media 2-3-1 Wire Networks • Coaxial Cable Network • Twisted Pair Cable Network • Optical Fiber Network 2-3-2 Wireless Networks • Radio Waves Network • Infrared Waves Network	**2**	**Quiz #1**

		2-4 Classifications Based on Transmission Mode • Simplex Network • Half-Duplex Network • Full-Duplex Network		
4	Mar 27- Mar 31 2016	2-5 Classifications Based on Transmission Technology • One-to-One Network • One-to Many Networks • One-to-Group Network 2-6 Classifications Based on Application of Computer Networks • Peer-to-Peer Network • Client/Server Network	**2**	**Assignment #2**
5	Apr 4- Apr 7 2016	Chapter3: Design Issues of Computer Networks Introduction 3-1 Network Addressing • Logical Addressing (IP address, Port number, Socket address). • Physical Addressing (MAC address)	**3**	
6	Apr 10- Apr 14 2016	2- Error Control • Error detection (CRC Code) and • Error correction (Hamming Code) • protocols 3- Flow Control	**3**	**Assignment #3**
7	Apr 17- Apr 21 2016	4-Routing algorithm 5- Segmentation and Assembly	**3**	**Quiz #2**
	Apr 22 – Apr 28 2016	**Midterm Exam**		
8	May 2- May 5 2016	7- Multiplexing and De-multiplexing 8- Modulation and Demodulation	**3**	
9	May 8- May 12 2016	9- Switching 10- Synchronization 11- Encapsulation 12- Other Issues	**3,4**	**Assignment #4**
10	May 15- May 19	Chapter 4: Local Area Networks (LANs)		

	2016	4-1 Introduction 4-2 IEE Ethernet LAN Standards 4.2.1 Medium Access Control (MAC) 4.2.2 Ethernet Frame Format	**4**	
11	May 22- May 26 2016	4.2.3 Ethernet Types (cabling) 4-3 LAN Communication Equipments: • Network Interface Card (NIC), • Repeaters, • Hubs, • Bridges	**4**	**Quiz #3**
12	May 29- June 2 2016	• Switches, • Routers and • 7- Gateways	**4**	**Assignment #5** **Lab Test**
13	June 5-June 9 2016	4-4 Token Ring LAN (IEEE802.5) 4-5 Wireless LAN • Hyper LAN • Wi-Fi (IEEE802.11) Chapter 5: OSI and TCP/IP standards 5-1 Introduction 5-2 OSI Standard	**4,5**	
14	June 12-June 16 2016	5-3 TCP/IP Standard • IP Protocol (Internet Protocol) • TCP Protocol (Transmission Control Protocol) • UDP (User Datagram Protocol) • ARP Protocol • Other Protocols • Data Units in TCP/IP 5-4 General Relationships Layers and Devices 5-5 Relationship of NOS and Layers	**5**	**Quiz #4**
15	June 19-June23 2016	**Conclusion review**		

16	June 24- June 30 2016	**Final Exam**		

Signature:

Adnan Hadi Mahdi Al-Helali (PhD)

Course Instructor