FUTURE UNIVERSITY IN EGYPT
جامعة المستقبل

Faculty of Engineering & Technology

Data Communication Systems

Information :

Course Code : COM 526 **Level :** Undergraduate **Course Hours :** 3.00- Hours

Department : Specialization of Electronics & Communication

Instructor Information :

Title	Name	Office hours
Associate Professor	Ahmed Salah Eldin Mohamed Ali	4
Associate Professor	Ahmed Salah Eldin Mohamed Ali	4
Assistant Lecturer	Nermin Mohamed Fawzy Mahmoud Salem	6
Assistant Lecturer	Nermin Mohamed Fawzy Mahmoud Salem	6

Area Of Study :

The Main Goals of this course are:
• To enrich students' knowledge about data communication and computer networks.
• Develop students' skills to analyse simple protocols used in computer networks.
• Share ideas and work in a team or a group.

Description :

Basic concepts of data transmission, data networks and the internet. Computer models (ISO/OSI and TCP/IP) modems and xDSL, error control, flow control, data link control protocols, sliding window and ARQ, HDLC, statistical multiplexing, line codes, circuit and packet switching, timing diagrams, frame relay, ATM, routers. Multiple-Access techniques. Local Area Networks. Giga Ethernet. Wireless LAN (IEEE 802.11x).Local Area Networks: Wired (Ethernet) generations up to 100Giga Ethernet, Wireless LAN generations :IEEE802.11(b,a,g,n,ac,ad),ISM bands ,Bluetooth ,WiMax(IEEE802,16)

Course outcomes :

a.Knowledge and Understanding: :	
1 -	a1. Illustrate the understanding of data communication basic concepts.
2 -	a2. List the main characteristics of communication links used in data communications.
3 -	a3. Recognize the different types of error and flow control.
4 -	a4. Explain the functions and protocols used in each of 5-layer model.
5 -	a5. Distinguish the addressing methods in computer networks
6 -	a6. Estimate the relevant protocols for real and non real time traffic
b.Intellectual Skills: :	
1 -	b1. Analyse the performance of simple protocols.
2 -	b2. Calculate the different delay components in data transmission
3 -	b3. Develop a software code in error control algorithms using MATLAB.

c.Professional and Practical Skills: :	
1 -	c1. Conduct knowledge of mathematics and logic design to data communication
2 -	c2. Build a software code using modern software tools for protocol sniffing.
3 -	c3. Prepare a report concerning the standard protocol
d.General and Transferable Skills: :	
1 -	d1. Communicate effectively with other people using visual, graphic, written and verbal means.
2 -	d2. Demonstrate Efficient IT capabilities using modern software tools.
3 -	d3. Manage time to meet deadlines.

Course Topic And Contents :

Topic	No. of hours	Lecture	Tutorial / Practical
Basic concepts of data transmission and computer networks	20	12	8
Addressing in computer networks	15	9	6
Network layered models and protocols	15	9	6
Error control techniques	15	9	6
Ethernet,WiFi ,Bluetooth and WiMax	10	6	4

Teaching And Learning Methodologies :

Interactive Lecturing
Discussion
Problem Solving
Experiential Learning

Course Assessment :

Methods of assessment	Relative weight %	Week No	Assess What
• Final exam	40.00		
o 2 Midterms	30.00		
o In Class Quizzes	10.00		
o Performance/assignments	20.00		

Course Notes :

1. Text Book:
Behrouz Forouzan “Data communication and networking”5th Edition

2. Recommended Readings:
W.Stallings”Data and computer communications” 10th Edition

Recommended books :

W.Stallings”Data and computer communications” 10th Edition