Faculty of Computers and Information Technology

Computer Networks-1

Information :

Course Code :	DM222	**Level :**	Undergraduate	**Course Hours :**	3.00- Hours

Department : Faculty of Computers and Information Technology

Instructor Information :

Title	Name	Office hours
Lecturer	Ghada Mohamed Abdel Moneim Afify	
Teaching Assistant	Debaj Shady Mahmoud Talha Mohamed Elmaghraby	
Teaching Assistant	Reem Khaled Mohamed Elsayed	
Teaching Assistant	Nesma Tamer Mohamed Mohamed Abd AlsalamAlabyd	

Area Of Study :

Explain basic concepts of data communication and networking.
List Data communications standards and protocols.
Mention the concepts of the Local Area Networks (LAN) and Wide Area Networks (WAN). State and differentiate between the Wireless Computer Networks types.
Outline Computer Network Security Techniques.

Description :

Definition and objectives, Classifications, topologies, Architecture, standards, Applications, ISO-OSI model, SwDMhing techniques, Error detection and Correction, Network protocols, Routing strategies and techniques, Flow control, Congestion control , Public swDMhed data network. Internetworking; Introduction to ISDN and B-ISDN.

Course outcomes :

a.Knowledge and Understanding: :	
1 -	Explain the basic terminology of Data and Computer Communications.
2 -	Describe the Communication architectures OSI and TCP.
3 -	State the basics of Local Area Networks and Wide Area Networks (technologies, protocols and applications).
4 -	Outline the WLAN networks.
5 -	Identify the Computer Networks Security issues and techniques.
b.Intellectual Skills: :	
1 -	Analyze different techniques and topologies of computer networks.
2 -	Select appropriate Network Topology for a given environment.
3 -	Design a LAN, WLAN and WAN configuration for given requirements.
c.Professional and Practical Skills: :	
1 -	Design, Implement communicate link between two and/or more computers.

2 -	Apply a secured communication protocols for data exchange between two computers using a programming languages.
3 -	Create complete user programs using Socket Programming.
4 -	Implement the routing algorithms.
d.General and Transferable Skills: :	
1 -	Exploit a range of learning resources.
2 -	Work on a team

ABET Course outcomes :	
1 -	Demonstrate adequate understanding of the basic concepts of data communication and networking
2 -	Differentiate between LANs and WANs
3 -	Identify data communications standards and protocols
4 -	Identify the characteristics of different types of Wireless networks
5 -	Demonstrate adequate understanding of computer network security techniques

Course Topic And Contents :

Topic	No. of hours	Lecture	Tutorial / Practical
Internet , Networks and The Network Core	4	2	2
Access Networks , Protocol Layers and Their Service Models	4	2	2
Application Layer: Network Applications and Architectures, DNSð The Internetõs Directory Service.	4	2	2
Transport Layer: Multiplexing and De-multiplexing , Principles of Reliable Data Transfer ,TCP Segment Structure , Flow Control, Congestion Control	4	2	2
Quiz -1	2		
Network Layer: Forwarding and Routing	4	2	2
Network Layer: Internet protocol (IPv4 to IPv6)	4	2	2
Data Link Layer: Link Layer Services , Error-Detection and -Correction Techniques	4	2	2
Mid Term Exam	2		
Data Link Layer: Multiple Access Links and Protocols ,	4	2	2
Wireless Networks	4	2	2
Network security	4	2	2
Network security	4	2	2
Final Exam	2		

Teaching And Learning Methodologies :
Interactive Lectures including discussion
Practical Lab Sessions
Self-Study (Project / Reading Materials / Online Material / Presentations)
Problem Solving

Course Assessment :

Methods of assessment	Relative weight %	Week No	Assess What
Assignments	10.00	3	
Final Exam	40.00	14	
Midterm Exam (s)	20.00	9	
Quizzes	10.00	5	
Team Work Projects	20.00	7	

Course Notes :

Course Notes are available with all the slides used in lectures in electronic form on Learning Management System (Moodle)

Recommended books :

William Stallings, ñData and Computer Communicationsò, Pearson, last edition. ISBN-13: 9780133506600