CPIT-370 Syllabus

Catalog Description

CPIT-370 Computer Networks
Credit: 3 (Theory: 3, Lab: 0, Practical: 1)
Prerequisite: CPIT-201
Classification: Department Required

The objective of this course is to provide a wide background of computer networks, giving students the basic knowledge of data communication, medium accessing protocols, local area networks, and an overview of the higher level protocols. Topics include principles of computer networks, network standard models, analog and digital signals, multiplexing schemes, transmission media, multiple access techniques, wired and wireless lans, network devices, IP addressing, domain name system, and laboratory experiments.

Class Schedule

Lab/Tutorial 90 minutes 1 times/week

Meet 50 minutes 3 times/week or 80 minutes 2 times/week

Textbook

James F. Kurose, Keith W. Ross, , "Computer Networking", Addison-Wesley Longman; 6 edition (2013)

ISBN-13 9780132856201 **ISBN-10** 0132856204

Grade Distribution

Week	Assessment	Grade %
3	Graded Lab Work 1	1
5	Quiz 1	2.5
5	Homework Assignments 1	1.25
5	Graded Lab Work 2	1
6	Exam 1	15
6	Graded Lab Work 3	1
9	Homework Assignments 2	1.25
10	Graded Lab Work 4	1
11	Homework Assignments 3	1.25
12	Exam 2	15
13	Homework Assignments 4	1.25
13	Graded Lab Work 5	1
14	Lab Exam	10
15	Quiz 2	2.5
15	Project (Individual)	15
16	Exam	30

Last Articulated

February 15, 2018

Relationship to Student Outcomes

a	b	c	d	e	f	g	h	i	j	k	l	m	n
x											x	x	

Course Learning Outcomes (CLO)

By completion of the course the students should be able to

1. Define and discuss the concepts in the context computer networks and the Internet such as data communication components, network topologies, packet switching, physical media, circuit switching, standards and general idea behind the Internet (m)
2. Define and compute different network performance measurement metrics such as delay, packet loss and throughput (a)
3. Describe the OSI and Internet models as they apply to contemporary communication (m)
4. Define and discuss about key application layer concepts such as network services required by applications, client and servers, process communications (m)
5. **Compare the operations of HTTP, FTP, SMTP and DNS protocols (m)**
6. Discuss the principles behind transport layer services such as connection-less and connection-oriented multiplexing and demultiplexing. (m)
7. Analyze the priciples and operations of UDP and TCP protocols. (m)
8. Discuss the principles behind network layer services such as forwarding and routing, network service models, virtual circuit and datagram networks. (m)
9. **Analyze the principles and operations of Internet protocols such as IPV4, DHCP, NAT, ICMP, IPV6 (m)**
10. Analyze the link-layer services and the techniques used for transmission-error detection, and compute the error detection codewords. (a)
11. **Criticize the operations of various medium access control protocols (m)**
12. **Analyze the principles of ARP protocol, Ethernet Structure, compare the functionalities of the devices connecting LAN's and Backbone networks and design, administrate and operate experimental wired LAN. (l)**
13. Analyze the operation of wireless LANs based on the IEEE 802.11 standards, and design, administrate and operate experimental wireless LAN (l)
14. Compare the relationship between data and electromagnetic signals, and analyze the transmission impairments of a channel (m)
15. **Create a small network for a company that includes**

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Topics Coverage Durations

Topics	Weeks
Introduction to computer networks and the Internet	1
Network models	1
Application Layer	2
Transport Layer	2
Network Layer	3
Link Layer	3
Wireless Network	1
Physical Layer	2

Coordinator(s)

Prof. Muhammad Mostafa Monowar, Professor