CPCS-371 Syllabus

Catalog Description

CPCS-371 Computer Networks (I)
Credit: 3 (Theory: 3, Lab: 0, Practical: 1)
Prerequisite: CPCS-214
Classification: Department Required

The objective of this course is to provide an introduction to computer networks and the ISO-7 layers reference model, which includes necessary protocols. Selected network layers, such as data link layer, transport layer, network layer, etc., will be focused with detail information. In addition to this, network security, web technologies and application layer will also be introduced.

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", Pearson Education; 6 edition (2012)

ISBN-13 9780273768968 **ISBN-10** 0273768964

Grade Distribution

Week	Assessment	Grade %
3	Quiz 1	3
5	Homework Assignments 1	2
6	Exam 1	15
7	Quiz 2	3
10	Homework Assignments 2	1.5
11	Quiz 3	4
12	Exam 2	15
13	Homework Assignments 3	1.5
14	Group Project	15
15	Graded Lab Work	5
15	Lab Exam	10
16	Comprehensive Final Exam	25

Last Articulated

October 30, 2017

Relationship to Student Outcomes

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

Course Learning Outcomes (CLO)

By completion of the course the students should be able to

1. Define Internet, Network Edge, Network Core, Delay, Loss, and Throughput in Packet-Switched Networks. (b)
2. Identify Protocol Layers and their Service Models, (c)
3. Describe Networks under Attack, History of Computer Networking and the Internet. (b)
4. Define Network Applications, Application layer protocols (b)
5. **Demonstrate application layer protocols example HTTP, SMTP, POP3, IMAP, DNS, FTP and DHCP (j)**
6. **Implement Client Server Communication using Socket Programming (i)**
7. Identify Transport Layer Services (i)
8. Differentiate reliable and unrelaible services, Define flow control and congestion control (b)
9. **Choose TCP or UDP protocol for different applications, (j)**
10. **Classify and design IP version 4 addressing schemes, Differentiate between Routing and Forwarding on Netowrk Layer (b)**
11. **Identify and design Subnetting (VLSM), Supernetting (CIDR) using IP v4 (i)**
12. Describe VPN, NAT, ICMP (j)
13. Identify Link Layer services, Define link layer address (i)
14. Describe ARP, RARP, Ethernet, Link Layer Switch verses Router (j)
15. Identify Security issues in Networks, Express basic idea of Network Security, describe fundamental security algorithms, Cryptography, symetric Key Cryptography, Public Key Encryption, Ipsec and VPN, Intrusion Detection System (b)
16. Describe the organization of a wireless network and how wireless networks support mobile users. (j)

Coordinator(s)

Dr. Riaz Shaikh, Associate Professor

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Topics Coverage Durations

Topics	Weeks
Computer Networks and Internet	3
Application Layer	3
Transport Layer	2
Network Layer	3
Link Layer and Local Area Network	2
Security in Computer Networks	1
Wireless and mobile networks	1