

CPCS-372 Syllabus

Catalog Description

CPCS-372 Computer Networks (II)

Credit: 3 (Theory: 3, Lab: 0, Practical: 1)

Prerequisite: CPCS-371

Classification: Elective

The objective of this course is to introduce students to the principles, design, implementation, and performance of computer networks. This course is based on the layering architecture and covers the routing protocols in detail. Topics include Internet routing protocols, local area networks, congestion control, TCP, wireless communications and networking, mobile IP, performance analysis, network address translation, multimedia over IP, switching and routing, peer-to-peer networking, network security, and other current research topics in the area of computer networks.

Class Schedule

Lab/Tutorial 90 minutes 1 times/week

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

Textbook

Larry L. Peterson, Bruce S. Davie, , "Computer Networks", Morgan Kaufmann Pub; 5 edition (2012)

ISBN-13 9780123850591 **ISBN-10** 0123850592

Grade Distribution

Week	Assessment	Grade %
3	Quiz 1	3
5	Quiz 2	3
6	Exam 1	15
7	Quiz 3	3
10	Quiz 4	3
12	Quiz 5	3
12	Exam 2	15
15	Project (Individual)	10
15	Lab Exam	20
16	Comprehensive Final Exam	25

Last Articulated

March 5, 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. Illustrate a good conceptual understanding of computer networking concepts using OSI referene model. (b)
2. Demonstrate an understanding of different types of Computer Networks from the perspective of nodes and links. (b)
3. Evaluate network performance interms of bandwidth and latency. (j)
4. Demonstrate an understanding of data link layer protocols in terms of framing, error detection and encoding. (j)
5. Illustrate how reliability can be achived at the link layer using ARQ algorithms: stop-and-wait, and sliding window. (j)
6. **Demonstrate an understanding about medium access protocols for ethernet and wireless networks. (b)**
7. **Demonstrate an understanding of network switching concepts in connection less networks (datagrams) and connection-oreiented networks (ATM). (b)**
8. **Demonstrate an understanding of basic internetworking using IP, ARP, DHCP and ICMP protocols (j)**
9. **Illustrate a good conceptual understanding of packet routing techniques using RIP, OSPF and BGP protocols. (b)**
10. Illustrate a good conceptual understanding of multicast routing techniques using DVMRP, PIM and MSDP protocols. (b)
11. Demonstrate an understanding of multiprotocol label switching (MPLS) concepts using two techniques: 1) destination-based forwarding, and 2) Explicit routing (b)
12. Illustrate a good conceptual understanding of routing packets in mobile hosts using Mobile IP mechanism. (i)
13. Demonstrate an understanding about a transfer of a real time multimedia data using RTP protocol. (b)
14. **Illustrate a good conceptual understanding of congestion control and resource allocation techniques for datagram networks. (j)**
15. Demonstrate an understanding about network security mechanisms in wired and wireless networks (j)
16. Demonstrate an ability of developing client server application using socket APIs. (c)

Coordinator(s)

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Topics Coverage Durations

Topics	Weeks
Foundation	1
Getting Connected	2
Internetworking	3
Advance Internetworking	3
End-to-End Protocols	1
Congestion Control and Resource Allocation	3
Network Security	2

Coordinator(s)

Dr. Riaz Shaikh, Associate Professor