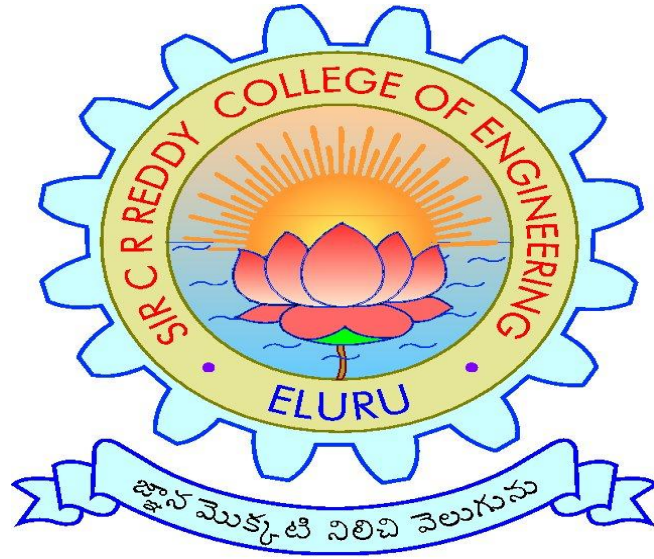


SIR C.R.REDDY COLLEGE OF ENGINEERING, ELURU

DEPARTMENT OF INFORMATION TECHNOLOGY

LESSON PLAN



SUBJECT: CSE 3.1.1 COMPUTER NETWORKS

CLASS: 3/4 B.Tech., I SEMESTER, A.Y.2017-18

INSTRUCTOR: V.GOPINATH

Sir C R Reddy College of Engineering
DEPT. OF INFORMATION TECHNOLOGY

PROGRAMME: B.Tech
SEMESTER: III –I Semester
A.YEAR : 2017-18

Course: IT 3.2.4 Computer Networks

Instructor: V.Gopinath

Course Contents

Category of Course	Course Title	Course Code	Credits- 4	Theory Paper
Core Subject	Computer Networks	IT 3.1.3	L-3 T-1	Max.Marks-70 Duration-3hrs.

Course Objectives:

1. To make the students understanding of basic requirements of network hardware, software and its architecture.
2. Familiarize the students with layered architecture of the network software and hierarchal nature of the network physical infrastructure.
3. Study of various network interconnecting devices and other associated network hardware.
4. Introduction of advanced networking concepts and wireless and wireless sensor networks.

Course Outcomes:

1. The student must be able to understand the design and estimate the requirements for practical setup of a given network scenario and size.
2. Realize the Operation, maintenance and management of the Internet by mapping the theoretical networking concepts to the real-time network scenarios.
3. Demonstrate the applications of wireless Networks and over view of advanced networking concepts.
4. Identify different networking devices and their usage and functionality

CSE 3.1.1

COMPUTER NETWORKS

Instruction: 3 Periods + 1 Tut/week, Univ.

Credits: 4

Exam: 3 Hours

Internal: 30 Marks

University Exam: 70 Marks

Total: 100 Marks

Syllabus

Syllabus:

1. **Introduction to Computer Networks:** Introduction, Network Hardware, Network Software, Reference Models, Network Examples, Internet Based Applications.
2. The Medium Access Control: The Channel Allocation Problem, CSMA Protocols, Collision Free Protocols, The Ethernet, Wireless LANS, Bluetooth
3. **Network Layer :** Network Layer Design Issues, Routing Algorithms, Congestion Control Algorithms, Net work Layer in the Internet, IP Protocol, IP Address, Subnets, and Internetworking.
4. **Transport layer:** Transport Service, Elements of Transport Protocols, TCP and UDP Protocols, Quality of Service Model, Best Effort Model, Network Performance Issues.
5. **Application Layer:** Over View of DNS, SNMP, Electronic Mail, FTP, TFTP, BOOTP, HTTP Protocols, World Wide Web, Firewalls.
6. **Network Devices:** Over View of Repeaters, Bridges, Routers, Gateways, Multiprotocol Routers, Hubs, Switches, Modems, Channel Service Unit CSU, Data Service Units DSU, NIC, Wireless Access Points, Transceivers, Firewalls, Proxies.
7. Overview of Cellular Networks, Ad-hoc Networks, Mobile Ad-hoc Networks, Sensor Networks

Text Books:

1. Computer Networks, Andrews S Tanenbaum,, 5th Edition, Pearson Edu. Inc., 2011

References:

1. Data Communications and Networking , Behrouz A Forouzan , Tata McGraw-Hill Co. Ltd , Second Edition, ISBN: 0-07-049935-7
- 2 . Computer networks, Mayank Dave, CENGAGE.
2. Computer networks, A system Approach, 5thed, Larry L Peterson and Bruce S Davie, Elsevier.
3. An Engineering Approach to Computer Networks-S.Keshav, 2nd Edition, Pearson Education.
4. Understanding communications and Networks, 3rd Edition, W.A. Shay, Thomson

Prerequisite : Data communications

Students are expected to know and understand the fundamentals of Data communication as taught in an undergraduate course using a text such as Data communications by William Stallings. Topics covered should include layers and transmission technologies and multiplexing.

Internal Assessment Details:

Attendance: 5 Marks

Internal Test 1& 2: 15 Marks

Assignment-1: 5 Marks

Assignment-2: 5 Marks

Total: 30 Marks

ONLINE REFERENCES:

- 1) <https://www.coursera.org/.../computer.../computer-secu..>
- 2) https://en.wikipedia.org/wiki/Computer_network
- 3) <https://www.vub.ac.be/BIBLIO/.../courses/.../network.p>
- 4) nptel.ac.in/courses/106105081/1
- 5) <https://www.lifewire.com/suggested-networking-project...>
- 6) <https://www.saylor.org/.../Computer-Networking-Principles-Bonaventure-1-30-31-OTC1...>
- 7) <https://www.pearson.com/...Computer-Networks.../978...>

SIR C R REDDY COLLEGE OF ENGINEERING :: ELURU
DEPARTMENT OF INFORMATION TECHNOLOGY
COURSE SCHEDULE

The schedule for the whole course/subject is:

Unit No	Description of the Chapter	Description of the Topics	Total no of periods (L+T)
1	Introduction to Computer Networks	Introduction, Network Hardware, Network Software, Reference Models, Network Examples, Internet Based Applications	8+2

2	Network Devices	Over View of Repeaters, Bridges, Routers, Gateways, Multiprotocol Routers, Hubs, Switches, Modems, Channel Service Unit CSU, Data Service Units DSU, NIC, Wireless Access Points, Transceivers, Firewalls, Proxies	7+1
3	Application Layer	Over View of DNS, SNMP, Electronic Mail, FTP, TFTP, BOOTP, HTTP Protocols, World Wide Web, Firewalls	8+2
4	Transport layer	Transport Service, Elements of Transport Protocols, TCP and UDP Protocols, Quality of Service Model, Best Effort Model, Network Performance Issues	8+2
5	Network Layer	Network Layer Design Issues, Routing Algorithms, Congestion Control Algorithms, Net work Layer in the Internet, IP Protocol, IP Address, Subnets, and Internetworking	8+2
6	The Medium Access Control	The Channel Allocation Problem, CSMA Protocols, Collision Free Protocols, The Ethernet, Wireless LANS, Bluetooth	9+2
7	Overview of Cellular Networks	Networks, Ad-hoc Networks, Mobile Ad-hoc Networks, Sensor Networks	5+2

Total no of instructional periods available for the course : 75 periods

Total no of estimated periods : 66 periods

Signature of the H.O.D

Signature of the Faculty

Date:

	<u>LECTURE PLAN</u>
DEPARTMET	INFORMATION TECHNOLOGY
NAME OF LECTURER	V.Gopinath

Sl.No	Topics to be covered	No. of Lecture hours	Teaching method	Outcomes
1	Introduction	1	BB	a,c,e
2	Network Hardware	2	BB	a,c,e
3	Network software	2	PPT with LCD	a,b,c,e
4	Reference models	2	BB	a,b,c,e
5	Network examples	1	PPT with LCD	b,c,d,e
6	Internet based applications	2	BB	a,c,e
7	Overview of repeaters	1	PPT with LCD	b,c,d,e
8	Bridges,routers,gateways	1	PPT with LCD	b,c,d,e
9	Multiprotocol routers	1	BB	a,c,d
10	Hubs,switches and modems	1	BB	b,c,d

11	Channel service unit CSU	1	BB	b,c,d,e
12	Data service Unit DSU	1	BB	b,c,d,e
13	NIC,wireless access points	1	BB	b,c,d,e
14	Transceivers,firewalls,proxies	1	PPT with LCD	,c,d,e
15	Overview of DNS	1	BB	a,c,d,e
16	SNMP	1	BB	b,c,d,e
17	Electronic mail	1	PPT with LCD	a, c, e
18	FTP	1	BB	a, c, e
19	TFTP	1	BB	a,c,e
20	BOOTP	1	BB	a,c,e
21	HTTP Protocols	2	BB	a, c, e
22	www	1		a, c, e
23	firewalls	1	BB	a, c, e
24	Transport service	2	BB	a, c, e
25	Elements of transport protocols	1	BB	a, c, e
26	TCP	2	BB	a, c, e
27	UDP	1	BB	a, c, e
28	QOS Model	2	PPT with LCD	a, c, e
29	Best effort model	1	BB	a, c, e
30	Network performance issues	1	BB	a, c, e
31	Network layer design issues	1	BB	a, c, e
32	Routing algorithms	2	BB	a, c, e
33	Congestion control algorithms	2	BB	a, c, e
34	Network layer in internet	1	BB	a, c, e

35	IP Protocol	1	BB	a, c, e
36	IP Address,subnets	2	PPT with LCD	a, c, e
37	internetworking	1	PPT with LCD	a, c, e
38	The channel allocation problem	2	BB	b,c,e
39	CSMA protocols	2	BB	b,c,e
40	Collision free protocols	1	BB	a b,c,e
41	The ethernet	2	BB	a b,c,e
42	Wireless lans	3	BB	b,c,e
43	bluetooth	1	PPT with LCD	b,c,e
44	Overview of cellular networks	1	BB	b,c,e
45	Ad hoc networks	2	BB	b,c,e
46	Mobile ad hoc networks	2	PPT with LCD	b,c,d,e
47	Sensor networks	2	BB	b,c,d,e
	Total classes	66		

Unit wise questions (short and essay)

COMPUTER NETWORKS

Unit Wise Question Bank

Unit wise question Bank

UNIT-1

SHORT ANSWER QUESTIONS

1. Define Computer Networks?
2. What is WWW?
3. What is Internet?
4. What is GPS?
5. Define the terms unicast, multicast and broadcast?
6. What is PANs, MANs, WANs and LANs?
7. What is Bluetooth and wifi?
8. Define congestion?
9. What is ARPANET?
10. What is RFID?
11. List some internet standards?

LONG ANSWER QUESTIONS

1. Describe the uses of computer networks?
2. Illustrate network software concepts?
3. Illustrate network hardware concepts?
4. Explain in detail about network reference models? Mention your critique on those models.
5. Write short note on following
 - i) The internet
 - ii) 3 G mobile phone networks

iii) wireless LANs: IEEE 802.11

iv) RFID and sensor networks

(or)

Explain different examples of networks in the real world?

UNIT-2

SHORT ANSWER QUESTIONS

1. What is MAC layer?
2. What is ALOHA?
3. What do you mean by carrier sense protocols?
4. What is CSMA?
5. What is reservation protocols?
6. What is FDDI and RPR?
7. What are the types of Ethernet?
8. What is access points?
9. What is Bluetooth?

LONG ANSWER QUESTIONS

1. Describe in detail about channel allocation problem?
2. Explain the working of ALOHA?
3. Describe CSMA protocols?
4. Explain various collision free protocols?
5. Illustrate Ethernet?
6. Explain the wireless LANs/
7. Explain the Bluetooth?

UNIT-3

SHORT ANSWER QUESTIONS

- 1.what is session routing?
- 2.Define static routing and adaptive routing?
- 3.what is flooding.
- 4.what do you mean by anycast routing?
- 5.what I s QOS?
- 6.what is jitter?
- 7.what is tunneling.
- 8.what is VPNs
- 9.what is NAT

LONG ANSWER QUESTIONS

- 1.Explain the design issues of network layer?
- 2.compare the virtual circuit and datagram network?
- 3.Explain dijkstras algorithm with example?
- 4.explain the distance vector routing algorithm?
- 5.Describe various approaches to congestion control
- 6.Explain various issues must be addressed to ensure QOS?
- 7.illustrate IPv4.
- 8.Describe the following in briefly

i)IMCP ii)ARP iii)DHCP

UNIT-4

SHORT ANSWER QUESTIONS

- 1.what is portmapper?
- 2.what is silly window syndrome?

LONG ANSWER QUESTIONS

- 1.Explain the elements of transport layer
- 2.Describe UDP/
- 3.Explain performance issues of transport layer.

UNIT-5

SHORT ANSWER QUESTIONS

LONG ANSWER QUESTIONS

- 1.Describe DNS.
- 2.Explain SMTP and MIME.
- 3.Illustrate HTTP
- 4.Explain the working of FTP and TFTP
- 5.Explain the BOOTP
- 6.Describe firewalls.

UNIT-6

SHORT ANSWER QUESTIONS

1. what you mean by the following terms
 - i) repeater ii) bridge iii) router iv) gateway v) hubs vi) switches vii) modems
2. what is firewall
3. what are proxies

LONG ANSWER QUESTIONS

1. Differentiate CSU and DSU
2. write a short note on following
 - i) wireless access points ii) transceivers iii) firewalls iv) proxies
3. explain the working and use of various networking devices.

UNIT-7

SHORT ANSWER QUESTIONS

1. what is cellular network.
2. what is adhoc network
3. what are MANETs
4. what are sensor networks.

LONG ANSWER QUESTIONS

1. Explain the working of cellular networks
2. Explain the working principles of ad-hoc networks
3. Explain the MANETS
4. Explain the working of Sensor Networks.

