SRM INSTITUTE OF SCIENCE AND TECHNOLOGY
FACULTY OF ENGINEERING AND TECHNOLOGY
SCHOOL OF COMPUTING
COURSE PLAN

Course Code : **18CSC303J**
Course Title : COMPUTER NETWORKS
Semester : **V**
Course Time : **JULY - DECEMBER 2022**
Slot : **A**

Day	BATCH			
	BATCH1		BATCH 2	
	Hour	Timing	Hour	Timing
Day Order 1	1,2	8:00 to 9:40 am	6,7	12:30 to 2:15 pm
Day Order 2	10	4:00 to 4:55 pm	5	11:35 to 12:25 pm
Day Order 3	3	9:45 to 10:35 am	8	2:20 to 3:10 pm
Day Order 4				
Day Order 5				

Location : Tech Park, University Building
Faculty Details :

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Reference Books

1. Behrouz A. Forouzan, "TCP IP Protocol Suite " 4th edition, 2010, McGraw-HillISBN: 0073376043
2. Douglas E. Comer, Internetworking with TCP/IP, Principles, protocols, and architecture,Vol 1 5th Edition,2006 ISBN: 0131876716, ISBN: 978-0131876712.

Prerequisite : NIL

Instructional Objectives

1. Describe the importance of various Internet protocols like ARP, RARP, ICMP, Multicasting
2. Understand the transport layer protocols , application layer protocol and its characteristics
3. Learn and Understand IPV6 technologies
4. Work with client server sockets and develop related applications to communicate with each other.
5. Understand the wide area network protocols
6. Learn the basics of DSL,ATM,HDLC,MPLS

Tentative Test Schedule

S.No.	DATE	TEST	TOPICS	DURATION
1	07/9/2022 onwards	Cycle Test – I	Unit I	1 Hour
2	13/10/2022 onwards	Cycle Test – II	Unit II,III	2 Hours
3	16/11/2022 onwards	Cycle Test – II	Unit IV,Unit V	2 Hours

Assessments

Cycle Test – I	:	25 Marks
Cycle Test – II	:	50 Marks
Cycle Test – III	:	50 Marks

QUESTION PATTERN & MARK DISTRIBUTION FOR CIA TEST

CIA TESTS	MARKS	TEST
Cycle Test (CT I)	PART A: (MCQ) → 10 × 1 = 10 PART –B (Descriptive/Scenario) →1 × 15 = 15 Total Marks -> 25	Physical Written Exam
Cycle Test (CT II)	PART A: (MCQ) → 20 × 1 = 10 PART –B (Descriptive/Scenario) →2 × 15 = 15 Total Marks -> 50	OPEN BOOK EXAM
Cycle Test (CT III)	PART A: (MCQ) → 20 × 1 = 10 PART –B (Descriptive/Scenario) →2 × 15 = 15 Total Marks -> 50 NOTE : Weightage (2.5/7.5 marks) will be given for Students who completes International Certification course Like CCNA, CompTIA Network+, Juniper Networks Certifications, VMware Certifications, Microsoft Certifications, Google Certifications, etc.)	OPEN BOOK EXAM

HACKER RANK CONTEST

To inculcate practical knowledge and for placement readiness, HackerRank Contest will be posted at the end of every month in GCR. It is planned to conduct 4 HackerRank challenge in the month of Auguest, September, October and November 2022 and consolidated score will be taken into account for CLAP3 component. The detailed schedule is given below

S.NO	HACKERRANK	TENTATIVE PROPOSED DATES
1	HackerRank Challenge -1	29/8/2022
2	HackerRank Challenge -2	24/9/2022
3	HackerRank Challenge -3	12/10/2022
4	HackerRank Challenge -4	12/11/2022

MINI PROJECT

It is proposed to give **mini projects for the lab** and to be used in AWS platform only. Students can form a team of 4(max) . The title and team members to be collected from the respective faculty and they can start working on the lab class from the beginning. The mini project report should be collected at the end (Abstract, introduction, problem statement, survey, design, Implementation etc). Two reviews to be conducted for evaluating the mini project marks. **(CLAT4 – 5 marks CLAP4 – 5 marks)**

S.NO	Tentative Review 1 Dates	Tentative Review 2 Dates
1	29/8/22 to 5/9/2022).	10/10/22 to 14/10/22

MARK DISTRIBUTIONS FOR LAB COMPONENTS(CLAP)

CLA COMPONENTS	MARKS	RULES
CLAP1	Lab Exercises Completion (Ex : 1 to 5) → 3 Marks Viva Marks → 2 Marks Total Marks -> 5 Marks	• Students must maintain both Observation and Record note books • Records to be signed before CLAT1 • Students will be evaluated based on the viva questions and experiment completion
CLAP2	Lab Exercises Completion (Ex : 5 to 10) → 4.5 Marks Viva Marks → 3 Marks Total Marks -> 7.5 Marks	• Students must maintain both Observation and Record note books • Records to be signed before CLAT2 • Students will be evaluated based on the viva questions and experiment completion
CLAP3	Lab Exercises Completion (Ex : 11 to 15) → 3 Marks Viva Marks → 2.5 Marks HackerRank Score → 2 Marks Total Marks -> 7.5 Marks	• Students must maintain both Observation and Record note books • Records to be signed before CLAT3 • Hackerrank challenge will be conducted at the end of every month. Consolidated score will be taken • Students will be evaluated based on the viva questions, experiment completion and Hackerrank challenge score

Detailed Session Plan:

Session No.	Topics to be covered	Hours	Ref	Teaching Method	Testing Method
UNIT I:					
1	Introduction to IP Header, Fragmentation-ARP-RARP	2	1	BB	Group discussion Quiz
2	ICMP – ICMP Package -Study of Header files for Socket Programming	3	1	BB	Group discussion Quiz
3	UDP Datagram and characteristics	2	1	BB	Group discussion Illustration by examples
4	TCP Process-Header – Error Control	2	1	BB	Group discussion Quiz
5	TCP Flow Control-Congestion Control	3	1	BB	Group discussion, Illustration by examples
6	Multicasting Protocols-SCTP-TCP/IP Client Server Communication	3	1	BB	Group discussion, Illustration by examples
UNIT II:					
7	Byte Ordering-Conversion Functions	2	1	BB	Group Discussion Illustration by examples
8	Introduction to Sockets-System calls-Socket Interface and its Functions	3	1	BB	Group Discussion, Illustration by examples
9	Remote Procedure Calls – RPC Model and Features	2	1	BB	Group discussion
10	TCP Input Output Processing Module – Concurrent Day Time Server – Client Server Program	2	1	BB	Group discussion, Quiz Illustration by examples
11	UDP Input Output Modules-Control blocks-UDP Client Server Program	3	1	BB	Group discussion, Illustration by examples
12	SCTP Sockets-Services and Features-Packet Format-Client Server Program	3	1	BB	Group discussion, Illustration by examples
UNIT III:					
13	Introduction to DNS-DNS Resolution - Messages	2	1	PPT	Quiz Group discussion
14	TELNET-SSH-Half Duplex chat using TCP/IP	2	1	PPT	Group discussion, Illustration by examples
15	FTP – TFTP- Implementation of FTP	2	1	PPT	Group discussion , Illustration by examples
16	WWW Architectures -WWW Documents-HTTP- Request and Reply	2	1	PPT	Group discussion Illustration by examples
17	DHCP Operation and Configuration	2	1	PPT	Group discussion
18	SMTP-POP3	2	1	PPT	Quiz, Illustration by examples
19	IMAP – MIME – Remote Command Execution using UDP	3	1	BB	Group discussion, Illustration by examples
UNIT IV:					
20	IPV4 Overview – Features – Addressing Modes and Types	3	1	BB	Group discussion Quiz
21	Address Space Allocation – Unicast	2	1	PPT	Group discussion

	addressing-Auto Configuration				Illustration by examples
22	Introduction to IPV6 - Packet Format - Addressing	2	1	BB	Group discussion Illustration by examples
23	IPV6 Subnetting – IPV4 Vs IPV6 - Tunneling	2	1	PPT	Group discussion
24	IPV4 to IPV6 Tunneling and Translation Techniques	2	1	BB	Group discussion , Quiz
25	NAT Protocol – IPV6 Mobility	2	1	BB	Quiz Group discussion
26	Protocol support for IPV6-NAT	2	1	BB	Group discussion , Quiz
UNIT V:					
27	Introduction to DSL – DSL Technology – Cable Technology-	2	1	PPT	Group discussion
28	Frame Relay - VPN- Architecture	2	1	PPT	Group discussion
29	Introduction to ATM – Cell Format – ATM Layer – ATM Applications	3	1	BB	Group discussion,
30	PPP – PPP Services – Components	2	1	BB	Group discussion Illustration by examples
31	PPP Frame – Byte Stuffing	2	1	BB	Group discussion, Quiz
32	HDLC – Frames – Transfer Modes	2	1	BB	Group discussion, Illustration by examples
33	MPLS –Communication using PPP	2	1	BB	Group discussion Illustration by examples

P. M

[COURSE COORDINATOR]

25/8/22

[AUDIT PROFESSOR]