MANIPAL INSTITUTE OF TECHNOLOGY

MANIPAL
(A constituent unit of MAHE, Manipal)

COURSE PLAN

Department	**Computer Science and Engineering**		
Course Name	Computer Networks	Course Code	CSE 3152
Semester	V	Curriculum	2018
Name of the faculty	Mr. Manoj R	Academic year	2022-23
No. of Contact Hours/Week	L T P C: 3 0 0 3		

COURSE OUTCOMES (CO'S)

At the end of this course, the student should be able to:		**No. of Hours**	**Marks**
CO1	Acquire knowledge of How Computer Network is structured	3Hrs	8
CO2	Understand the principles of different Application Layer protocols	6Hrs	16
CO3	Understand and analyze the features in the transport layer protocols in the TCP/IP architecture to support connection less and connection oriented services	10Hrs	28
CO4	Understand the role and working of network layer in the TCP/IP architecture	12Hrs	33
CO5	Ability to learn the role of data link layer in channel access, Flow control and Error Control	5Hrs	15
Total hours/ Marks		**36**	**100**

In semester & End semester plan and schedule (AY: 2022-23)

Component	Type	Max. Marks	Syllabus: Topics covered during	Schedule	Blooms taxonomy levels
MISAC 1	In semester Exam 1	15	July 25 - Aug 27, 2022	Sep 2-8, 2022	2 to 6
MISAC 2	Quiz	5	July 25 - Sep 10, 2022	Sep 19-24, 2022	2 to 6
MISAC 3	Surprise Assignment	5	Aug 15 - Sep 17, 2022	Sep 26-Oct 1, 2022	4
FISAC 1	(B) Surprise Assignment	5	Sep 12 – Sep 24, 2022*	Oct 3-8, 2022	4
MISAC 4	In semester Exam 2	15	Sep 12 - Oct 15, 2022	Oct 17-22, 2022	2 to 6
FISAC 2	(D) Group Assignment	5	Topics covered after MISAC 4	Oct 31-Nov 05, 2022	5
END Semester examination		50	L1 – L36	Nov 17 - Dec 8	2 to 6

MISAC – Mandatory In semester Assessment Components

FISAC – Flexible In semester Assessment components

FISAC 1/2 should be different

***Topics covered under FISAC 1 may vary depending on the assessment type chosen**

Blooms Taxonomy Level – FISAC 1 & 2			
No	**FISAC Components**	**First year**	**Higher semester**
A	QUIZ/MCQs	Same as MISAC 2 (2 to 6)	
B	Surprise Assignment	3	Same as MISAC 3 (4)
C	Take home assignment	3	4
D	Group Assignment	4	5
E	Seminar	4	5
F	Quiz based on invited talks	4	5
G	Development of SW/Apps	4	5
H	Mini Project	4	5

LESSON PLAN

Lecture No.	Topic	CO's addressed
L0	Introductory class (Introduction between teacher & students. Overview of the subject).	-
L1	COMPUTER NETWORKS AND THE INTERNET: What Is the Internet? The Network Edge, The Network Core, Delay, Loss, and Throughput in Packet-Switched Networks,	CO1
L2	Protocol Layers and their Service Models, History of Computer Networking, and the Internet	CO1
L3	APPLICATION LAYER: Principles of Network Applications, The Web and HTTP	CO2
L4	The Web and HTTP Continued, File Transfer: FTP,	CO2
L5	Electronic Mail on the Internet, SMTP	CO2
L6	DNS—The Internet's Directory Service,	CO2
L7	Socket Programming: Creating Network Applications- Socket Programming with UDP	CO2
L8	Socket Programming with TCP	CO2
L9	TRANSPORT LAYER: Introduction and Transport-Layer Services, Multiplexing and Demultiplexing,	CO3
L10	Connectionless Transport: UDP, Principles of Reliable Data Transfer,	CO3
L11	Principles of Reliable Data Transfer continued	CO3
L12	Connection Oriented Transport: TCP	CO3
L13	Connection Oriented Transport: TCP continued	CO3
L14	Connection Oriented Transport: TCP continued	CO3
L15	Connection Oriented Transport: TCP continued	CO3
L16	Connection Oriented Transport: TCP continued	CO3
L17	Principles of Congestion Control, TCP Congestion Control	CO3
L18	TCP Congestion Control continued	CO3
L19	THE NETWORK LAYER: Introduction, Virtual Circuit and Datagram Networks	CO4
L20	What's Inside a Router? The Internet Protocol (IP): Forwarding and Addressing in the Internet datagram	CO4
L21	Format, IPv4 Addressing,	CO4
L22	IPv4 Addressing, Continued.	CO4
L23	IPv4 Addressing, Continued.	CO4
L24	Internet Control Message Protocol (ICMP), IPv6	CO4

L25	Routing Algorithms- The Link-State (LS) Routing Algorithm,	C
L26	The Distance-Vector (DV) Routing Algorithm	CO4
L27	Hierarchical Routing; Routing on the Internet –Intra-AS Routing in the Internet: RIP	CO4
L28	Intra-AS Routing on the Internet: OSPF	CO4
L29	Inter-AS Routing: BGP	CO4
L30	Broadcast and Multicast Routing	CO4
L31	THE LINK LAYER: LINKS, ACCESS NETWORKS, AND LANS: Introduction to the Link Layer, Error-Detection and -Correction Techniques	CO5
L32	Multiple Access Links and Protocols	CO5
L33	Multiple Access Links and Protocols continued	CO5
L34	Multiple Access Links and Protocols continued	CO5
L35	Switched Local Area Networks- Link- Layer Addressing and ARP, Ethernet	CO5
L36	Link-Layer Switches, Virtual Local Area Networks (VLANs)	CO5

References:

References	
1	James F. Kurose & Keith W. Ross, Computer Networking A Top-Down Approach, (6e), Pearson Education,2013
2	Larry L. Peterson and Bruce S. Davie, Computer Networks- A Systems approach, (5e), Elsevier-2016
3	Behrouz A. Forouzan, Firouz Mosharraf, Computer Networks A top Down Approach , Mc-Graw Hill, 2012
4	Andrew S. Tanenbaum & David J. Wetherall, Computer Networks, (5e), Pearson Education,2013
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Submitted by:
MANOJ R

(Signature of the faculty)

Date: 03/09/2022

Approved by:
(Signature of HOD)

Date: 03/09/2022

FACULTY MEMBERS TEACHING THE COURSE (IF MULTIPLE SECTIONS EXIST):

FACULTY NAME	SECTION	FACULTY NAME	SECTION
Dr. Radhakrishna Bhat	A	Ms. Tanuja S	C
Mr. Manoj R	B	Dr. Rooplakshmi L	D

COURSE PLAN – ADDITIONAL DETAILS

At the end of this course, the student should be able to:		No. of contact Hours	Marks	Program outcomes (PO's)	Learning outcomes (LO's)	PSO	BL
CO1	Acquire knowledge of How Computer Network is structured	3Hrs	8	1	1		1
CO2	Understand the principles of different Application Layer protocols	6Hrs	16	1,2,3	1		2
CO3	Understand and analyze the features in the transport layer protocols in the TCP/IP architecture to support connection less and connection-oriented services	10Hrs	28	1,4	1,2,3	3	2,3,4
CO4	Understand the role and working of network layer in the TCP/IP architecture	12Hrs	33	1,2,4	1		2
CO5	Ability to learn the role of data link layer in channel access, Flow control and Error Control	5Hrs	15	1,2,3,4	1,2	3	2
Total hours/ Marks		**36**	**100**				

Course Articulation Matrix

CO	PO1	PO2	PO3	PO4	PSO3
CSE3152.1	2				
CSE3152.2	2	2	2		
CSE3152.3	2			2	3
CSE3152.4	2	2		2	
CSE3152.5	2	2	2	2	2
Average Program Articulation Level	**2**	**2**	**2**	**2**	**2.5**

IET – Course Learning Outcomes (CLO's) mapping with AHEP LO's

Course Learning Outcome	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16	C17	C18
CSE3152.1	✓																	
CSE3152.2	✓																	
CSE3152.3	✓	✓	✓															
CSE3152.4	✓																	
CSE3152.5	✓	✓																

Abbreviations

1. CO – Course outcome
2. PO – Program outcome
3. PSO – Program Specific outcome
4. LO – Learning outcome
5. CLO – Course Learning outcome
6. BL – Blooms Taxonomy
7. AHEP – The Accreditation of Higher Education Programmes