B.Tech Computer Science & Engineering

COURSE PLAN: THEORY COURSE

Department :	**Computer Science & Engineering**			
Course Name & code :	**CSE 3124 Computer Networks**			
Semester & branch :	**5th Semester CSE**			
Name of the faculty :	**Krishnamoorthi Makkithaya**			
No of contact hours/week:	**L**	**T**	**P**	**C**
	2	**1**	**0**	**3**

Course Outcomes (COs) to PO, PSO, BL Mapping

At the end of this course, the student should be able to:		**No. of Contact Hours**	**Marks**	**Program Outcomes (POs)**	**PSOs**	**BL**
CO1	Interpret the knowledge of how computer network is structured.	3Hrs	8	1		2
CO2	Infer the principles of different application layer protocols.	6Hrs	16	1,2,3		2
CO3	Analyze the features in the transport layer protocols in the TCP/IP architecture.	8Hrs	28	1,4	1	4
CO4	Assess the role and working of network layer in TCP/IP architecture	12Hrs	33	1,2,4		5
CO5	Appraise the role of data link layer and the working of wireless, mobile networks.	7Hrs	15	1,2,3,4,5	1	5
	Total	**36**	**100**			

Course Articulation Matrix

CO/PO	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**	
CO1	2															
CO2	3	2		3												
CO3	2		3	2									**3**			
CO4	2	3	2	2												
CO5	2	2	2	2									**2**			
Average Articulation Level	2.2	2.3	2.3	2.2									**2.5**			

ICT Tools used in delivery and assessment

Sl. No	Name of the ICT tool used	Details of how it is used
1	Learning Management Systems	For sharing lecture materials, conducting online assessments
2	Presentation Software	Creating and delivering engaging presentations during lectures
3	Flipped Classroom Model	Using video content and online resources for students to study at home, and using class time for interactive, hands-on activities
4	Video Conferencing Tools	Conducting live classes, webinars, and virtual office hours

Course Outcomes (COs)/Course Learning Outcomes (CLOs) to PO, PSO, LO, BL Mapping #

At the end of this course, the student should be able to:		No. of Contact Hours	Marks	Program Outcomes(POs)	Learning Outcomes (LOs)	BL
CLO1	Interpret the knowledge of how computer network is structured.	3Hrs	8	1	**7**	**2**
CLO2	Infer the principles of different application layer protocols.	6Hrs	16	1,2,3	**5,7**	**2**
CLO3	Analyze the features in the transport layer protocols in the TCP/IP architecture.	8Hrs	25	1,4	**5,3**	**4**
CLO4	Assess the role and working of network layer in TCP/IP architecture	12Hrs	33	1,2,4	**3**	**5**
CLO5	Appraise the role of data link layer and the working of wireless, mobile networks.	7Hrs	18	1,2,3,4,5	**5**	**5**
	Total	**36**	**100**			

 # Applicable to IET Accredited Programs

Delivery and assessment Plan of LOs #

Learning Outcome (LO) mapped to the course		**Delivery and assessment Plan**
LO	**LO statement**	
1	Analytical tools and techniques	**Quiz,Assignments,Mid term,End sem exam**
2	Design	**Quiz,Assignments,Mid term, End sem exam**
3	Practical and workshop skills	**Quiz,Assignments,Mid term, End sem exam**
4	Security	**Quiz,Assignments,Mid term, End sem exam**
5	Materials,equipment, technologies and processes	**Quiz,End sem exam**

 # Applicable to IET Accredited Programs

Assessment Plan

IN – SEMESTER ASSESSMENTS									
Sl. No.	**Assessment Mode**		**Assessment Method**	****Time Duration**	****Marks**	**** Weightage**	**Typology of Questions (Recommended)**	****Schedule**	****Topics Covered**
1	**MISAC**	**1**	**Quiz**	**20 minutes**	**5M**	**Objective:** 5M 10 MCQs × ½ = 5 marks	Bloom's taxonomy (B) level of the question should be L3 and above.		L1-L7
		2	**Mid-Term Test**	**2 hours**	**30M**	10 MCQs × ½ = 5 Descriptive: 10 M (2 Questions of 2 marks +2 Questions of 3 marks)	Bloom's taxonomy (BT) level of the question should be L3 and above.		L1-L20
		3	**Quiz**	**20 Minutes**	**5M**	Objective: 5M 10 MCQs × ½ = 5 marks	Bloom's taxonomy (BT) level of the question should be L3 and above.		L8-L16
2	**FISAC**	**1**	**Quiz**	**20 Minutes**	**5M**	Objective: 5M 10 MCQs × ½ = 5 marks	Bloom's taxonomy (BT) level of the question should be L3 and above.		L21-L26
		2	**Quiz**	**20 Minutes**	**5**	**Objective: 5M** **10 MCQs × ½ = 5 marks**	Bloom's taxonomy (BT) level of the question should be L3 and above.		L26-L33

END – SEMESTER ASSESSMENT							
1	**Regular/Make–Up Exam**	180 Mins	50	Answer all 5 full questions of 10 marks each. Each question can have 3 parts of 2/3/4/5/6 marks.	Bloom's taxonomy (BT) level of the question should be L3 and above.		

Note: Fine tune the assessment plan as per the guidelines, issued by AD(A), notified from time to time.

*** Individual faculty will be entering the details*

**** Individual faculty shall identify the assessment method from FISAC Assessment method (Table 1 below) and fill in the details.*

***NOTE:** Information provided in the table is as per the In-semester assessment plan notified by Associate Director (Academics).*

Lesson Plan

L No	Topics	Course Outcome Addressed
1	Introductory class (Introduction between teacher & students. Overview of the subject).	-
2	COMPUTER NETWORKS AND THE INTERNET: What Is the Internet? The Network Edge, The Network Core, Delay, Loss, and Throughput in Packet-Switched Networks	CO1
3	Protocol Layers and their Service Models, History of Computer Networking, and the Internet	CO1
4	APPLICATION LAYER: Principles of Network Applications, The Web and HTTP	CO2
5	The Web and HTTP Continued, File Transfer: FTP	CO2
6	Electronic Mail on the Internet, SMTP	CO2
7	DNS—The Internet's Directory Service	CO2
8	Socket Programming: Creating Network Applications- Socket Programming with UDP	CO2
9	Socket Programming with TCP	CO2
10	TRANSPORT LAYER: Introduction and Transport-Layer Services, Multiplexing and Demultiplexing	CO3
11	Connectionless Transport: UDP, Principles of Reliable Data Transfer	CO3
12	Principles of Reliable Data Transfer continued	CO3
13	Connection Oriented Transport: TCP	CO3
14	Connection Oriented Transport: TCP continued	CO3
15	RTT and other timers	CO3
16	Principles of Congestion Control	CO3
17	TCP Congestion Control	CO3
18	THE NETWORK LAYER: Introduction, Virtual Circuit and Datagram Networks What's Inside a Router? The Internet Protocol (IP): Forwarding and Addressing in the Internet datagram	CO4
19	Format, IPv4 Addressing	CO4
20	IPv4 Addressing, Continued.	CO4
21	IPv4 Addressing, Continued.	CO4
22	Internet Control Message Protocol (ICMP), IPv6	CO4
23	Routing Algorithms- The Link-State (LS) Routing Algorithm	CO4
24	The Distance-Vector (DV) Routing Algorithm	CO4
25	Hierarchical Routing; Routing on the Internet –Intra-AS Routing in the Internet: RIP	CO4
26	Intra-AS Routing on the Internet: OSPF	CO4
27	Inter-AS Routing: BGP	CO4
28	Broadcast and Multicast Routing	CO4
29	Broadcast and Multicast Routing Continued..	CO4
30	THE LINK LAYER: LINKS, ACCESS NETWORKS, AND LANS: Introduction to the Link Layer, Error-Detection and -Correction Techniques	CO5

31	Multiple Access Links and Protocols	CO5
32	Multiple Access Links and Protocols continued	CO5
33	Switched Local Area Networks- Link- Layer Addressing and ARP, Ethernet	CO5
34	Link-Layer Switches, Virtual Local Area Networks (VLANs)	CO5
35	Wireless Links and Network Characteristics, The 802.11 Architecture	CO5
36	The 802.11 MAC Protocol, Cellular Internet Access, 3G Cellular Data Networks: Extending the Internet to Cellular Subscribers, Mobile IP	CO5

SDL component-Wireless LAN Design and Applications

Faculty members teaching the course (if multiple sections exist):

Faculty	Section	Faculty	Section
Mr. Manamohana M	A	Ms. Sahana Roshan	D
Dr.Krishnamoorthi Makkithaya	B		
Dr.Padma Bhukya	C		

References:

Submitted by: Dr.Krishnamoorthi Makkithaya

(Signature of the faculty)

Date: 21-7-2025

Approved by:

(Signature of HOD)

Flexible In-semester Assessment Component (FISAC):

i) The FISAC 1 & FISAC 2 may be any of the types given in Table 1. However, tne two components should be of different type.

ii) The type of assessment should be informed to the students well in advance.

iii) Syllabus for the last component of In-semester Assessment (ISAC) i.e. FISAC 2 should cover the topics mentioned for self-study if any / topics which are not covered till MISAC 4: In-Semester Exam 2.

Table 1: Flexible In-semester Assessment Component (FISAC)

No	Type	Description
A.	Quiz/MCQs	Same as MISAC 2: Quiz/MCQs
B.	Surprise Assignment	Same as MISAC 3: Surprise assignment.
C.	Take Home Assignment	*10 questions are to be given to each student. *Questions must be of Blooms Taxonomy Level 3 for first year and Level 4 for higher semesters. *Questions are to be given TWO weeks in advance. *Students have to write the answers to all the questions.
D.	Group Assignment	*The students are to be grouped in such a way that there are 3 – 4 students in each group. *Each group is to be given one question. *The questions should be of Blooms Taxonomy Level 4 for first year and Level 5 for higher semesters. *Questions are to be given TWO weeks in advance. *The questions may be in the form of case studies, design, report writing, etc.
E.	Seminar	*Students may be given the topics for seminar relevant to the course of study. *Topics are to be given TWO weeks in advance. *Should be of Blooms Taxonomy Level 4 for first year and Level 5 for higher semesters. *Topics should be related to the courses of study. *Topics should be in the field of recent developments in the courses of study. *Students have to collect the data regarding the seminar topic and submit a report. *Students should make a presentation for about TEN minutes using Power Point.
F.	Quiz / Assignment based on invited talks	*Faculty have to arrange for the invited talk in the emerging areas in the courses of study. *Quiz / Assignment is to be conducted on the topic of the invited talk. *Questions should be at Blooms Taxonomy Level 4 for first year and Level 5 for higher semesters.
G.	Development of Software / Apps	*Faculty has to define the problem statement. *Problem Statements are to be given TWO weeks in advance. *Should be at Blooms Taxonomy Level 4 for first year and Level 5 for higher semesters. *Students have to develop the software / mobile apps using the appropriate software language / platform.
H.	Mini Project	*Faculty has to define the problem statement. *Problem Statements are to be given TWO weeks in advance. *Should be at Blooms Taxonomy Level 4 for first year and Level 5 for higher semesters. *Students have to develop prototypes.