SOCIETY OF ST. FRANCIS XAVIER, PILAR'S

FR. CONCEICAO RODRIGUES COLLEGE OF ENGINEERING

(Approved by AICTE & Affiliated to University of Mumbai)

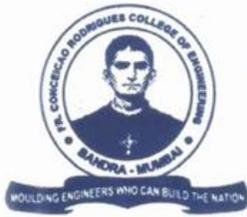**Fr. Agnel Ashram, Bandstand, Bandra (W), Mumbai - 400 050.**

Phone : (022) 6711 4000, 6711 4101, 6711 4104

Website : www.frcrce.ac.in • Email : crce@fragnel.edu.in

Department of Computer Engineering
(Academic Year :2023-2024)

Course Code: CSC503	
Course Name: Computer Networks	
Course Teacher: Merly Thomas Puthiyadom	
Course Outcomes (CO): *At the End of the course students will be able to*	
CSC503.1	*Enumerate the functions of the different layers of Network Software Models.* **(B2 – Comprehension)**
CSC503.2	*Identify the characteristics of network devices and media used to design network.* **(B2 – Comprehension)**
CSC503.3	*Explore the different design issues and protocols of Data link Layer* **(B3 – Analysis)**
CSC503.4	Design a network using IP addressing and subnetting **(B3 – Analysis)**
CSC503.5	*Explore the protocols of transport and application layer* **(B2 – Comprehension)**

	Day	*Time*
Time Table *(Theory)*	**Monday**	**9.45 –10.45 am**
	Wednesday	**9.45 –10.45 am**
	Friday	**8.45 –9.45 am**

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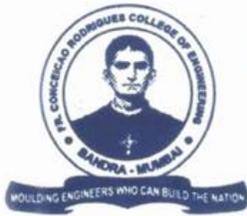(Approved by AICTE & Affiliated to University of Mumbai)

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Course Lesson Plan

Sr. No.	Planned Date	Module	Topics	Actual Date	CO	Remarks	Remark/sign (HOD)
1	10/07	I	Information about syllabus, Introduction to computer network, network applications		--		
2	12/07		Network software and hardware Components		CO1		
3	14/07		Network topology and classifications		CO1		
4	17/07		Introduction to Digital Communication		CO1	Curriculum Gap-Execution	
5	19/07		Protocol Hierarchies, Design Issues for the layers		CO1		
6	21/07		Connection Oriented and Connectionless services		CO1		
7	24/07		Reference models: Layer details of OSI TCP/IP models. Communication between layers.		CO1		
8	26/07	II	Introduction to Communication Electromagnetic Spectrum		CO2		
9	28/07		Guided Transmission Media: Twisted pair, Coaxial,		CO2		Cancelled due to Rain
10	31/07		Guided Transmission Media: Fiber optics.		CO2		

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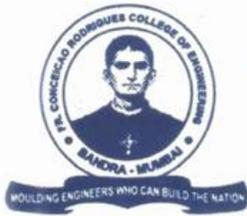# FR. CONCEICAO RODRIGUES COLLEGE OF ENGINEERING

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11	02/08	III -a	DLL Design Issues (Services, Framing, Error Control, Flow Control),		CO3		
12	04/08		Error Detection and Correction (Hamming Code, CRC, Checksum)		CO3		
13	07/08		Elementary Data Link protocols **Assignment-1**		CO3		
14	09/08		Stop and Wait, Sliding Window (Go Back N, Selective Repeat)		CO3		
15	11/08		Sliding Window Protocols (Go Back N, Selective Repeat)		CO3		
16	14/08	III -b	Medium Access Control sublayer **Quiz-1: Multiple Choice Test**		CO3		
	15/08		**Independence Day**				
	16/08		**Parsi New Year**				
17	18/08		Channel Allocation problem, Multiple access Protocol		CO3		
18	21/08		(Aloha, Carrier Sense Multiple Access (CSMA/CD)		CO3		QP submission
19	23/08		Ethernet		CO3		*Content Beyond Syllabus*
20	25/08		Preparation for UT1				
	28/08		**Unit Test-1**				
	29/08		**Unit Test-1, Mid-Term Feedback**				
21	01/09		Result Analysis, Remedial Session (UT1)				
22	04/09	IV-a	Network Layer design issues, Communication Primitives: Unicast, Multicast		CO4		

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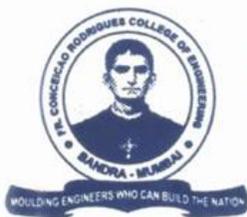# FR. CONCEICAO RODRIGUES COLLEGE OF ENGINEERING

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23	06/09		IPv4 Addressing (classful and classless)		CO4		
24	08/09		Subnetting, Supernetting design problems		CO4		
25	11/09		Subnetting, Supernetting design problems		CO4		
26	13/09	IV-b	IPv4 Protocol, Network Address Translation (NAT)		CO4		
27	15/09		IPv6, Routing algorithms		CO4		
28	18/09		**Routing algorithms**: Shortest Path (Dijkstra's), Link state routing, Distance Vector Routing		CO4		
	19/09		Shri Ganesh Chaturthi				
29	21/9		**Protocols** - ARP, RARP, ICMP, IGMP		CO4		
30	23/9		Subnetting Problems		CO4		
31	25/9		CIDR		CO4		
	28/9		Anant Chaturdashi				
	2/10		Mahatma Gandhi Jayanti				
32	4/10		**Congestion control algorithms**: Open loop congestion control, Closed loop congestion control		CO4		
33	6/10		QoS parameters, Token & Leaky bucket algorithms		CO4		
	9/10		Unit Test-2		CO4		
	10/10		Unit Test-2		CO5		
34	11/10		The Transport Service: Transport service primitives, Berkeley Sockets, Connection management (Handshake)		CO5		
35	13/10		UDP, TCP, TCP state transition, TCP timers		CO5		
36	15/10		TCP Flow control (sliding Window), TCP Congestion Control: Slow Start		CO5		
37	16/10		Application Layer: HTTP, SMTP		CO5		
38	17/10		DNS: Name Space, Resource Record and Types of Name Server		CO5		
39	18/10		Telnet, FTP, DHCP		CO5		
40	23/10		Assignment,				Synergy

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41			Quiz				Synergy
42			**Assignment-4, Course Exit Survey**				
40	20/10		Remedial Session				
			University ESE Examination				

Teaching Resources:

Text Books:
  1. A.S. Tanenbaum, "Computer Networks", Pearson Education, Fourth Edition.
  2. B.A. Forouzan, "Data Communications and Networking", TMH, Fourth Edition.

Reference Books:
  1. M. A. Gallo and W. M. Hancock, Computer Communications and Networking Technologies, Cengage Learning (Indian Edition), First Edition.
  2. Natalia Olifer & Victor Olifer, "Computer Networks : Principles, Technologies & Protocols for Network Design", Wiley India, 2011.
  3. Computer Networks: A Systems Approach, Second Edition (The Morgan Kaufmann Series in Networking) Larry L.Peterson(Author),Bruce S.Davie(Author)
  4. Computer Networking, 6e,James F. Kurose , Keith W. Ross.
  5. An Engineering Approach To Computer Networking: Atm Networks, The Internet ...By Keshav

Useful Links:
  https://www.includehelp.com/computer-networks/
  https://www.gatevidyalay.com/subnetting-ip-subnetting-examples/
  https://www.prepbytes.com/blog/computer-network/application-layer-protocols-in-computer-networks/
  https://www.cs.dartmouth.edu/~campbell/cs60/socketprogramming.html
  https://www.cs.princeton.edu/courses/archive/spr15/cos461/assignments/1-http.html#HTTP_Proxies