



Sardar Patel Institute of Technology

Bhavan's Campus, Munshi Nagar, Andheri (West), Mumbai-400058-India

Course Code	Course Name	Teaching Scheme (Hrs/week)			Credits Assigned			
		L	T	P	L	T	P	Total
ETE91A	Network Architecture and Design	4	--	--	4	--	--	4
		Examination Scheme						
		Theory Marks						
		ISE		MSE		ESE		
		10		30		100 (60% Weightage)		

Pre-requisite Course Codes		Students will be
Course Outcomes	CO1	To understand emerging technologies and design advanced data and computer communications networks.
	CO2	To distinguish between various network topologies in detail.
	CO3	To analyze the networks and carry out requirement analysis
	CO4	To design the LAN and WLAN and WAN
	CO5	To choose correct technology.

Module No.	Unit No.	Topics	Ref.	Hrs.
1		Internet Protocol (Configuration of DMZ Servers): Detail Working of DNS, HTTP, FTP and SMTP/POP - Configuration of DNS, Web, FTP, Mail Server. Internet Protocol – Understanding working of TCP, UDP, IP, ARP/ RARP, ICMP.		4
2		Introduction to Network analysis, Architecture and Design Process Model for Network analysis, Architecture, and Design Requirement Analysis: User Requirement, Device Requirement, Network Requirement, Performance Requirement, Financial Requirement, Enterprise Requirement		8
3		Network Architecture: Component Architecture –Routing, Network Management, Performance, Security. Architectural models: topological, And Routing flow model, Functional model Addressing Architecture, Network Management Architecture, Performance Architecture, Border-less Network Architecture		6
4		Network Design: Designing the network topology and solutions-Top down Approach Network Structure Model: Hierarchical Network Model, Enterprise wide network Architecture model- Enterprise Edge Area, E-commerce, Internet Connectivity, remote, enterprise branch and enterprise Data Center module. High Availability Network Services- Workstation to Router redundancy and LAN High Availability protocols, Route, Server		12
5		Enterprise LAN and WAN Design: Ethernet Design Rule. 100 Mbps Fast Ethernet Design rules, gigabit		12



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	Ethernet Design Rules, 10 Gigabit Ethernet Design rules, 10GE Media types Understanding Working of Repeater, hub, Bridge, routers, Layer2/3 Switch Campus LAN Design Best Practice Server Farm Design, data centre Design Campus LAN QoS consideration Multicast Traffic Consideration. Wireless LAN Design WAN Technologies: WAN Transport Technologies, WAN Design Methodology, Traditional WAN Technologies, Remote Access Network Design, VPN Network Design, WAN Backup Design Network Management Protocols: SNMP v1,v2,v3, RMON2, Netflow, Syslog		
Total			42

References:

- [1] Network Analysis, Architecture, and Design 3rd Edition, Morgan Kaufman, James D.
- [2] Data Network Design, Darren L. Spohn, Tata McGraw Hill Edition.
- [3] Data Communications and Networking by Behrouz A. Forouzan, 4th Edition, Tata McGraw-Hill,2006.
- [4] Data and Computer Communication by William Stalling, 8th Edition,Pearson Education, 2007.
- [5] Computer Networking: A Top-Down Approach Featuring the Internet” by 6. James F. Kuross,Keith W. Ross, Third Edition,Addison Wesley, 2004.
- [6] Network Management Principles and Practice, Mani Subramanian, Second Edition Pearson Education.