

Branch Name:	Information and Communication Technology
Program Code:	ET208
Course Name:	High Speed Networks(Elective – III)
Course Code:	2ET2080303T
Pre-requisite Course:	Basic understanding of computer hardware and software

Course Objective:

1. To provide an overview of the state-of-the-art and scenarios of applications of high speed communication networks.
2. To understand various aspects and technologies of high speed and broadband networks
3. To understand network devices and network protocols.
4. To understand different network simulator.

Teaching and Examination Scheme:

Credit	Teaching Scheme Hours per week				Evaluation Scheme(Marks)								
					Theory(Marks)				Practical(Marks)				Total (Marks)
	L	T	P	Total	SEE		CCA		SEE		CCA		
					Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	
3	3	-	-	3	24	60	16	40	-	-	-	-	100

Subject Contents:

Sr. No	Topic	Total Hours	Weight (%)
01	High-Speed Networks Packet Switching Networks, Frame Relay Networks, The Emergence of High Speed LANs, Ethernet, Fiber Channel, Wireless LANs, Emerging Passive Optical Network Technologies (EPONs), Gigabit Ethernet, 10 Gigabit Ethernet: 802.3ae Emerging Standard, Fiber Optic and the Magic of Light, Wave Length Division Multiplexing (WDM), Dense Wavelength Division Multiplexing (DWDM).	09	13
02	Broadband ISDN architecture and Protocols Service Capabilities, Bearer Services and Teleservices, Basic and Supplementary services, SS7 Architecture, Protocol Architecture, B-ISDN standards, Broadband services, Requirements, Architecture, B-ISDN Protocol Reference Model, B-ISDN Physical Layer, SONET/ SDH.	05	25
03	ATM Traffic and Congestion Control Asynchronous Transfer Mode, ATM Protocol Architecture, ATM Logical Connections, Transmission of ATM Cells, ATM Adaption Layers, Requirements for ATM Traffic and Congestion control, ATM Service Categories, ATM Traffic-Related Attributes, Traffic management Framework, Traffic Management, ABR Traffic Management.	09	22
04	Congestion and Traffic Management Effects of Congestion, Congestion and control, Traffic Management, Congestion Control in packet Switching Networks, Frame Relay Congestion Control, the need for Flow and Error Control, ARQ Performance, TCP Traffic Control: TCP Flow Control, TCP Congestion Control	08	23
05	Protocols for QOS Support RSVP – Goals & Characteristics, Data Flow, RSVP operations, Protocol Mechanisms – Multiprotocol Label Switching – Operations, Label Stacking, Protocol details – RTP – Protocol Architecture, Data Transfer Protocol, RTCP.	08	17

Text Book:

1. Jean warland and Pravin Wadaja, “HIGH PERFORMANCE COMMUNICATION NETWORKS”, 2nd Edition, Jean Harcourt Asia Pvt. Ltd., 2001.

Reference book:

1. William Stallings, “High Speed Networks and Internet”, 2nd Edition, Pearson Education, 2002.
2. Irvan Pepelnjk, Jim Guichard and Jeff Apcar, “Mpls and Vpn Architecture”, Volume 1 and 2, Cisco Press, 2003.

Course Learning Outcomes (CLO): On completion of this course, the students will be able to:

CLO	Description	Bloom's Taxonomy Level
CLO1	To highlight the features of different technologies involved in high speed networking and their performance.	1 Remembering 2 Understanding
CLO2	To facilitate the students on the basis of ATM and frame relay concepts and explain the various types of LAN's and to know about their applications.	2 Understanding
CLO3	To introduce the concept of queuing analysis and the concepts behind traffic management and congestion control.	2 Understanding 3 Applying
CLO4	To enable the students to know techniques involved to support real-time traffic and congestion control in ATM.	3 Applying
CLO5	To learn about broadband architecture and protocols	2 Understanding 3 Applying
CLO6	To provide students with protocol for Quality of Service (QoS) to different applications.	2 Understanding 3 Applying

Mapping of CLOs with POs & PSOs

Course Learning Outcomes	Program Outcomes (POs)												Program Specific Outcomes (PSOs)			
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	PSO4
CLO1	H		L										M			M
CLO2	M		M	H		L								L	M	M
CLO3	M		M	H		L								L	M	M
CLO4					H	M				L		L		L	M	
CLO5		M	H			L	L		M				M			M
CLO6		M	H			L			M				M		H	M

H: High, M: Medium, L: Low