High Speed Networks	**L**	**T**	**P**	Computer Networks
	3	**1**	**0**	

Course Objective: To understand design and application of architechture and protocols of high speed computer networks

S. NO	Course Outcomes (CO)

CO1	Understand concept of High Speed networks with Asynchronous transfer mode
CO2	Comprehend various Congestion And Traffic Management algorithms and Queuing Analysis-
CO3	Compare Integrated and differentiated network services
CO4	Learn Internetworking and Inter-domain Routing,

S. NO	Contents	Contact Hours
UNIT 1	High Speed networks: Asynchronous transfer mode – ATM Protocol Architecture,ATM logical Connection, ATM Cell – ATM Service Categories – AAL, High Speed LANs:Fast Ethernet, Gigabit Ethernet, Fiber Channel – Wireless LANs: applications,requirements –Architecture of 802.11	**9**
UNIT 2	Congestion And Traffic Management: Queuing Analysis- Queuing Models – Single Server Queues – Effects of Congestion –Congestion Control – Traffic Management – Congestion Control in Packet SwitchingNetworks	**8**
UNIT 3	TCP And ATM Congestion Control : TCP Flow control – TCP Congestion Control – Retransmission – Timer Management – Exponential RTO backoff – KARN's Algorithm – Window management – Performance ofTCP over ATM. Traffic and Congestion control in ATM – Requirements – Attributes –Traffic Management Frame work, Traffic Control – ABR traffic Management – ABR ratecontrol, RM cell formats, ABR Capacity allocations – GFR traffic management	**8**
UNIT 4	Integrated and differential services integrated services architecture - approach, components, servicesqueuing discipline, fq, ps, brfq, gps, wfq - random early detection, differentiated services	**8**
UNIT 5	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.	**9**
UNIT 6	Internetworking: Inter-domain Routing, BGP, IPv6, Multicast Routing Protocols, Applications and Other Networking Technologies: RTP, RTSP, SIP, VoIP, Security Systems, SSH, PGP, TLS, IPSEC, DDoS AttackStacking, Protocol details - RTP - Protocol Architecture, Data Transfer Protocol, RTCP.	**8**
	TOTAL	**42**

REFERENCES		
S.No.	**Name of Books/Authors/Publishers**	**Year of Publication / Reprint**

1	HIGH SPEED NETWORKS AND INTERNET, 2nd edition, 2002 by William Stallings, Pearson Education, (ISBN-13: 9788177585698)	2002
2	HIGH PERFORMANCE COMMUNICATION NETWORKS, by Warland & Pravin Varaiya, Jean Hardcourt Asia Pvt. Ltd (ISBN-978-1-55860-574-9)	2001
3	MPLS and VPN architecture by Irvan Pepelnjk,Jin Guichard and Jeff Apcar, Cisco Press, Volume 1 and 2 (ISBN-13: 061-9472143230)	2003
4	Behrouz A. Forouzan, Data Communications and Networking, Fourth Ed., Tata McGraw Hill, (ISBN-0072967757)	2007

B.Tech. Information Technology		
Course code: Course Title	**Course Structure**	**Pre-Requisite**