



Course Title: Broad Band Communication Systems

Credit Units: 4

Course Level: PG

Course Code:TELE644

L	T	P/S	SW/F W	TOTAL CREDIT UNITS
3	1	0	0	4

Course Objectives: To explain to students basics of Broad Band Communications in Wireline and Wireless domains

Pre-requisites: Data Communication Networks

Course Contents/Syllabus:

	Weightage (%)
Module I Introduction	10
Introduction to Broad Band Communication, Broad Band Network Architecture, QoS parameters for Broad Band services as specified by regulators. Impact of Broadband on society & economy, Introduction to National optical Fibre Networks & National Optical Knowledge Networks	
Module II Broad Band Core Network Switching Technologies	15
ISDN-Introduction to IDN and ISDN Frame Relay-Role of Frame Relay, Virtual Circuits, DLCLS, physical layer, data link layer, congestion control, QoS, leaky bucket algorithm, traffic control. ATM-Design goals, ATM architecture switching, ATM layers, QoS ,traffic description, ATM WAN's, ATM LAN's	
Module III Congestion Control and Quality of Service	10
Data Traffic, Congestion , Congestion Control, QoS, Techniques to improve QoS, QoS in Switched Networks	
Module IV: Wireline Broad Band Access Network	20
XDSL: Working and type CAP and DMT, DSLAM, ADSL Modems Carrier Ethernet: Standards, Architecture, Interfaces, Services. FTTH/FTTC: Standard, Architecture and Services.	

Module V Wireless Networks	45
Orthogonal Frequency Division Multiplexing Techniques, Wi Fi Protocol architecture, IEEE 802.11 architecture, medium access control, MAC frame format, physical layer for IEEE 802.11 Blue Tooth overview, piconet, scatter net, protocol stack, radio layer specification, frame format. WiMax and IEEE 802.16 Standard Architecture, Wi Max Mac Layer and Physical Layer, IEEE 802.16 different Standards, Release 1, Release1.5 and Release	

Student Learning Outcomes:

1. Students will understand the Broadband definition, QoS parameters required for broadband services and impact of Broadband on Society & Economy..
2. The students will be able to explain the technologies used in core Networks.
3. The students will be able to understand congestion & congestion control techniques in Broadband Networks.
4. The students will be able to explain the broadband Access Technologies in Wireline Domain.
5. The students will be able to explain the broadband Access Technologies in Wireless Domain.

Pedagogy for Course Delivery:

Course will involve classroom teaching based on theoretical concepts. Interaction with the students will be integral part of learning. Periodical tutorials and assignments will be discussed and analyzed in class. Industry experts to share their experiences with the students. Students will be taken for field visit.

Lab/ Practicals details, if applicable: NA

Assessment/ Examination Scheme:

Theory L/T (%)	Lab/Practical/Studio (%)	Total
100%	NA	100

Theory Assessment (L&T):

Continuous Assessment/Internal Assessment					End Term Examination
Components (Drop down)	Class Test	Home Assignment	S/V/Q	Attendance	End Term Examination
Weightage (%)	10%	10%	5%	5%	70%

Text Reading:

- Broadband, ISDN and ATM by William Stalling
- Principals of Communication Systems by Taub & Schilling
- Wireless Communication & Networks by William Stalling
- Broadband Telecommunications Handbook by Bud Bates
- Data communication & Networking by BA Frrouuzen