Course Title : Data Communication			
Course Code : P18CS44	**Semester : 4**	**L :T:P:H : 4:0:0:4**	**Credits: 3**
Contact Period: Lecture: 52 Hrs, Exam: 3 Hrs		**Weightage: CIE:50%, SEE:50%**	

Course Content

Unit 1

Data Communications, Networks, The Internet, Protocols and standards, Network ModelsReference models OSI, TCP/IP Model, Addressing, Data & Signal-Analog and Digital, Periodic Analog Signals, Digital Signals, Transmission impairment, Data Rate Limits.

Self Learning Component: Performance.

9 Hours

Unit 2

Digital Transmissions: Digital to Digital Conversions, Analog to Digital Conversions, Transmission Modes, Analog Transmission-Digital to Analog conversion, Analog to Analog conversion, Multiplexing- FDM, WDM, STDM, Statistical TDM, Spread Spectrum, Unguided media-WirelessRadio waves, Microwaves, Infrared.

Self Learning Component: Guided Media-Twisted pair cable, Co-axial cable, Fiber optic cable

12 Hours

Unit 3

Circuit switched networks, Datagram networks, Virtual circuit networks, Structure of a Switch-Structure of Circuit Switches & Packet Switches, Data Link Layer-Detection and Correction-Introduction, Block Coding-Error Detection and Correction, Linear Block Codes, Cyclic Codes- CRC, Polynomials, Checksum.

Self-Learning Component : Hamming Distance, Minimum Hamming Distance

10Hours

Unit 4

Data Link Layer– Data Link Control- Framing, Flow and error control, Protocols, Noiseless Channels, Noisy Channels, HDLC, Point-to-Point Protocol- Framing, Transition phases, Multiple Access- Random access-Aloha, CSMA, CSMA/CD, CSMA/CA, Controlled access reservation, polling, token passing,

Self Learning Component: Channelization - FDMA, TDMA, CDMA.

12 Hours

Unit 5

Wired LANs: Ethernet – Standard Ethernet, Fast Ethernet, Gigabit Ethernet, Wireless LANsIEEE 802.11, Bluetooth - Architecture, Bluetooth layers, Radio layer, Baseband layer, L2CAP

Self Learning Component: Connecting Devices–Hub, Repeater, Bridges, Transparent Bridges, Switches, Router, and Gateway.

9 Hours

Text Books:

1. Data Communication and Networking, Behrouz A.Forouzan, McGrawHill, 5th Edition, 2018.
2. Data and Computer Communication, William Stallings, 10th Edition, Pearson Education, 2018.

Reference Books:

1. Introduction to Data Communications and Networking, Wayne Tomasi, Pearson Education, 2009.(Latest Edition)
2. Communication Networks-Fundamental Concepts and key Architectures, Alberto Leon-Garcia and Indra Widjaja, Tata Mc-Graw-Hill, 2nd Ed., Pearson Education, 2007

Course outcomes:

1. CO1 : Analyze OSI and TCP network models and the layers associated functionalities
2. CO2 Analyze and apply different types of signal conversion techniques in physical layer
3. CO3 Analyze and apply different types of error detection and correction mechanisms
4. CO4 Analyze flow control and Error control mechanism using standard data link layer protocols and Compare different categories of Medium Access protocols
5. CO5 Analyze different protocols used for Ethernet and various connecting devices used in networks.

CO-PO mapping

Semester : 4			**Course Code : P18CS44**						**Data Communication**					
	PO 1	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO 7**	**PO 8**	**PO 9**	**PO 10**	**PO 11**	**PO 12**	**PS O1**	**PS O2**
CO1		3	3									2	3	
CO2			3	2								2	2	
CO3		3	3									2	3	
CO4			3									2	2	
CO5		3	2									2	2	
AVG		**3**	**2.8**	**2**								**2**	**2.4**	