Data Communication

Course Code	19CS3303	**Year**	II	**Semester**	I
Course Category	Program Core	**Branch**	CSE	**Course Type**	Theory
Credits	2	**L-T-P**	2-0-0	**Prerequisites**	Basic Electrical & Electronics Engineering (19ES1201)
Continuous Internal Evaluation :	30	**Semester End Evaluation:**	70	**Total Marks:**	100

Course Outcomes		
Upon successful completion of the course, the student will be able to:		
CO1	Understand the fundamental concepts of data communications and networking.	**L2**
CO2	Apply suitable conversion/transmission techniques on data and signals.	**L3**
CO3	Apply suitable transmission media/switching techniques for a given context.	**L3**

Contribution of Course Outcomes towards achievement of Program Outcomes & Strength of correlations (3: Substantial, 2: Moderate, 1: Slight)

	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**
CO1	3													
CO2	3								3	3				
CO3	3													

Course Content		
UNIT-1	**Introduction:** - Data Communications, Networks, Network Types. **Network Models :-**The Protocol Layering , TCP/IP Protocol Suite, The OSI Model	**CO1**
UNIT-2	**Introduction to Physical Layer:-** Data & Signals, Periodic Analog Signals, Digital Signals, Transmission Impairment, Data Rate Limits, Performance.	**CO1,CO2**
UNIT-3	**Digital Transmission :-** Digital to Digital Conversion: - Line coding and line coding schemes (unipolar,polar), Block coding. Analog to Digital Conversion: - Pulse Code Modulation, Delta Modulation. Transmission Modes: - Parallel Transmission, serial Transmission. **Analog Transmission :-** Analog to Analog conversion :- Amplitude Modulation, Frequency Modulation,Phasemodulation, Multiplexing (Brief Introduction):- FDM, WDM, STDM.	**CO1,CO2**
UNIT-4	**Transmission media :-** Introduction, Guided Media:-Twisted pair cable, Co-axial cable, Fiber optic cable, Unguided media: - Wireless-Radio waves, Microwaves, Infrared**.**	**CO1,CO3**
UNIT-5	**Switching :-** Introduction, Circuit switched networks, Packet Switching, Structure of a Switch	**CO1,CO3**
Learning Resources		
Text Books	1. Data Communications and Networking, Behrouz A. Forouzan, Fifth Edition, 2017, McGraw Hill.	
Reference books	1. Data and Computer Communication, William Stallings, Tenth Edition, 2014, Pearson.	
e-Resources & other digital material	1. https://nptel.ac.in/courses/106/105/106105082/ 2. http://nptel.ac.in/courses/106106091/1 3. http://ocw.mit.edu/courses/electrical-engineering-and-computer-science/6-263j-data-communication-networks-fall-2002/lecture-notes/	