

GUJARAT TECHNOLOGICAL UNIVERSITY

SUBJECT NAME: Communication systems
SUBJECT CODE: 3715309
Semester I

Type of course:

Prerequisite: Digital & Analog Communication

Rationale:

Teaching and Examination Scheme:

Teaching Scheme			Credits C	Examination Marks				Total Marks
L	T	P		Theory Marks		Practical Marks		
				ESE(E)	PA (M)	ESE	PA(I)	
3	2	0	4	70	30	30	20	150

L- Lectures; T- Tutorial/Teacher Guided Student Activity; P- Practical; C- Credit; ESE- End Semester Examination; PA- Progressive Assessment;

Content:

Sr. No.	Content	Total Hrs	% Weightage
1	Introduction to the analysis and design of analog and digital communication systems.	6	10
2	Topics include analog and digital modulation schemes, digital encoding of messages, mathematical modeling of communications systems	6	10
3	Noise in communication links and calculation of performance measures for practical links. Error- correction code design and analysis with emphasis on block and convolutional coding and decoding; Trellis- coded modulation.	6	10
4	Modeling of band limited systems and pulse-shape design, optimal receiver design for band limited systems, linear and nonlinear equalization.	7	20
5	Multiple-access techniques, orthogonal frequency- division multiplexing and receiver design for CDMA schemes. Simulation of practical digital transmission systems.	7	20

Reference Books:

1. Proakis J.J, D Wozencraft J.M. and Jacobs I.M., Principles of Communication Engineering, John Wiley.
2. Carlson A , Communication System, 3rd Edition, McGraw Hill.
3. Van Trees H.L, Detection, Estimation and Modulation Theory, John Wiley and Sons
4. Blahut R.F, Digital transmission of Information, Addison Wesley.
5. Benedetto S., Biglieri E. and Castellari V., Digital Transmission Theory, Prentice Hall.