11EC302 MODERN DIGITAL COMMUNICATION TECHNIQUES

Credits: 4:0:0

Course Objective
To understand the various digital communication concepts like coherent and non-coherent- band limited channels- block coded and convolution code and spread spectrum signals.

Course Outcome
Understanding of various digital communication techniques. Ultimately it is hoped that the course would help to arouse student’s interest in the area of digital communication.

Unit I

Unit II
Bandlimited Channels and Digital Modulations: Eye pattern; demodulation in the presence of ISI and AWGN; Equalization techniques – IQ modulations; QPSK; QAM; QBOM; -BER Performance Analysis. – Continuous phase modulation; CPFM, CPFSK, MSK-OFDM. Matched filter

Unit III
Block Coded Digital Communication: Architecture and performance – Binary block codes; Orthogonal; Biorthogonal; Transorthogonal – Shannon’s channel coding theorem; Channel capacity theorem - Coded BPSK and DPSK demodulators – Linear block codes; Hamming-Cyclic codes- Golay codes- Cyclic BCH - Reed – Solomon codes.

UNIT IV
Convolutional Coded Digital Communication
Representation of codes using Polynomial- State diagram- Tree diagram- and Trellis diagram – Decoding techniques Maximum likelihood- Viterbi algorithm- Sequential decoding; Turbo Coding-BCJR algorithm.

Unit V

Text Books
Reference Books