CU7102 ADVANCED DIGITAL COMMUNICATION TECHNIQUES

OBJECTIVES:
- To understand the basics of signal-space analysis and digital transmission.
- To understand the coherent and noncoherent receivers and its impact on different channel characteristics.
- To understand Orthogonal Frequency Division Multiplexing.
- To understand the different block coded and convolutional coded digital communication systems.
- To understand the different Equalizers.

UNIT I COHERENT AND NON-COHERENT COMMUNICATION

UNIT II EQUALIZATION TECHNIQUES

UNIT III BLOCK CODED DIGITAL COMMUNICATION
Architecture and performance – Binary block codes; Orthogonal; Biorthogonal; Transorthogonal – Shannon’s channel coding theorem; Channel capacity; Matched filter; Concepts of Spread spectrum communication – Coded BPSK and DPSK demodulators– Linear block codes; Hamming; Golay; Cyclic; BCH ; Reed – Solomon codes - Space time block codes

UNIT IV CONVOLUTIONAL CODED DIGITAL COMMUNICATION

UNIT V OFDM
Generation of sub-carriers using the IFFT; Guard Time and Cyclic Extension; Windowing; OFDM signal processing; Peak Power Problem: PAP reduction schemes-Clipping, Filtering, Coding and Scrambling.-

TOTAL: 45 PERIODS

OUTCOMES:
Upon Completion of the course, the students will be able to
- Develop the ability to understand the concepts of signal space analysis coherent and noncoherent receivers.
- Comprehend the generation of OFDM signals and the processing of the signals.
- Possess knowledge on different block codes and convolutional codes.
- Conceptually appreciate different Equalization techniques.
REFERENCES:


