SUBJECT NO-EC31008, SUBJECT NAME- DIGITAL SIGNAL PROCESSING

LTP- 3-1-0,CRD- 4

SYLLABUS :-

Pre-requisites: EC21004Review of discrete time signals and systems - causality, stability, discrete time Fourier transform, sampling and z-transform. Introduction to signal space, orthogonal basis and signal representation using unitary transforms like DFT,DCT, Haar and Walsh Hadmard transform, Properties of DFT, circular convolution, linear convolution using DFT, overlap add and save methods, FFT. Filter structures for IIR and FIR filters, linear phase FIR filters. Digital filter design techniques, IIR filter design by impulse invariance and bilinear transformation, transformation of digital filters, FIR filter design using windows, MATLAB based examples. Introduction to multirate DSP, decimation and interpolation, polyphase decomposition, uniform DFT filter banks, quadrature mirror filters and perfectreconstruction, introduction to discrete wavelet transform. Discrete random signals, power spectral density and properties, spectral estimation methods.