13EC2101-SIGNALS AND SYSTEMS
(Common to EEE&ECE)

Credits: 4

Lectures/Week:4Hrs.   Sessional Marks:40
Univ.Exam.Duration: 3Hrs   Univ.Exam.Marks:60

UNIT – I
CONTINUOUS TIME SIGNALS: Signal classification – Dirac delta-types of signals unit step, ramp, sign and exponential functions – Operations on signals- Analogy between vectors and signals – Orthogonality – Mean square error – Computation of moments, energy power, periodicity - power and energy spectral densities – Auto and cross correlation signals.

UNIT – II
FOURIER SERIES: Definition-Dirichlet's conditions –classification of Fourier series -propertiesof Fourier series. Fouriertransform: Existence of Fourier Transform- Propertiesof Fourier Transform-Inverse Fouriertransforms. Parseval's Theorem of Energy and Power signals.

UNIT – III
CONTINOUS TIME SYSTEMS: Classification of systems – Linearity and time invariance – Transmission of signals through LTI systems – Convolution – Impulse response – Frequency response – Ideal filters – Distortion less transmission – Band Width – Rise time – Hilbert transform – Pre and complex envelopes – Band pass signals through band pass systems.

UNIT – IV
DISCRETE TIME SIGNALS AND SYSTEMS: Unit impulse, step, ramp, and exponential signals – Periodicity of signals – Operations of signals – Linear Shift Invariant(LSI) system – Stability – Causality – Convolution and Correlation –Linear constant coefficient difference equation – Impulse response – Discrete time Fourier transform – Properties – Transfer function – System analysis using DTFT.

UNIT-V
MATLAB: Introduction –Basic operations on Matlab –generation of signals –correlation-Convolution-Computation of Fourier Transform-Solving difference equations. Computation of Z-Transform.

TEXT BOOKS:
1. Oppenheim. A.V, Wilekey, A.S.and Young, I.T. "Signals and Systems, PHI
2. Simon Haykin. "Communication System", Wiley Eastern Ltd., New Delhi.
3. Sanjith k.Mithra Digital Signal Processing with MATLAB, TMH Publications.

REFERENCE BOOKS:
1. Ashok Ambardar, "Analog and Digital Signal Processing", Thomson Learning Inc.
 2. B.P. Lathi, "Signals, Systems and Communications", B.S. Publications.