**17EC2101 – SIGNALS AND SYSTEMS**

**UNIT-I**

**CONTINUOUS TIME SIGNALS:** Signal classification, Types of signals-Dirac delta, unit step, ramp, Signum and Exponential functions, Operations on signals, Analogy between vectors and signals, Orthogonality, Mean square error

**UNIT-II**

**FOURIER SERIES**: Definition-Dirichlet’s conditions, classification of Fourier Series, properties of Fourier Series.

**UNIT III**

**FOURIER TRANSFORM:** Existence of Fourier Transform- Properties of Fourier Transform-Inverse Fourier Transforms, Parseval’s Theorem of Energy and Power signals, Energy, Power, Periodicity of signals, Power and Energy Spectral Densities, Auto and Cross correlation of signals.

**UNIT-IV**

**CONTINUOUS TIME SYSTEMS:** Classification of systems – Linearity and time invariance – Transmission of signals through LTI systems – Convolution – Impulse response – Frequency response of LTI Systems.

**UNIT-V**

**DISCRETE TIME SIGNALS AND SYSTEMS:** Unit impulse, step, ramp, and exponential signals – Periodicity of signals – Operations on signals – Linear Shift Invariant(LSI) system – Stability – Causality – Convolution and Correlation –Linear constant coefficient difference equation – Impulse response.

**UNIT-VI**

**DISCRETE TIME FOURIER TRANSFORM**: Definition of Discrete Time Fourier Transform – Properties – Transfer function – System analysis using DTFT. Ideal filters – Distortion less transmission – Band Width – Rise time – Hilbert transform – Pre and complex envelopes – Band pass signals through band pass systems.

**TEXT BOOKS:**

1. Signals & Systems : A Anand Kumar – PHI
2. Linear Systems and Signals : B.P.Lathi – Oxford University Press
3. Signals & Systems: P.Ramesh Babu-SP

**REFERENCES:**

1. Signals &Systems :J.S.Chitode – Technical Publications
2. Signals &Systems :A.V.Oppenhiem & A.S.Willsky with S.HamidNawab – PHI