2.16 40107 SIGNAL SYSTEM & PROCESSING

UNIT-1 CLASSIFICATION AND REPRESENTATION OF CONTINUOUS TIME AND DISCRETE TIME SIGNALS

1.1 Signal operations. Continuous Time and Discrete Time Systems
1.2 Classification, Properties. Representation
1.3 Differential Equation representation of Continuous Time Systems.
1.4 Difference Equation Representation of Discrete Systems.
1.5 Continuous Time LTI systems and Convolution Integral,
1.6 Discrete Time LTI systems and linear convolution.

UNIT-2 FREQUENCY DOMAIN REPRESENTATION OF CONTINUOUS TIME SIGNALS

2.1 Continuous Time Fourier series: Convergence.
2.2 Continuous Time Fourier Transform: Properties.
2.3 Frequency Domain Representation of Discrete Time Signals-
2.4 Discrete Time Fourier Transform: Properties, Sampling Theorem, aliasing, reconstruction filter, sampling of band pass signals,
2.5 Relation between Digital Frequency and Analog Frequency of sampled signals.
2.6 Fourier Series Representation of Discrete Time Periodic Signals.

UNIT-3 LAPLACE TRANSFORM

3.1 ROC, Inverse transform, properties,
3.2 Analysis of Continuous LTI systems using Laplace Transform, unilateral Laplace Transform.
3.3 Relation between Fourier and Laplace Transforms.
3.4 Z transform, ROC, Inverse transform, properties,
3.5 Analysis of Discrete Time LTI systems using Z transforms, unilateral Z transform.
3.6 Relation between DTFT and Z-Transform.
3.7 Random process - Stationarity, Ergodicity, Correlation, Power spectral density, properties.
3.8 Wiener Khinchin Theorem.
3.9 Transmission of Random process through a linear Filter. Gaussian process, properties.

Reference Books:

1. Simon Haykin: Signals & Systems, John- Wiley, 2003.
2. Simon Haykin: Communication Systems,4/e,John -Wiley. Reference:
3. Alan V. Oppenheim, Alan S.Willsky: Signals and Systems, 2/e, PHI.
4. B P. Lathi: Signal Processing & Linear systems, Oxford Publication,2000.
5. HweiP.Hsu: Signals and Systems, McGraw Hill,1995.