EE 321: SIGNALS AND SYSTEMS (3-0-0: 3)

Basics of Signals and Systems

Classification of Signals, Operation on Continuous Signals and Discrete Signals, Properties of Signals. Classification of Systems and Properties of Systems.

Linear Time-Invariant System

Discrete-Time LTI Systems: The Convolution sum, Continuous-Time LTI systems: The Convolution Integral, Properties of LTI systems. Representation of Causal LTI using Differential and Difference equations. Convolution of Finite Sequences, Correlation.

Frequency Analysis of Signal and Systems

Frequency Analysis of Continuous-Time Signals, Frequency Analysis of Discrete-Time Signals, Properties of The Fourier Transformation For Continuous- time and Discrete-Time(DTFT) Signals, Frequency-Domain Characteristics of LTI Systems.

Laplace Transform

The Laplace transform, Properties of the Laplace transforms, Inversion of the Laplace transform, Analysis of Linear-Time-Invariant Systems using Laplace transform.

Z - Transform

The z-transformation, Properties of the Z-Transformations, Inversion of the z-transform, The One-Sided Z-transformation, Analysis of Linear-Time-Invariant Systems in the Z-Domain.

Sampling

Sampling Theorems, Ideal Sampling, Impulse Sampling, Natural Sampling, Signal Reconstruction and Aliasing, Sampling of Band Pass Signal.

Text Books

1. Oppenheim Alan V, Wilsky Alan S. and Nawab Hamid S, “Signal and Systems”, Pearson Educations.
2. Prokis John G, “Digital Signal Processing: Principle, Algorithms, and Applications”, Pearson Educations.

References

1. Lathi B. P, “Linear Systems and Signals”, Oxford University Press.
2. Stuller John Alan, “An Introduction to Signal and Systems”, Thomson India Edition.
3. Roberts M. J. and Govind Sharma, “Fundamental of Signals and Systems”, Tata McGraw-Hill.