

EC 253:Signals, Systems and Networks

CREDITS =6 (L=4,T=0,P=2)

1 Introduction: Basic concepts of electronic networks, Network theorems and applications, Review of network parameters.

4

2. Continuous Time Signals: Continuous time signal examples, signal characteristics, signal properties, signal manipulations. Singularity functions, and elementary functions, continuous time sinusoidal signals, frequency components, complex exponentials, magnitude and phases, energy and power, Fourier series representation of continuous time signals, Fourier Transform of continuous time signals.

08

3 Discrete Time Signals: Sampling and frequency aliasing, Discrete time signal examples, Elementary discrete time signals, manipulation of discrete time signals. Discrete time sinusoidal sequences and Nyquist frequency range, Fourier series representation of discrete time signals, Fourier Transform of discrete time signals.

08

4 Continuous Time Systems: Linearity, Causality, Stability, Laplace Transform, Properties of Laplace Transform, Inverse Laplace Transform, Theorems of Laplace Transform, Inverse Laplace Transform, Application of Laplace Transform for analysis of continuous time systems.

10

5 Discrete Time Systems: Representation of discrete time system, Properties of discrete time systems, Definition of Z transform, Linearity, Properties and Theorems of Z Transform, Inverse Z Transform, Delay operator, Application of Z Transform for analysis of discrete linear system.

10

REFERENCE BOOKS

Title: Signal and Systems

Author: Oppenheim and Wilsky

Publisher: Prentice Hall of India, New Delhi, India

Title: Fundamentals of Signals and Systems

Author: Michael J. Roberts

Publisher: Tata McGraw Hill Publishing Company, New Delhi, India

Title: Signal and Systems

Author: C.T.Chen

Publisher:

Title:

Author:

Publisher:

Oxford University Press

Signals and Systems: Continuous and Discrete

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MAC MILLAN Publishing Company, USA