Code: EELT-7039

Name: Signals and Systems.

Duration: 60h.

Number of credits: 04

Outline: Introduction to signals and system. Classification of continuous and discrete signals. Transformations of the Independent Variable and property of systems. Linear Time-Invariant (LTI) Systems. The convolution sum and the convolution integral. Properties of LTI systems. Systems Described by Differential and Difference Equations. Fourier Analysis for Continuous-Time Signals and Systems. The Fourier transform of continuous signals and discrete sequences. Convolution and modulation property in Fourier transforms. Frequency response of Differential equations and Difference equation systems. Signals and Systems in Time and Frequency. Magnitude and phase response in frequency domain. Ideal and non ideal filter. Sampling theorem. Aliasing and reconstruction. Decimation and interpolation. Transformations: Laplace and Z. Regions of convergence, properties, tables of transforms. Analysis of continuous systems through Laplace transform and analysis of discrete systems through Z transform .

Bibliography:
A. V. Oppenheim, et al., Signals and Systems: Prentice-Hall, 1997.
S. S. HAYKIN and B. VAN VEEN, Signals and Systems: Wiley, 1999.
B. P. Lathi, Linear systems and signals: Oxford Univerity Pres, 2005.
J. Roberts, Fundamentals of Signals and Systems, McGraw-Hill Higher Education, 2008.
H. Hsu, Schaum's Outline of Signals and Systems: McGraw-Hill Companies,Incorporated, 1995.