SARDAR PATEL UNIVERSITY
Programme & Subject: M.Sc (Instrumentation)
Semester: III
Syllabus with Effect from: June - 2010

Paper Code: PS03EINS01	Total Credit: 4
Title Of Paper: Digital Signal Processing	

Unit	Description in detail	Weightage (%)
I	Signals & Systems, Classification of Signals, Singularity Functions, Systems: Classification, Transformation & Representation, Analog to Digital Conversion of Signals, Fourier Series: Trigonometric, Complex & Parseval's Identity, Power Spectrum of Periodic Function.	25%
II	Fourier Transform, Discrete Time Fourier Transform (DTFT), Fast Fourier Transform (FFT), z-Transform.	25%
III	Finite Impulse Response (FIR) Filters, Magnitude & Phase Response of Digital Filters, Design Techniques for FIR Filters, Design of Infinite Impulse Response (IIR) Filters from Analog Filters.	25%
IV	Structures for FIR Systems: Direct Form, Cascade Form, Frequency Sampling & Lattice, Structures for IIR Systems: Direct Form, Signal Flow Graph and Transposed, Cascade Form, Parallel Form & Lattice and Lattice-Ladder Form, Applications of Digital Signal Processing: Voice Processing, Radar, Image Processing, Introduction to Wavelets.	25%

Basic Text & Reference Books:-

> Digital Signal Processing, S. Salivahanan, A. Vallavaraj & C. Gnanapriya, Tata McGraw-Hill Publishing Company Limited.
> Digital Signal Processing – Principles, Algorithms and Applications, John G. Proakis & Dimitris G. Manolakis, Prentice Hall of India Private Limited.
> Digital Signal Processing – A Computer Based Approach, Sanjit K. Mitra, Tata McGraw-Hill Publishing Company Limited.
> Introduction to Digital Signal Processing, Johnny R. Johnson, Prentice Hall of India Private Limited.
> Fundamentals of Digital Signal Processing, Lonnie C. Ludeman, John Wiley & Sons.