SARDAR PATEL UNIVERSITY
Programme & Subject: M.Sc (Electronics)
Semester: III
Syllabus with Effect from: June - 2014

Paper Code: PS03EELE02	**Total Credit: 4**
Title Of Paper: Digital Signal Processing	

Unit	Description in detail	Weightage (%)
I	Introduction, Classification of Signals, Singularity Functions, Classification of Systems,Transformation of Discrete Time Signals, Representations of Systems, Trigonometric Fourier Series, Complex Fourier Series, Parseval's Identity for Fourier Series, Power Spectrum of a Periodic Function.	25%
II	Fourier Transform of Some Important Signals, Fourier Transform of Power and Energy Signals, Discrete-Time Fourier Transform (DTFT), Fast Fourier Transform (FFT), The Z- Transform, Properties of the Z-Transform, Inversion of the Z-Transform, The one-sided Z-Transform.	25%
III	Analysis of Linear Time-Invariant Systems in the Z-Domain, Finite Impulse Response (FIR) Filters; Magnitude Response and Phase Response of Digital Filters, Frequency Response of Linear Phase FIR Filters, Design Techniques for FIR Filters, Infinite Impulse Response(IIR), Design Techniques of IIR Filters.	25%
IV	Realization of Digital Linear Systems, Block diagram and Signal flow graph, Basic Structures for IIR Systems, Basic Structures for FIR Systems, Applications of Digital Signal Processing; Voice Processing, Application of Radar, Image Processing, Introduction to DSP Software.	25%

Basic Text & Reference Books:-

- **Signals and Systems**
  Simon Haykins and Barry Vankeen John Wiley & Sons, N.Y. (U.S.A)
- **Signals and Systems : Continuous and Discrete**
  Rodger E. Ziemer, William A. Tranter and D. Ronald Fannin Max Well Macmillan Int. (U.S.A)
- **Digital Signal Processing**
  Alan. V. Oppenheim and Ronald. W. Schafer Prentice Hall of India, New Delhi (INDIA)
- **Theory and Applications of Digital Signal Processing**
  Lawrence R. Rabiner and Bernard Gold Prentice Hall of India, New Delhi (INDIA)
- **Introduction to Digital Signal Processing**
  Johnny R. Johnson Prentice Hall of India, New Delhi (INDIA)
- **Digital Signal Processing**
  John G. Proakis and Dimitris G. Manolakis Prentice Hall of India, New Delhi (INDIA)