Module No.	Unit No.	Topics	Hrs.
1.0		**Multirate Digital Signal Processing**	08
	1.1	Advantages of Multirate Signal Processing	
	1.2	Interpolation and Decimation	
	1.3	Sampling Rate Conversion by Non Integer Factor	
	1.4	Multistage Interpolation and Decimation	
	1.5	Polyphase Decomposition	
	1.6	Digital Filter Banks	
	1.7	Applications of Multirate Signal Processing	
2.0		**Power Spectrum Estimation**	10
	2.1	**Non Parametric Method of Power Spectrum Estimation:** Periodogram, Modified Periodogram, Barlett Method, Welch's Method, Blackman-Tukey Approach	
	2.2	**Parametric Methods of Power Spectrum Estimation:** Auto Regressive Spectrum Estimation, Model Parameters-Yule-Walker Equation, Least Square Method and Linear Prediction, Moving Average Spectrum Estimation, Autoregressive Moving Average Spectrum Estimation	
	2.3	Eigen Analysis Algorithm for Spectrum Estimation	
3.0		**Linear Prediction and Optimum Linear Filters**	10
	3.1	Representation of Stationary Random Process	
	3.2	Forward and Backward Linear Prediction	
	3.3	Solution of Normal Equation(Levinson-Durbin and Schur Algorithm)	
	3.4	AR Lattice and ARMA Lattice Ladder Filters	
	3.5	Weiner Filters for Filtering and Prediction	
4.0		**Adaptive Filters**	10
	4.1	**Applications of Adaptive Filters:** System Identification, Adaptive Channel Equalization, Echo Cancellation, Adaptive Noise Cancellation, Suppression of Narrowband Interference in Wideband Signals, Adaptive Arrays.	
	4.2	**Adaptive Algorithms:** LMS Algorithm, RLS Algorithm, Lattice Ladder Algorithm	
5.0		**Wavelet Transform**	06
	5.1	Introduction to Time Frequency Analysis	
	5.2	Short Time Fourier Transform	
	5.3	Continuous Wavelet Transform	
	5.4	Discrete Wavelet Transform	
	5.5	Multiresolution Analysis	