C.U.SHAH UNIVERSITY

FACULTY OF: Technology & Engineering
DEPARTMENT OF: Instrumentation & Control Engineering
SEMESTER: VI
COURSE: B.Tech
SUBJECT CODE: 4TE06DSP1
SUBJECT NAME: DIGITAL SIGNAL PROCESSING

Teaching & Evaluation Scheme

Subject Code	Subject Name	Teaching Hours/Week				Credits	Evaluation Scheme/Semester							
							Theory				Practical			
							Sessional Exam		University Exam		Internal		University	Total Marks
		Th	Tu	Pr	Total		Marks	Hrs	Marks	Hrs	Pr/Viva	TW	Pr	
4TE06DSP1	DIGITAL SIGNAL PROCESSING	4	0	2	6	5	30	1.5	70	3	--	20	30	**150**

OBJECTIVES:

1. To introduce the student to the idea of various methods of signal processing.
2. To make the students familiar with digital filters and their designing.

PREREQUISITES:

1. Basics of signals and system.

COURSE OUTLINES:

Sr. No.	Course Contents	No Of Hours
1	**Digital signals and systems:** DSP system concepts, properties of DSP system, inter connection of DSP system, review of Z-transform, Z-transform properties.	08
2	**Discrete Fourier Transform:** Frequency domain sampling, properties of DFT, efficient computation of DFT, Fast Fourier Transform, radix-2 and radix-4 algorithms, Decimation in time FFT, decimation in Frequency FFT, applications of FFT algorithm.	12
3	**Implementation of discrete time systems:** Classification of filters, structure of realization of discrete time systems, structure of FIR system, direct form structure, cascade form structure, structure of IIR system, direct form structure, parallel form structure, cascade form structure	12
4	**Digital filter:** General considerations, design of FIR filters, windows method, frequency sampling method, design of IIR filters, approximation of derivative method, impulse invariance method, bilinear transformation method.	12

5	**Applications of Digital Signal Processing:** Voice processing, application to radar, application to image processing, introduction to wavelets.	8

Books Recommended:

1. *Digital Signal Processing by John G. Proakis, Dimitris G. Manolakis, PHI.*
2. *Digital signal processing by S Salivahanan, A. Vallavaraj, C Gnanapriya, Tata Mc graw-Hill education*
3. *Digital signal processing by Palan, Technova*