

Objectives:

1. To generate sinusoidal signal based on recursive difference equation and filtering.
2. To Calculate and plot DFT, IDFT and FFT of given DT signal.
3. To Design Low Pass, High Pass FIR filters based on magnitude response features including: pass band ripple, stop band ripple, transition width and bandwidth.
4. To determine and plot the Power Spectrum of a given signal(s).
5. To implement decimation and interpolation process for multi-rate signal processing.

JNTUH Syllabus**DIGITAL SIGNAL PROCESSING LAB**

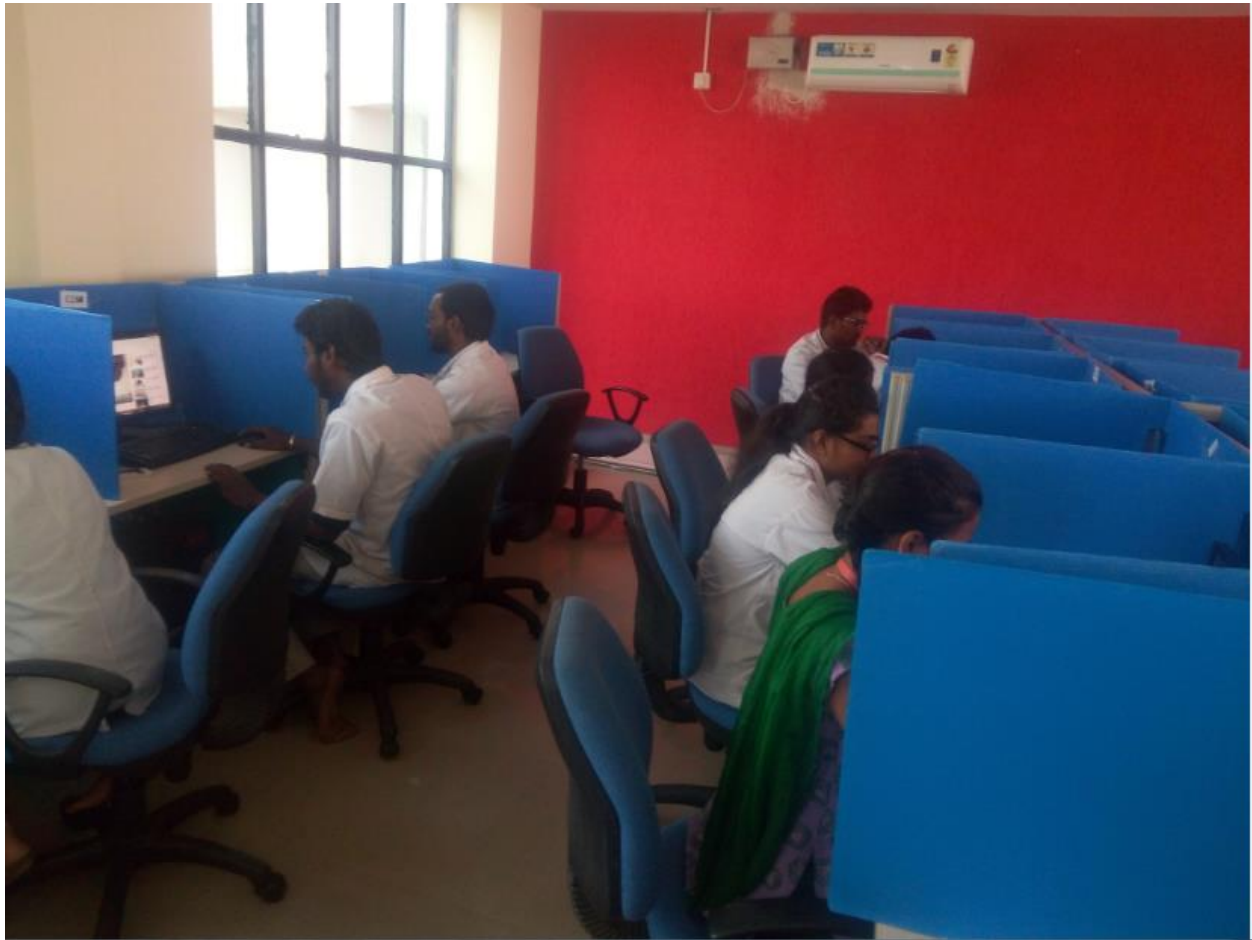
The programs shall be implemented in software (Using MATLAB / Lab view / C programming/Equivalent) and hardware (Using TI / Analog devices / Motorola / Equivalent DSP processors).

1. Generation of Sinusoidal waveform / signal based on recursive difference equations.
2. To find DFT / IDFT of given DT signal.
3. To find frequency response of a given system given in (Transfer Function/ Differential equation form).
4. Implementation of FFT of given sequence.
5. Determination of Power Spectrum of a given signal(s).
6. Implementation of LP FIR filter for a given sequence.
7. Implementation of HP FIR filter for a given sequence.
8. Implementation of LP IIR filter for a given sequence.
9. Implementation of HP IIR filter for a given sequence.
10. Generation of Sinusoidal signal through filtering.
11. Generation of DTMF signals.
12. Implementation of Decimation Process.
13. Implementation of Interpolation Process.
14. Implementation of I/D sampling rate converters.

15. Audio application such as to plot a time and frequency display of microphone plus a cosine using DSP. Read a .wav file and match with their respective spectrograms.

16. Noise removal: Add noise above 3 KHz and then remove, interference suppression using 400 Hz tone.

17. Impulse response of first order and second order systems.





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III YEAR B.TECH. II-SEM

DIGITAL SIGNAL PROCESSING LAB - CODE : A60493

LIST OF EXPERIMENTS

(Minimum 12 of experiments are to be conducted)

1. Generation of sinusoidal waveform/signal based on recursive difference equation
2. To find DFT/IDFT of given DT signal
3. To find frequency response of a given system given in(Transfer Function / Differential equation form)
4. Implementation of FFT of given sequence
5. Determination of power spectrum of a given signal(s)
6. Implementation of LP FIR filter for a given sequence
7. Implementation of HP FIR filter for a given sequence
8. Implementation of LP IIR filter for a given sequence
9. Implementation of HP IIR filter for a given sequence
10. Generation of sinusoidal signal through filtering
11. Generation of DTMF signals
12. Implementation of Decimation process
13. Implementation of Interpolation process
14. Implementation of I/D sampling rate converters
15. Impulse response of first order and second order systems