

DIGITAL SIGNAL PROCESSING LAB PCC-ECE401-P

Course Credits :2 Contact Hours: 4/week Mode : Lab Work	Course Assessment Methods (Internal: 30; External: 70)
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Sr. No.	Course Outcomes At the end of the semester, students will be able:	RBT Level
CO 1	To understand the basic operations of signal processing & plot basic discrete/digital signals using MATLAB.	L2
CO 2	To demonstrate interpolation and decimation operations using MATLAB.	L3
CO 3	To analyze and examine the sampling theorem.	H1
CO 4	To evaluate magnitude and phase spectrum of a discrete time signal using DFT to determine the spectral components of the signal.	H2
CO 5	To develop and design IIR and FIR band pass, band stop, low pass and high pass filters using MATLAB.	H3

List of Experiments

1. To represent basic signals (Unit step, unit impulse, ramp, exponential, sine and cosine) in MATLAB.
2. To generate triangular, saw tooth and square waveform using MATLAB program.
3. To develop program for discrete convolution.
4. To develop program for discrete correlation.
5. To develop program for sampling of a continuous time signal with different sampling frequency in order to study aliasing effect.
6. To develop a program to determine the impulse response of a system for which input sequences and output sequences are given.
7. To design Butterworth IIR filters (low-pass, high pass, band-pass, band-stop).
8. To design digital FIR filters using windows technique. (Rectangular window, Blackman window, Hamming window, Hanning window.
9. To plot the magnitude and phase spectrum of a signal using DFT.
10. To perform interpolation and decimation using MATLAB.
11. To develop program for computing linear and circular convolution.
12. To develop program for finding magnitude and phase response of LTI system described by system function $H(z)$.
13. To generate DTMF signals using MATLAB.
14. To develop program for stability test using MATLAB.
15. To develop a program for computing inverse Z-transform of a rational transfer function.
16. To develop a program for computing parallel realization values of IIR digital filter.
17. To develop a program for computing cascade realization values of IIR digital filter.