Techno India NJR Institute of Technology

Academic Administration of Techno NJR Institute

Lab Deployment

Name of Faculty: Dr. Vivek Jain — Subject Code:5EC 4-22

Subject Name: Digital Signal Processing Lab — SEM: V

Department: Department of Electronics and Communication Engineering

Total No. of Labs Planned: 13

COURSE OUTCOMES

At the end of this course students will be able to:

CO1:Able to generate different Continuous and Discrete time signals.

CO2:Develop image enhancement , compression and edge detection using MATLAB .

CO3: Develop IIR & FIR Filter using different approximation methods using MATLAB .

CO4:Implement algorithms for image processing on DSP Processor.

Labs No.	Name of Experiment
1	Introduction: Objective, scope and outcome of the course.
2	Generation of continuous and discrete elementary signals(impulse,unitstep,ramp) using mathematical expression.
3	Perform basic operations on signals like adding, subtracting, shifting and scaling.
4	Perform continuous and discrete time Convolution (using basic definition).
5	Checking Linearity and Time variance property of a system using convolution,shifting.
6	To generate and verify random sequences with arbitrary distributions, meansand variances forfollowing: (a) Rayleigh distribution (b) Normal distributions: N(0,1).

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	(c) Gaussion distributions: N (m, x) (d) Random binary wave
7	To find DFT / IDFT of given DT signal
8	N-point FFT algorithm
9	To implement Circular convolution
10	MATLAB code for implementing z-transform and inverse z-transform
11	Perform inverse z-transform using residuez MATLAB function
12	MATLAB program to find frequency response of analog LP/HP filters
13	To design FIR filter (LP/HP) using windowing (rectangular, triangular, Kaiser)technique using simulink

TEXT/REFERENCE BOOKS

1. Digital Signal Processing: Principals, Algorithms And Applications", Proakis, Manolakis,4th ed., Pearson Education.
2. Discrete Time Signal Processing, Oppenheim, Schafer, 3rd ed. , PHI (2010).
3. Image Processing, Analysis and Machine Vision, Sonaka,Hlavac and Boyle, 3rd ed. , Cengage Learning
4. Digital Signal Processing:A Modern Introduction, Ambardar, Cengage learning.
5. Image Processing, Analysis, and Machine Vision,_ Sonka, cengage Learning.

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