KG REDDY College of Engineering & Technology

Name of the laboratory: Digital Signal Processing Lab

COURSE OBJECTIVES

1. Describe SCI LAB/OCTAVE and use it as a computation and visualization tool in the study of Signals, Systems and Stochastic process.
2. Solve Engineering problems using simulation tools.
3. Provide a foundation in use of this software's for project work and real time applications

COURSE OUTCOMES

At the end of the course, student will able to

CO 1: Describe programming & simulation for engineering problems

CO 2: Analyze various types of signals and sequences

CO 3: Sketch the spectrum of a given signal using SCILAB/OCTAVE

CO 4: Apply convolution and correlation operations on different signals.

CO 5: Write basic mathematical, electrical, electronic problems in SCILAB/OCTAVE

List of the equipment:

1. Computer System with latest specifications connected
2. Window Xp or equivalent
3. Simulation software-MAT Lab or any equivalent simulation software

List of experiments:

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.