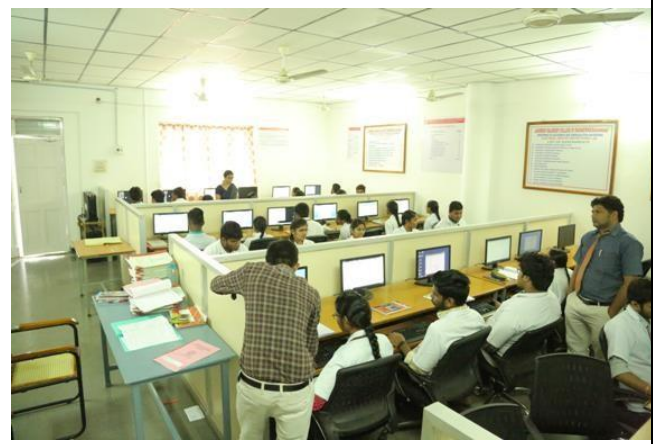
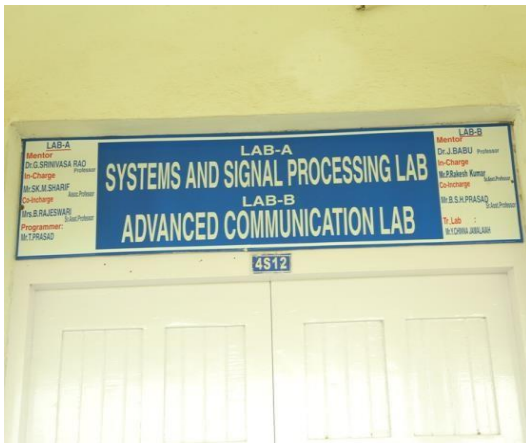


Systems and Signal Processing Lab

Signal Processing Laboratory is offered for ECE, B.Tech programs. It is very important in academic curriculum for students to understand response of the systems for various signals in time domain and frequency domain. The objective of this laboratory is to study the signals and systems in real time applications. This lab is well equipped with advanced software and hardware equipment to extract the valued information from signals in the fields of image processing and communications. In this lab the student apply the MATLAB software and its tool boxes for simulation. The Budget of this lab is around Rs. 25,46,857.00/-.



Major Equipment:

S. No	Name of The Equipment	Qty.	Cost in Rs.
Hardware (Systems, DSP Processors & Accessories)			
1.	LENOVO DESKTOP Edge – 73– 10 ASA07TIH @ Intel H81, Core i3 Processor, 4GB DDR3 RAM, 500GB HDD, 18.5” LED Monitor.	30	8,59,500.00
2.	HP Pro Desktop - INTEL(R) COR(TM) I3-2100 CPU @3.10GHz, 3.09GHz, 17”-LED.	06	1,47,000.00
3.	DSP KITS (DSK) TMS320C6711 with Code Composer Studio.	10	3,01,570.00
4.	DSP Starter Kit (DSK) TMS320C6713 with Code Composer Studio.	01	2,00,000.00
5.	DSP Starter Kit (DSK) TMS320C6416 with Code Composer Studio.	01	
6.	Finger Print Development Kit Based on C5515. Interfacing Cards For C6000 DSK	01	
7.	Image Daughter Card with Camera & Accessories.	01	
8.	4 Channel Audio Daughter Card	01	
9.	APC ONLINE UPS 6 KVA	01	
10.	TMS320C6748 DSP Development Kit	04	1,24,004.00
Software's			
11.	Matlab 9.0	100	8,08,012.00
	Simulink 8.7	50	
	Tool Boxes		
	Image Processing Toolbox 9.4	05	
	DSP System Toolbox 9.2	05	
	Signal Processing Toolbox 7.2	05	
	Communications System Toolbox 6.2	05	
	Fuzzy Logic Toolbox 2.2.23	05	
	Neural Network Toolbox 9.0	05	
	Control System Toolbox 10.0	05	
	Simscape 4.0	05	
	Simscape Power System 6.5	05	
12.	Multisim 11.0 (Unlimited)		---
Total			25,46,857.00

List of Experiments (As per curriculum):

S. No.	Name of The Experiments
Part I: Experiments using MATLAB Software	
1.	Basic operations on Matrices.
2.	(a) Generation of various signals (b) Basic operations on signals.
3.	(a) Linear Convolution (b) Linear Convolution through DFT and IDFT.
4.	(a) Circular Convolution (b) Circular Convolution through DFT and IDFT.
5.	Computation of N-Point DFT and IDFT.
6.	Solution of LCCDE and find the system response using Z-transform.
7.	Power Spectral Density for sinusoidal signal.
8.	Frequency response of analog low pass & high pass filter.
9.	Design of IIR Butterworth filters (LPF, HPF, BPF, and BSF).
10.	Design of IIR Chebyshev filters (LPF, HPF, BPF, and BSF).
11.	Design of FIR filters using windowing techniques.
12.	Design of Digital IIR filters using Bi-linear transformation.
Part II: Experiments using Code Composer Studio Simulation Software	
13.	Study of basic architectures of DSP Processor.
14.	Linear Convolution.
15.	Implementation of a FIR filter.
16.	Implementation of an IIR filter.
17.	Computation DFT through FFT.

List of Experiments (Beyond the Syllabus):

S. No.	Name of The Experiments
1	Signal compression using DCT
2	Image Enhancement using average and median filters

Lab Mentor	: Mr. B. Ramesh Reddy, Professor
Lab In-charge	: Mr. T. Anil Raju , Associate Professor
Lab Co In-charge	: Mr. B. Rajeswari, Sr. Asst. Professor
Lab Technician	: Mr. Y. Chinna Jamalaih
Lab Helper	: Mr. M. Ravi