

LAB 1: Analog Electronics Circuits Laboratory

Objective: To design and implement analog circuits such as oscillators, amplifiers, rectifiers, filters, and converters for given specifications. To use simulation tools to analyze and verify the performance of analog circuits before hardware implementation. To identify, construct, and troubleshoot analog circuits, interpreting the results with theoretical expectations.

List of Equipment's			
Sl. No	Equipment Name	Specifications	Quantity
01	DSO	Make: Tektronix Model: TBS1052C	15
02	Function Generator	3 MHz	23
03	Power supply	0-30V/1A, +/-15v, +5v, 0-32v/2A	28
04	DRB	5 Dials	20
05	DCB	5 Dials	13
06	DIB	5 Dials	13
07	Digital Multimeters	3 ½ Digits	15
09	Spring Board	-----	25
10	Digital ammeter	10μA, 50 μA, 100 μA, 200 μA, 500 μA	18
11	Analog Ammeter	10mA,100mA, 250 mA,	13
12	Digital Voltmeter	1V, 50V	10
13	Analog voltmeter	1V, 50 V	12
16	Bread Board	-----	15
17	Computers	Make: LENOVO, 8 GB RAM, 1 TB Hard Disk, OS: Windows10	07

Teaching Staff - Dr.Shashank Kumar Dubey

Technical Staff – Mr.Nagesha K M, and Mr.Mahadeva P

LAB 2: HDL Laboratory

Objective: To understand the fundamentals of Hardware Description Languages such as VHDL or Verilog. To describe, simulate, and implement combinational and sequential circuits using HDL. To map HDL programs onto programmable devices (FPGA/CPLD) and observe practical outputs. To connect digital logic theory with real-time design, testing, and debugging.

List of Equipment's		
Sl No	Equipment Name with Specification	Quantity
01	LG Lite Pc Based USB Digital Test system,32 channels with transitional timing 256 samples, 16 Trigger words, up to 50Mhz logic Analyzer/pattern generator/signal analyzer/100MHZ frequency	05
02	TK Base kit Universal VLSI Development board with 2081/0 on BERG connector, oscillator with onboard multiple clocks, 8 LES's indicator Hex-keypad, 4 No's 7-Seg display,2x16 character LCD, 8-bit ADC/DAC, serial interface, parallel interface, Relay,12c, RC,power supply and accessories. Along with Xilinx CPLD XC9572, FPGA Spartan XC@S100 Daughter board with serial EPROM and JTAG connector, 89V51RD2 and ARM daughter Boards. Along with Xilinx 7.1i Software	20
03	Computer Make : LENOVA Processor: 11 th Gen, Intelcore™i5, Mother Board: Genuine Intel, Memory: 8GB Hard disc Drive: 477GB, Operating System: 64-BIT	48
04	Computer: Make: DELL , 8 GB RAM, 1 TB Hard Disk, OS: Windows10	02
05	Projector: Make: Casio, Model –XJV2 with accessories	01

Teaching Staff – Dr. Shreedhar Kabbur

Technical Staff – Mr.Raju K H, Mr.Nagesha K M

LAB 3: DSP / SIMULINK Laboratory

Objective: To study and analyse the basic concepts of digital signal processing (sampling, quantization, convolution, correlation, etc.). To verify DSP principles such as Fourier transforms, Z-transforms, and digital filter design through experiments. To design and implement FIR and IIR filters using software tools (MATLAB, Python) and/or DSP hardware kits. To use DSP processors (e.g., TMS320 series) or FPGA platforms for real-time signal processing.

Sl No	Equipment Name with Specification	Quantity
1	DSP Starter Kit Based on TMS320C5402880	01
2	DSP Starter Kit Based on TMS320C6711	01
3	DSP Starter Kit Based on TMS 5416/5402	05
4	DSP Starter Kit Based on TMS320C6713/TMS6711	02
5	DSP Starter Kit Based on TMS320C6713	10
6	Computer Make: LENOVA Processor: 11 th Gen, Intelcore™i5, Mother Board: Genuine Intel Memory: 8GB Hard disc Drive: 477GB, Operating System: 64-BIT	48
7	Computer: Make: DELL, 8 GB RAM, 1 TB Hard Disk, OS: Windows10	02
8	Projector: Make: Casio, Model –XJV2 with accessories	01

Teaching Staff – Dr. RajeswariDevi

Technical Staff – Mr. Roshakumar, and Mr.Bheemaraju K

LAB 4: Communication / Antenna and Microwave Laboratory

Objective: Understand fundamental modulation and demodulation techniques, Analyse digital baseband signalling schemes, Study microwave components and measurements, investigate antenna characteristics, develop practical skills in simulation tools, Prepare students for real-world applications.

SL NO	EQUIPMENT NAME	SPECIFICATION	QTY
01	Digital storage oscilloscope	50 MHz	15
02	Function generator	3 MHz	41
03	Power supply	0-30v/1A, +5V,0-30V/1A, +/-15V, +5V, 0-32V/2A	24
04	Decade capacitance box	5-dials	10
05	Decade resistance box	6-dials	15
06	Decade inductance box	5-dials	05
07	Springboard	38pin/ 1 IC base, 52pin/ 2 IC base	25
08	Amplitude modulation Tx and Rx kit	ACL-01/02 on board power supply +5v, +/-12v	1 each
09	Klystron microwave bench setups	X-Band -12GHz	04set
10	Gunn source microwave bench setups	Solid state gunn oscillator with operating voltage 10v	02 set
13	Fiber optic trainer kit based on laser diode and glass fiber	Link-E	01
14	Fiber optic analog and digital links	AL-DL-50KHz	01set
15	Dual fiber optic and digital link for plastic and glass fiber	Link -E	01 each
16	Analog signal sampling and reconstruction kits	DCL-01, sampling frequency - 2khz,4khz,8khz,16khz,32khz,cut-off Freq:3.4khz, reconstruction-2 nd ,4 th order butter worth LPF	01
17	TDM pulse amplitude modulation and demodulation kits	4- channel multiplexer signals 250hz,500hz,1khz,2khz	04
18	Pulse code modulation and demodulation kits	Built in TTL clock generator 33khz on board power supply +5v,+/-12v	03
19	Delta sigma adaptive delta modulation and demodulation kits	On board input signal 2khz,3khz frequency- 2khz,4khz,8khz,16khz,32khz(switchable)	01set
20	PAM, PWM, PPM kits	Sampling frequency 2khz,4khz,8khz,16khz,32khz (swichable)	03

		Reconstruction- using low pass filter with inbuilt channel simulator to reduce noise	
21	Frequency modulation transmissions and Receiver kit	On board power supply +5v, +/-12v	01
22	Digital communication trainer kits QPSK & DPSK	Programmable through dip switches Data rate-600/1200bps, freq-10khz word length-8bits/nrz(L) with phases (0,90,180,270 degree)	04
23	Optical fiber trainer kit	Single channel -ST-2501	03
24	Micro strips trainer kit and setups	S-band 2-3GHz	1sets
25	Microstrips antenna setups	S-band 2-3GHz	04
26	Micro strips signal source and power meter	S-band 2-3GHz	08
27	Micro controller-based antenna turn table with display	S-band 2-3GHz	02
28	FPC spectrum analyzer	Vna function 3GHz one port vna R&S German make	01
29	Projector	Make: casio, model: XJV2, with screen	01
30	Computer	Make: Dell,8GB RAM,1TB hard disk, OS: windows 10	08
		Make lenova,8GB RAM,1TB Hard disk, OS: windows 10	03

Teaching Staff: Dr. H K Shreedhar

Technical Staff: Mr. Sharath B G, and Mr.Raju K H

LAB 5: Digital System Design Laboratory

Objective: Verification of logic gates and simplification techniques. Practice realization of adders, sub tractors, multiplexers, demultiplexers, encoders, decoders, comparators, and code converters. To use simulation tools to Construct flip-flops, shift registers, counters (synchronous & asynchronous), and finite state machines.

Sl. No.	Equipment Name	Specification	Quantity
1	IC Trainer KIT	4001	09
		DIT-92C	07
		DT-2040	08
2	Digital IC Tester	DIT-2040	01
		MME-ADIT-40	01
3	Digital and Analog IC Tester	MME UIT-40	01
4	Computer	Make DELL, 8Gb RAM, 1 TB Hard Disk, OS: Windows 10	05
5	Computer	LENOVA Processor: 11 th Gen, Intelcore™i5 Mother Board: Genuine Intel Memory: 8GB Hard disc Drive: 477GB Operating System: 64-BIT	03

Teaching Staff – Prof. Diwakar B C

Technical Staff – Mr.Devaraju T N, and Mr. Bheemaraju K

LAB 6 : CMOS VLSI DESIGN LABORATORY

Objectives : VLSI lab is to design and simulate CMOS using Cadence tools Virtuoso, analyze the transient and DC characteristics of CMOS circuits through SPICE simulation, utilize Synopsys tools for synthesis and timing analysis of VLSI circuits, and apply layout design rules for MOS transistors. Through these exercises, students will gain practical experience in circuit design, simulation, and layout, thereby enhancing their understanding of key VLSI concepts and tools.

List of Equipment's			
Sl. No.	Equipment Name	Specifications	Quantity
01	DELL	Intel(R) Core (TM) i5-6500 @ 3.20GHz 3.20 GHz 8.00 GB (7.67 GB usable) 64-bit operating system, x64-based processor	38
02	HP	Intel(R)Core (TM) i5-8400T 1.70GHz 1.70 GHz 8.00 GB (7.67 GB usable) 64-bit operating system, x64-based processor	01
03	LENOVO	11th Gen Intel(R) Core (TM) i5-11400T 1.30GHz 1.30 GHz 8.00 GB (7.67 GB usable) 64-bit operating system, x64-based processor	02

Teaching Staff - Sushma K S

Technical Staff - PRASANN S H , ULLASA B B

Embedded System Laboratory

The Embedded Controller Lab aims to provide students with hands-on experience in programming and interfacing microcontrollers to develop embedded systems. In this lab, students learn to write, compile, and debug embedded C programs targeting popular microcontrollers such as ARM Cortex, PIC, or Arduino. They gain practical skills in interfacing various peripherals including sensors, displays, and communication modules, and develop real-time applications utilizing timers, interrupts, and communication protocols like UART, SPI, and I2C. The lab also emphasizes the use of debugging tools and simulators to validate and optimize embedded software for performance and power efficiency. Through these exercises, students build a strong foundation in embedded system design and implementation, preparing them for real-world applications in automation, robotics, and IoT.

LIST OF EQUIPMENT'S			
Sl. No.	Equipment Name	Specifications	Quantity
01	DELL	Intel(R) Core (TM) i5-6500 @ 3.20GHz 3.20 GHz 8.00 GB (7.67 GB usable) 64-bit operating system, x64-based processor	38
02	HP	Intel(R)Core (TM) i5-8400T 1.70GHz 1.70 GHz 8.00 GB (7.67 GB usable) 64-bit operating system, x64-based processor	01
03	LENOVO	11th Gen Intel(R) Core (TM) i5-11400T 1.30GHz 1.30 GHz 8.00 GB (7.67 GB usable) 64-bit operating system, x64-based processor	02
04	ARM CORTEX M3 evaluation boards with Interfacing peripherals	ARM CORTEX M3 Mother Board Swift 3.0 USB cable 12V DC Adapter with wooden casing LPC 1768H board with USB Powered, On board USB to UART converter, UART0 & UART3 with RS232 logic, ADC channel with potentiometer, A Seven Segment Display With SIPO, Pin Outs for DAC, PWM, I2C SPI & CAN FRC Connectors for connecting interfacing card 1 and 2 Interfacing Card 2 Connector to Mother Board through FEC connector to interface with SPI ADC, RELAY, BUZZER, LEDs and Switches, 2x16 LCD Display, 4x4 Hexa Keypad, DC Motor with L293D Driver, Stepper Motor with ULN2008 Driver	30

Teaching Staff - Dr. Anitha sastry

Technical Staff - PRASANN S H, Mahadeva P