LABORATORIES-ECE

Sir Srinivasa Ramanujan - Microprocessor & Microcontroller Laboratory

Students are given extensive training in 16 bit microprocessors and micro controllers in this laboratory. Individual attention is given to each student by providing each student with a separate micro processor. This gives each student tremendous knowledge to write the coding independently and to master the programming. Stepper Motor operation, Interfacing of various peripherals and the use of PC as a development tool helps the student carry out real time experiments.

LIST OF EQUIPMENTS

1. Computer System
2. CRO
3. Microprocessor Trainer Kit - 8085
4. Microprocessor Trainer Kit - 8086
5. Micro controller Trainer Kit - 8051
6. Interface Board DAC
7. Interface Board – ADC
8. Interface Board - Stepper Motor Controller
9. Interface Board 8251 & 8253
10. Interface Board – 8255
11. Interface Board- 8279
12. Interface Board - 8259
13. Interface board -DC Motor Controller
14. Interface board -Traffic Light Controller
15. Interface Board - RTC/ Calendar
16. Interface Board - Printer Interface
17. AC Motor Speed Control Unit
18. DC Motor Speed Control Unit

Dr.A.P.J. Abdul Kalam Lab - Digital Signal Processing / Computer Networks Lab

Exhaustive training is given on different signal processing techniques in this laboratory. TMS 320C50 processor is given for training. Lucid demonstrations by experienced faculty members help the students to grasp the subject and conduct the experiment with confidence. The latest trainer kits are provided and students are taught in this lab to generate various signals, study and compare different filters characteristics. Students are provided an opportunity to work with Matlab for better understanding of the concepts involved in digital signal processing.

Networking topologies are taught in this laboratory using computer systems for all the experiments. Students are made to transmit data packets containing different information and receive the same through different topologies and analyze the merits and demerits of each method, using LAN Trainer, DCT Trainer kits. L SIM & N SIM Software are used for training the students on Serial & Parallel Communication, Token Bus, CSMA / CD and various other protocols.

LIST OF EQUIPMENTS

1. PERSONAL COMPUTERS
2. TMS320-C50 DSP KIT
3. TMS320-C33 DSP KIT
4. DCT-03 DATA COMMUNICATION TRAINER KIT
5. LAN TRAINER KIT
6. FUNCTION GENERATOR
7. CRO
8. WIRELESS MODEM SETUP WITH DESKTOP P11 ADAPTOR
9. SMC MODEM WITH ADAPTOR

Software

1. MATLAB R2013A
2. MATLAB 7.0 SOFTWARE
3. MATH CAD SOFTWARE
4. L SIM SOFTWARE
5. N SIM SOFTWARE
6. ORCAD SOFTWARE
7. XILINX SOFTWARE

Sir Joseph John Thomson - Linear Integrated Circuits Laboratory

Students are taught how to design and construct electronic building blocks using Integrated circuits. The experiments cover simple experiments to tough assignments in designing and testing linear integrated circuit circuits. Circuits like differentiator, integrator, low pass, band pass and high pass filter circuits, multivibrators, oscillators, PLL and SMPS are studied extensively both by simulation using L SIM and N SIM and p-SPICE software in the computer system as well as using the hardware.

LIST OF EQUIPMENTS

1. Computer
2. Cathode Ray Oscilloscope
3. Function Generator
4. Single Power Supply
5. Dual Power Supply (+/-15V)
6. Fixed Power supply (+/-12V &+/-5V)
7. Digital IC Trainer kit
8. Linear IC kit
9. Digital IC tester
10. Multimeter

GORDON EARLE MOORE - VLSI Laboratory

In this lab students learn to program in Verilog and VHDL languages. Students learn to construct and test various basic VLSI circuits starting from adder, multiplier, ALU and, counters, to complicated design problems. They are also taught SPICE simulation to understand various analog and digital circuits and their characteristics. They are taught advanced VLSI design such as synthesis of PNR, Layout of CMOS Inverters, configuration of all blocks, layout generation etc. using Orcad, Xilinx ISE, Cadence software tools and sophisticated equipments including FPGA Spartan Kit and 100 M Hz Oscilloscope.

LIST OF EQUIPMENTS

1. DSO with Logic Analyzer
2. Analog Devices DSP Kit
3. ARM 9 Trainer Kit
4. Universal Development board with Virtex 5 & Cyclone 2 Kit
5. Cadence Software
6. Arm 7 kit VSK-2148 and Zigbee (Wireless Communications)
7. VLSI Trainer Kit Spartan
8. IBM Server- Intel xenon E4405
9. System(i5,20”)-3GB RAM,500 GB HD
10. System(i3,23”)-2GB RAM, 250GB HD
11. System(i3,20”)-2GB RAM,500GB HD

Dr.Subrahmanyan Chandrasekhar - Electronics Laboratory

Students learn the basics of electronics in this lab. They are taught how to check electrical and electronic components such as resistors, inductors, capacitors, transformers, diodes, transistors, JFET, UJT, SCT etc and find their characteristics. Amplifiers, Oscillators and their different configurations are constructed by the students and tested. Analog and digital electronic circuits are covered extensively using discrete components as well as Integrated Circuits. P-SPICE, L SIM and N SIM software are used for simulation training. This lab encourages students to construct various interesting and novel electronic circuits.

LIST OF EQUIPMENTS

1. Computer
2. Cathode Ray Oscilloscope
3. Function Generator
4. Single Power Supply
5. Dual Power Supply
6. Decade Inductance Box
7. Decade capacitance Box
8. Decade Resistance Box
9. Voltmeter (DC)
10. Ammeter (DC)
11. Ammeter (AC)
12. Multimeter
13. LCR Meter

Dr. Jagdish Chandra Bose - Communication Systems Laboratory

Modulation and demodulation techniques are taught in this laboratory, using AM, FM, PPM, PCM, PWM, TDM, DM, ADM, ASK, FSK, PSk and QPSK kits. Students are made to construct circuits by themselves and test their circuits using discrete components, so as to reinforce what they have learnt in theory. Experiments include all modulation techniques of analog, digital and mixed signals and data using MATLAB.

LIST OF EQUIPMENTS

1. Kits for sampling TDM,AM,FM,PCM,DM and line coding schemes
2. Cathode ray oscillope / digital storage oscilloscope
3. Function generators
4. Power supply
5. Ic trainer 10 bit (vbet-21)
6. Digital logic IC trainer kit(dict 11)
7. Computers with Matlab software package
8. Computers with HDL software
9. Multimeter
10. AM transmitter and receiver kit
11. FM transmitter and receiver kit
12. Data formatting and carrier modulation/ demodulation kit
13. Dual tracking power supply
14. IC regulated power spply
15. Moving coil microphone characteristics

Sir.C.V.Raman - Microwave & Optical Laboratory

In depth knowledge in Microwave Engineering is provided in this laboratory with the help of Microwave Benches. Experiments conducted include E pain Tee, H Plain Tee, S Matrix calculation, Radiation Pattern of Horn & Parabolic Antenna. Gunn Diode and Reflex Klystron are given for training the students in finding the VI, Mode and Power Characteristics and VSWR Measurements. In the Optical Electronics laboratory Fiber Optic experiments are covered in detail using sophisticated test equipments.

LIST OF EQUIPMENTS

1. Microwave Test Bench for X band
2. Benchmark SMC single mode fiber characteristic study setup
3. ST Connectorization kit
4. Cathode Ray Oscilloscope
5. Optical power source
6. Micro wave power meter XPM 10
7. Fiber optic trainer kit
8. Fiber optic power meter YC-2100
9. Advance laser communication kit
10. Multiplexer and Demultiplexer kit
11. Klystron power supply
12. Gunn power supply
13. VSWR meter

Amar .G. Bose - Research Laboratory

The research at ECE has wide spectrum of domains like machine intelligence, hardware security, Antenna Design, Signal processing, Wireless communications, Biomedical instrumentation, Computing and hardware architecture and Electromagnetic materials. The main focus is to promote quality publications, striving for funded projects and filing patents.

The major objectives are:

- To improve the research standards on par with International Institutions
- More indigenous development of strategic systems
- Socially relevant projects and participation
- Prototype systems attract funding opportunities
- International recognition of faculty members and researchers

- Exposure to the recent developments in industries and research organizations.
- The application of engineering concepts on the socially relevant problems.
- The man power generation in the specialized areas leading for creation of centre of excellence