



Karunya INSTITUTE OF TECHNOLOGY AND SCIENCES

(Declared as Deemed to be University under Sec.3 of the UGC Act, 1956)

MoE, UGC & AICTE Approved; NAAC Accredited A++

Karunya Nagar, Coimbatore - 641 114, Tamil Nadu, India.

DIVISION OF ELECTRONICS AND COMMUNICATION ENGINEERING INTEGRATED CIRCUITS LABORATORY

Advancing Innovation: Your Gateway to Integrated Circuit Excellence



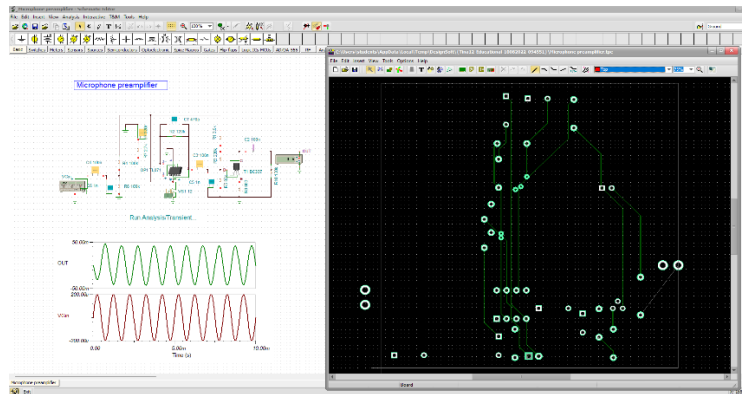
The **Integrated Circuits Lab** introduces the concept and application of operational amplifiers, providing facilities for conducting undergraduate level experiments and mini projects related to IC applications. Through experiments, students become familiar with gates, multiplexers, decoders, flip-flops, counters, registers and displays. The lab is also equipped with **TINA Design Suite V12**, which is a powerful circuit designer and PCB design software package for analyzing, designing, and real time testing of analog, digital, HDL, MCU, and mixed electronic circuits and their PCB layouts. NVIS 1800 PCB Fabrication Setup is also available for making PCB boards. **Total Investment: Rs.42,53,518.00**

Faculty in Charge: **Dr.J.Anitha**
Email: anithaj@karunya.edu
Staff in Charge: **Mr. Manohar Livingston**
Email: livingston@karunya.edu

Major Facilities:



PCB Design and Fabrication System



TINA Design Suite V12



Digital Trainer kit



Digital Storage Oscilloscope

Exploring Integrated Circuits: A Comprehensive Guide to Laboratory Activities

1. **Breadboarding:** Students can learn how to use breadboards to prototype simple electronic circuits before moving on to more complex integrated circuits.
2. **Basic Circuit Analysis:** Analyzing and understanding basic electronic circuits such as amplifiers, filters, and oscillators.
3. **IC Identification:** Learning to identify different types of integrated circuits, their pin configurations, and datasheet interpretation.
4. **IC testing and characterization:** Performing tests on integrated circuits to understand their behavior under different conditions, such as voltage, temperature, and frequency.
5. **Design and Simulation:** Using TINA DESIGN SUITE V12 (Simulation Program with Integrated Circuit Emphasis and PCB circuit design) to design and simulate circuits before implementation.
6. **PCB Design:** Designing printed circuit boards (PCBs) for integrating various ICs into a complete system.
7. **Soldering:** Learning proper soldering techniques for assembling circuits on PCBs.
8. **Troubleshooting:** Debugging circuits to identify and fix errors or malfunctions.
9. **Signal Analysis:** Analyzing signals using oscilloscopes, and other test equipment to understand circuit behavior.
10. **Digital IC experiments:** Working with digital integrated circuits to design and implement logic gates, flip-flops, counters, and other digital systems.
11. **Analog IC experiments:** Experimenting with analog integrated circuits such as operational amplifiers (op-amps), voltage regulators, and analog-to-digital converters (ADCs).
12. **Project work:** Undertaking projects that involve designing, implementing, and testing circuits using integrated circuits, often with real-world applications in mind.
13. **Safety Procedures:** Understanding and following safety protocols while working with electronic components and equipment.

These activities provide students with a comprehensive understanding of integrated circuits, from theoretical concepts to practical applications, preparing them for careers in electronics engineering, research, or related fields.