VLSI Design Laboratory

The **VLSI Design Laboratory** provides Electronics and Communication Engineering (ECE) students with practical exposure to the design and implementation of Very Large Scale Integration (VLSI) circuits. The laboratory enables students to understand the fundamentals of CMOS technology, digital integrated circuit design, and semiconductor fabrication concepts through hands-on experiments and simulation tools. Students perform experiments involving logic gate design, combinational and sequential circuit implementation, transistor-level circuit analysis, and hardware description language (HDL) coding using Verilog or VHDL. The laboratory helps students gain proficiency in schematic design, simulation, synthesis, timing analysis, and FPGA-based implementation of digital systems. Through practical exercises, students learn the complete VLSI design flow, from circuit specification and design entry to verification and implementation.

This laboratory enhances analytical thinking, design skills, and problem-solving abilities required for modern chip design and semiconductor industries. It provides a strong foundation for advanced areas such as ASIC design, FPGA development, System-on-Chip (SoC) design, embedded systems, and nanoelectronics. Overall, the VLSI Design Laboratory plays a vital role in developing the technical competence and practical expertise necessary for careers in VLSI, semiconductor technology, and electronic system design.



Figure -VLSI Design Laboratory