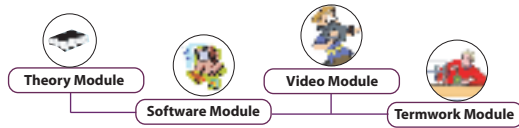


# VLSI- Design Techniques

Introduces Global e-Learning System in Education & Training in the form of Learning Resources with Computer Aided Instructions



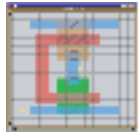
System Requirement:- IBM-PC Compatible with Window-OS, 128 MB RAM/Multimedia Kit

## Theory module

**Features :** Theory, Figures, Photographs, Animations with controller, Highlighter tool, Note creation facility, Systematic page navigation, Printing facility, Access to Videos at appropriate locations.

## List of Topics

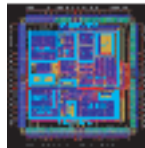
### Basic Devices Technology



Single crystal growth and purification, epitaxy; oxidation, diffusion, ion implantation and p-n junction formation; semiconductor measurements.

### Integrated Circuit Fabrication Process

Monolithic, hybrid, thin film and thick film technology; pattern generation and photo mask fabrication, photolithography, isolation technique, metalization, interconnection; encapsulation and testing.



### Monolithic Circuit Components



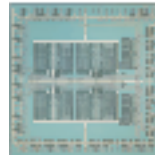
Epitaxial diffused system, diffused collector process, triple diffused process, bipolar transistor formation; diode formation, basic diode connections of IC transistors, diode as capacitor, thin film capacitor; sheet resistance, diffused resistor, thin film resistor, parasitic in integrated circuits, layout considerations.

### MOS Technology

MOSFET as basic IC component, comparison of MOSFET with BJT as IC component, MOS isolation techniques, poly-silicon gate technology, self aligned gate technology; NMOS process sequence, NMOS inverter, pass transistor and gates; N-tub and twin-tub CMOS structures; CMOS-process sequence.



## VLSI Technology



Scaling theory and device miniaturization, E beam marks, plasma etching, choice of photo resists; stick diagrams, VLSI design rules and layout diagrams, computer aids.

## VLSI Circuit

Concepts Inverter delays, driving large capacitive loads, propagation delays and effect of wiring capacitance; pull up and pull down ratio of NMOS and CMOS inverter transfer characteristics, CMOS gates.

