

**INTEGRATED ELECTRONICS**

**UNIT – I : Operational Amplifiers.**

Operational amplifier architecture – the gain stage and the differential stage, output stages – offset voltage and currents – measurement of operational amplifier parameters – frequency response and compensation – slew rate -Inverting and non-inverting operational amplifier – Differential amplifier – inverting and non inverting – summing – Integrator and differentiator – phase locked loop – SCR – 555 timer.

**UNIT – II : Binary Logic.**

Decimel, Binary, Octal, Hexadecimal number systems and interconversion – BCD and alphanumeric codes - Switching circuits and binary signals – Logic gates – Boolean functions – Universal gates - complement of a function – minterms and maxterms – Synthesis of Boolean function – other binary operators – Karnaugh map (upto 4 variables) – Simplification of Boolean function – product of sums – Sum of products simplification – Don't care condition.

**UNIT – III : Combinational and Sequential Logic.**

Half and Full adder, Half and Full subtractor – comparators – Decoders, Encoders – Multiplexer, Demultiplexer – Two and three level implementation – RS Flip Flop - Clocked RS Flip Flop – D Flip Flop –T Flip Flop – JK Flip Flop – Analysis of clocked sequential circuits – State diagram – Flip-Flop input functions – Shift Registers – Ripple Counter.

**UNIT – IV : Semiconductor memories.**

Basics –Memory addressing – ROM, PROM, EPROM, RAM – DRAMS – MEMORY cells.

**UNIT – V : Microprocessor**

Organization of microcomputer – Organization of 8085 – Microprocessor working – Tristate logic devices – Microprocessor Programming Machine Language – Assembly Language – Addressing modes – Instruction set – Programming for

- 1) 8 bit addition.
- 2) 8 bit subtraction.
- 3) The greatest number in an array of 8 bit unsigned numbers.
- 4) The smallest number in an array of 8 bit unsigned numbers

Applications – Control system, CEG data acquisition system, D/A conversion, A/D conversion and MODEM.

**Book for study:**

- 1) V. Vijayendran, Introduction to Integrated Electronics Digital & Analog, S. Viswanatham Printers, Chennai 2005
- 2) Digital Principle and Applications – Malvino and Leach, McGraw Hill.

**Book for Reference:**

- 1) Microprocessor Architecture Programming and Application with 8085/8080A – Gaonkar.
- 2) Digital Logic and Computer Design – Morris and Mano.