

## 2.9 30300 DIGITAL ELECTONICS

### UNIT-1 FUNDAMENTALS OF DIGITAL TECHNIQUES:

- 1.1 Difference between Digital and Analog Signal
- 1.2 Digital signal
- 1.3 Logic gates: AND, OR, NOT, NAND, NOR, EX-OR, EX-NOR
- 1.4 Number systems
- 1.5 Boolean algebra
- 1.6 Binary codes
- 1.7 Design using gates
- 1.8 Karnaugh map
- 1.9 QuineMccluskey methods of simplification.

### UNIT-2 PROGRAMMABLE LOGIC DEVICES:

- 2.1 PLD
- 2.2 PLA
- 2.3 PAL
- 2.4 CPLD
- 2.5 FPGA

### UNIT-3 COMBINATIONAL LOGIC DEVICES:

- 3.1 Multiplexers and Demultiplexers and their use as logic elements
- 3.2 Adders and Subtracters
- 3.3 BCD arithmetic Circuits:
  - 3.3.1 Encoders. Decoders
  - 3.3.2 Drivers for display devices.

### UNIT-4 SEQUENTIAL CIRCUITS:

- 4.1 Flip Flops:
  - 4.1.1 S-R Flip Flops
  - 4.1.2 J-K Flip Flops
  - 4.1.3 T Flip Flops
  - 4.1.4 D Flip Flops
  - 4.1.5 Master-Slave Flip Flops
- 4.2 Edge triggered- shift registers
- 4.3 Sequence generators
- 4.4 Counters:
  - 4.4.1 Asynchronous and Synchronous Ring counters
  - 4.4.2 Johnson Counter
- 4.5 Design of Synchronous and Asynchronous sequential circuits

### UNIT-5 ANALOG TO DIGITAL AND DIGITAL TO ANALOG CONVERTERS:

- 5.1 Sample and hold circuit

5.2 weighted resistor and R -2 R ladder D/A Converters

5.3 Specifications for D/A converters

5.4 A/D converters:

5.4.1 Quantization,

5.4.2 Parallel Comparator

5.4.3 Successive approximation

5.4.4 Counting type

5.4.5 Dual-slope ADC

5.4.6 Specifications of ADCs.

**Reference Books:**

1. Digital Electronic by MukeshPatheta, Santanukoley, Vishwas Sharma & AmitDua

