

# AMNE03 DIGITAL ELECTRONICS

## UNIT-1 NUMBER SYSTEM AND CODES

- 1.1 Binary, octal, hexadecimal and decimal Number systems and their inter conversion,
- 1.2 BCD numbers (8421-2421), gray code, excess-3 code, cyclic code, code conversion,
- 1.3 ASCII, EBCDIC codes. Binary addition and subtraction,
- 1.4 Signed and unsigned binary numbers, 1's and 2's complement representation.

## UNIT-2 BOOLEAN ALGEBRA: BASIC LOGIC CIRCUITS:

- 2.1 Logic gates (AND, OR, NOT, NAND, NOR, Ex-OR, Ex NOR and their truth tables,
- 2.2 Universal Gates, Laws of Boolean algebra,
- 2.3 De-Morgan's theorem, Min term, Max term, POS, SOP, KMap,
- 2.4 Simplification by Boolean theorems, don't care condition

## UNIT-3 LOGIC FAMILIES

- 3.1 Introduction to digital logic family such as RTL, DTL, TTL, ECL, CMOS, IIR, HTL etc.,
- 3.2 their comparative study,
- 3.3 Basic circuit, performance characteristics,
- 3.4 Wired logic, open collector output etc

## UNIT-4 COMBINATIONAL LOGIC

- 4.1 The Half adder, the full adder, subtractor circuit.
- 4.2 Multiplexer DE multiplexer, decoder,
- 4.3 BCD to seven segment Decoder, encoders.

## UNIT-5 FLIP FLOP AND TIMING CIRCUIT

- 5.1 Set-reset latches, D-flip-flop, R-S flip-flop, J-K Flip-flop,
- 5.2 Master slave Flip flop, edge triggered flip-flop, T flip-flop.

## UNIT-6 REGISTERS & COUNTERS

- 6.1 Synchronous/Asynchronous counter operation,
- 6.2 Up/down synchronous counter,
- 6.3 Application of counter,
- 6.4 Serial in/Serial out shift register,
- 6.5 Serial in/Serial out shift register,
- 6.6 Serial in/parallel out shift register,
- 6.7 Parallel in/ parallel out shift register, parallel in/Serial out shift register,
- 6.8 Bi-directional register

## Reference Books:

1. Digital integrated electronics by htaub and d schilling
2. Fundamentals of digital circuits by Kumar a anand