

**GENERAL OBJECTIVES:**

- On completion the lab course, the student will be able to
- 1 Familiarize with the use of digital ICs , IC TESTER
  - 2 Understand and comprehend the simple design aspects of digital circuits

**LIST OF GRADED EXERCISES**

- A
- 1 Familiarization of Digital trainer kit, IC tester, Logic pulser, logic probe
  - 2 Study of IC Manual and familiarization of Ics and IC families
- B
- 1 Familiarization of logic gates using Ics
    - a) 7400    b) 7402    c) 7404    d) 7408    e) 7432    f) 7486
  - 2 Realization of NOT, OR, AND, NOR, EX-OR and EX-NOR gates using NAND gate
  - 3 Realization of NOT, OR, AND, NOR, EX-OR and EX-NOR gates using NOR gate
  - 4 Implementing and verifying Boolean Expression using K-map
  - 5 Verification of DeMorgan's theorem and realization of the given expression using Demorgan's law
  - 6 Implementing Half Adder and Full Adder using logic gates
  - 7 implementing Half Subtractor and Full Subtractor using logic gates
  - 8 Verification of truth table of Flip-Flop
    - i ) Clocked RS FF using NAND Gates
    - ii) JK FF Using IC 7476
    - iii) T and D FF using IC 7476.
  - 9 Realize Binary to Gray code converter using IC 7486
  - 10 Realize Gray to Binary code converter using IC 7486
  - 11 Realize parity generator and checker using IC 7486
  - 12 Familiarization of IC 7483 with 4bit addition
  - 13 Realize 2-bit comparator using logic gates and familiarization of IC 7485
  - 14 Interface 7 segment display with IC 7447 / 7448 decoder .
  - 15 Verify the truth table of 1:8 Demultiplexer and 8:1 multiplexer using IC 74138 and 74151 respectively
  - 16 Verify the truth table of priority encoder using IC 74147
  - 17 Realize and verify the truth table of 4:1 Multiplexer using 2:1 Multiplexer
  - 18 Verify the truth table of Shift Register 7495 ( SISO, SIPO, PISO, PIPO)  
 Veirfy the truth table of a) up-down counter using IC- 74193 b) Decade counter using IC- 7490
  - 19 7490

**REFERENCES :**

DIGITAL ELECTRONICS PRACTICE WITH INTEGRATED CIRCUITS  
 R.P.JAIN AND MMS ANAND

<b>SCHEME OF VALUATION</b>	
<b>Note: Pin diagrams of IC's shall be provided to the students .</b>	
1 Record	5
2 Write up any Two Experiments (Circuit Diagram, Truth Table Expression)	30
3 Conduction any one Experiment	30
4 Result	15
5 Viva-Voce	20
<b>Total</b>	<b>100</b>