

## **Name of the laboratory: Digital System Design**

**Upon completion of this course, the student will be able to:**

**CO1:** Design encoder, Comparator and Multiplexer

**CO2:** Plot the transform characteristics of 74H,LS, HS series IC

**CO3:** Design shift registers, and counters using shift registers

### **List of the equipment:**

1. Regulated Power supplies (RPS) : 0-30 V
2. CRO's: 0-20 MHz.
3. Function Generators: 0-1 MHz.
4. Multimeters
5. Trainer Boards

### **List of experiments:**

1. Design a 16 x 4 priority encoder using two 8 x 3 priority encoder.
2. Design a 16 bit comparator using 4 bit Comparators.
3. Design a model to 53 counter using two decade counters.
4. Design a 450 KHz clock using NAND / NOR gates.
5. Design a 4 bit pseudo random sequence generator using 4 – bit ring counter.
6. Design a 16 x 1 multiplexer using 8 x 1 multiplexer.
7. Design a 16 bit Adder / Subtractor using 4 – bit Adder / Subtractor IC's
8. Plot the transform Characteristics of 74H, LS, HS series IC's.
9. Design a 4 – bit Gray to Binary and Binary to Gray Converter.
10. Design a two Digit 7 segment display unit using this display the Mod counter output of experiment 3.
11. Design an 8 bit parallel load and serial out shift register using two 4 bit shift register.
12. Design an 8 bit Serial in and serial out shift register using two 4 bit shift register.
13. Design a Ring counter and Twisted ring counter using a 4-bit shift register
14. Design a 4 digit hex counter using synchronous one digit hex counters.
15. Design a 4 digit hex counter using Asynchronous one digit hex counters.

