Techno India NJR Institute of Technology

Academic Administration of Techno NJR Institute
Syllabus Deployment

Name of Faculty: Mr. Yogendra Solanki	Subject Code:4EE4-23

Subject: Digital Electronics Lab

Department: Department of Electrical Engineering (EE & EEE)   SEM: IV

Total No. of Lab Planned: 10

CO1	To minimize the complexity of digital logic circuits.
CO2	To design and analyse combinational logic circuits.
CO3	To design and analyse sequential logic circuits.
CO4	Able to implement applications of combinational & sequential logic circuits.

Lab No.	Topic
1	To verify the truth tables of basic logic gates: AND, OR, NOR, NAND, NOR. Also to verify the truth table of Ex-OR, Ex-NOR (For 2, 3, & 4 inputs using gates with 2, 3, & 4 inputs).
2	To verify the truth table of OR, AND, NOR, Ex-OR, Ex-NOR realized using NAND & NOR gates.
3	To realize an SOP and POS expression.
4	To realize Half adder/ Subtractor& Full Adder/ Subtractor using NAND & NOR gates and to verify their truth tables.
5	To realize a 4-bit ripple adder/ Subtractor using basic half adder/

	Subtractor& basic Full Adder/ Subtractor.
6	To verify the truth table of 4-to-1 multiplexer and 1-to-4 demultiplexer. Realize the multiplexer using basic gates only. Also to construct and 8- to-1 multiplexer and 1-to-8 demultiplexer using blocks of 4-to-1 multiplexer and 1-to-4 demultiplexer.
7	Design & Realize a combinational circuit that will accept a 2421 BCD code and drive a TIL -312 seven segment display.
8	Using basic logic gates, realize the R-S, J-K and D-flip flops with and without clock signal and verify their truth table.
9	Construct a divide by 2,4& 8 asynchronous counter. Construct a 4-bit binary counter and ring counter for a particular output pattern using D flip flop.
10	Perform input/output operations on parallel in/Parallel out and Serial in/Serial out registers using clock. Also exercise loading only one of multiple values into the register using multiplexer.

TEXT/REFERENCE BOOKS

1. Modern Digital Electronics, R.P Jain, Tata McGraw-Hill Education
2. Digital Circuit & Logic Design, Morris Mano, Prentice Hall of India
3. Digital Principles & Applications, A.P.Malvino& D.P Leach, Tata McGraw-Hill Education

For Techno India NJR Institute of Technology

पंकज पोरवाल

Dr. Pankaj Kumar Porwal
(Principal)