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 |
|  | 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). |
|  | To verify the truth table of OR, AND, NOR, Ex-OR, Ex-NOR realized using NAND & NOR gates. |
|  | To realize an SOP and POS expression. |
|  | To realize Half adder/ Subtractor& Full Adder/ Subtractor using NAND & NOR gates and to verify their truth tables. |
|  | To realize a 4-bit ripple adder/ Subtractor using basic half adder/ Subtractor& basic Full Adder/ Subtractor. |
|  | 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. |
|  | Design & Realize a combinational circuit that will accept a 2421 BCD code and drive a TIL -312 seven segment display. |
|  | Using basic logic gates, realize the R-S, J-K and D-flip flops with and without clock signal and verify their truth table. |
|  | 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. |
|  | 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
 |