HDL PROGRAMMING LABORATORY

Course Code: 15EC2208

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Pre requisites: VHDL, Verilog, Switching Theory and Logic Design.

Course outcomes: At the end of the Course, Students will be able to

CO1: Design, simulate and synthesize combinational and sequential circuits using VHDL.

CO2: Design, simulate and synthesize digital circuits using Verilog HDL.

CO3: Get hands on experience on XILINX software.

CO4: Calculate delay and area for digital circuits using CADENCE software tool.

CO5: Implement digital systems on FPGAs.

LIST OF EXPERIMENTS

1. 16 X 1 MULTIPLEXER
2. 4-Bit ALU
3. 8-Bit UP/DOWN COUNTER
4. 32 X 8 ROM
5. SEQUENCE DETECTOR 101(using Mealy Machine)
6. SEQUENCE DETECTOR 1011(using Moore Machine)
7. DECODERS
8. 8-Bit SHIFT REGISTER
9. BCD ADDER
10. PARITY CHECKER
11. SEQUENCE GENERATOR
12. 8-BIT COMPARATOR
13. BARREL SHIFTER
14. UNIVERSAL SHIFT REGISTER

STEPS FOLLOWED DURING EXPERIMENTATION

1. Digital Circuits Description using Verilog and VHDL
2. Verification of the Functionality of Designed circuits using function Simulator.

3. Timing simulation for critical path time calculation.
4. Synthesis of Digital circuits.
5. Implementation of Designed Digital Circuits using FPGA and CPLD devices.