

**DON BOSCO INSTITUTE OF TECHNOLOGY**  
**DEPARTMENT OF ELECTRONICS AND TELECOMMUNICATION**  
**IEEE-DBIT STUDENT BRANCH**

**Report on Hands on Workshop on FPGA Based Digital System Design Using Xilinx Software**

**Topic:** FPGA based digital system design using Xilinx software .

**Date:** 3<sup>rd</sup>, 4<sup>th</sup>,5<sup>th</sup> and 6<sup>th</sup> September 2019.

**Time:** 9:00 a.m.-5:00 p.m.

**Venue:** VLSI and Embedded system laboratory.

**Speakers:** Ms. Lakshmi.V, Dr. Mande, Mr. Akash Rao, Ms.Shradha Naik, Ms. Manisha Gupta.

**No of participants:** 20 (15-DBIT and 5-RAIT, Nerul)

**Discription:**

A) First day – September 3rd, 2019

The session started with an introductory speech by Ms. Lakshmi .V, welcoming the students with gratitude and sharing their knowledge as to why these workshops are held and how students get the hands on experience and opportunities to learn about a particular topic taught in a particular workshop. After the welcoming session Dr. Mande continued the session by briefing the students with an introductory presentation about FPGA and its various applications, advantages and disadvantages. Finally the session was taken over by Ms.Lakshmi .V, who conducted the most of the Hands on training workshop. To start with the difference between FPGA , ASIC and microcontrollers and how FPGA is better and reliable was explained. The coding language i.e VHDL/ Verilog was then explained in detail along with examples of various code. Coding of various

logic gates and other combinational circuits using Xilinx software was then taught to the students in the first session.

B) Second Day – September 4th, 2019

On the second day Ms. Shraddha Naik continued with the workshop by teaching them to write the code along with a test bench for circuits like half adder and full adder. The students were taught how to write a UCF file and generate a bin file to burn the particular code on a Spartan 6 board (which was provided to the students) which was a great hands on experience, after which Ms. Lakshmi continued furthermore by teaching them codes for implementing MUX and DEMUX.

C) Third Day – September 5<sup>th</sup>, 2019

The session continued on the 3<sup>rd</sup> day by Mr. Akash Rao who started off by explaining clock divider and generator along with seven segment display where he briefed the students on how numbers and characters are generated on the seven segment display. Then Ms. Lakshmi continued with sequence detector and PWM generation for which the code, test bench and UCF file for burning the program was taught. Ms. Manisha Gupta explained about state machine. The topics covered were what is a finite state machine, types, component of digital FSM, application and how to program the same. Ms. Lakshmi demonstrated the working of a DC Motor using Driver L298N .

D) Fourth Day – September 6<sup>th</sup>, 2019

The session continued on the 4<sup>th</sup> day where the students gave a competency test after which certificates were distributed.

**Feedback:**

- 1) Mr. Gaurav Pachande (SE\_EXTTC, RAIT)



The workshop was very interactive, which profited all the participants enormously! We found it really insightful and interesting (as expected!).Lakshmi mam’s presentation style was impressive and perfect for creating interest. She is clearly an expert at teaching style but she did not intimidate those of us who are new to creating visualizations. Thanks alot DBIT IEEE! We'll like to attend more and more workshops at DBIT.

**Report Prepared by:** Ms. Redalia D’souza.

**Report Approved by:** Ms. Lakshmi V ( IEEE Counselor )