

**ACADEMIC LESSON PLAN OF WINTER 2023**

Discipline: ETC	Semester: 5 <sup>TH</sup> Sem	Name of the Teaching Faculty: SATYABRATA SAHOO
Subject: VLSI & EMBEDDED SYSTEM LAB	No. of days/per week class allotted: 3p(3hr)/week	Semester From: 1 <sup>st</sup> Aug 2023 to 30 <sup>th</sup> Nov 2023 No. of Weeks: 17 weeks
<b>Week</b>	<b>Class Day</b>	<b>Practical Topics</b>
1 <sup>st</sup>	1 <sup>st</sup>	Introduction
2 <sup>nd</sup>	1 <sup>st</sup>	<b>A. VLSI: HANDS ON EXERCISE</b> Exp-1 Develop a VHDL test bench code for testing following and implement on FPGA kit a. Addition b. Subtraction c. Multiplication d. Division.
3 <sup>rd</sup>	1 <sup>st</sup>	Exp-2 Develop a VHDL test bench code for testing following and implement on FPGA kit a. 8 Bit Digital output using LEDs. b. 8 Bit Digital inputs using.
4 <sup>th</sup>	1 <sup>st</sup>	Exp-3 Develop a VHDL test bench code for testing 4 x 4 matrix keypad interface. a. Write a VHDL Code for Relay interface b. Buzzer Interface
5 <sup>th</sup>	1 <sup>st</sup>	Exp-4 Develop a VHDL test bench code for testing 7 segment LED display interface
6 <sup>th</sup>	1 <sup>st</sup>	Exp-5 Develop a VHDL test bench code for testing Traffic light control.
7 <sup>th</sup>	1 <sup>st</sup>	Exp-6 Develop a VHDL test bench code for testing LCD display to display a text message.
8 <sup>th</sup>	1 <sup>st</sup>	Exp-7 Develop a VHDL test bench code for testing any one of the simple gate Simulate the test bench code in the HDL software.
9 <sup>th</sup>	1 <sup>st</sup>	Exp-8 Develop a VHDL test bench code & implement of FPGA kit for MUX & DEMUX.
10 <sup>th</sup>	1 <sup>st</sup>	<b>B. VLSI Design using VHDL</b> Exp-9. layout of CMOs NAND or NOR gate
11 <sup>th</sup>	1 <sup>st</sup>	Exp-10 Design & implementation of Half Adder & Full adder.
12 <sup>th</sup>	1 <sup>st</sup>	<b>C. EMBEDDED SYSTEM: HANDS ON EXERCISE.</b> Exp-11. To Study and Implement Multitasking. Write a Simple Program with Two Separate LED Blinking Tasks.
13 <sup>th</sup>	1 <sup>st</sup>	Exp-12. Interface bugger sound.
14 <sup>th</sup>	1 <sup>st</sup>	Lab Practice
15 <sup>th</sup>	1 <sup>st</sup>	Lab Practice
16 <sup>th</sup>	1 <sup>st</sup>	Sessional
17 <sup>th</sup>	1 <sup>st</sup>	Sessional

*Satyabrata*  
01.08.23

Signature of Teaching Faculty