DEPARTMENT OF ELECTRONICS
Cochin University of science and Technology

Course Schedule

Course: M.Tech. (Electronics & Communication Engineering)	**Name of Faculty: Dr.Nalesh S**
Topic: 18-437-0108 VLSI Laboratory	**Semester: FIRST**
Lecture Hall: 213	**Timings:** as per CBCS

Week and date	***Lecture topics***	***Assignments***	***Remarks***
Week 1 (8th July 19)	**Experiment1:** Familiarization with FPGA and Vivado Software Creating new project, add design files and testbench, synthesize and generate bitstream, program the FPGA		
Week 2 (15th July 19)	**Experiment 2:** Basic Verilog Modeling Concepts Combinatorial circuits using gate-level, dataflow, and behavioral modelling , Download bitstreams into the board and verify functionality		
Week 3 (22nd July 19)	**Experiment 3:** Numbering Systems Learn various number representations and arithmetic operations		
Week 4 (29th July 19)	**Experiment 4:** Multi Output Circuits, Encoders, Decoders Memories Design multi-output decoder circuits, encoders, ROM		
Week 5 (5th Aug 19)	**Experiment 5:** Tasks, Functions & Testbench Develop tasks & functions for modeling a combinatorial circuit Develop a testbench to test and validate a design under test		
Week 6 (12th Aug 19)	**First Internals**		
Week 7 (19th Aug 19)	**Experiment 6:** Modeling Latches and Flip-flops Model various FLIP flops and Latches		
Week 8 (26th Aug 19)	**Experiment 7:** Modeling Registers and		

	Counters Model various Registers and Counters		
Week 9 (2nd Sep 19)	**Experiment 8:** Behavioral Modeling and Timing Constraints Use various language constructs using behavioral modelling. Learn about timing and timing constraints		
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Week 10 (17th Sep 19)	**Experiment 9:** Finite State Machines Verilog modeling of FSMs		
Week 11 (23rd Sep 19)	**Experiment 10:** Introduction to DCH and Microwind		
Week 12 (30th Sep 19)	**Experiment 11:** Study static and dynamic behavior of Static CMOS Inverter		
Week 13 (7th Oct 19)	**Experiment 12:** Complementary CMOS circuits		
Week 14 (14th Oct 19)	**Experiment 13:** Layout of CMOS gates using MicroWind		
Week 15 (21st Oct 19)	**Experiment 14:** Multiplication with Repeated addition, Modeling, Simulation and verification.		
Week 16 (28th Oct 19)	**Second Internals**		
Week 17 (6th Nov 19)	**Publication of Sessional**		