LESSON PLAN

Branch: III ECE 'C'   **Semester**: II   **Subject** : VLSI

Acadamic year:2015-16   **faculty :Swathi jallu**

Period	Date (Tentative)	Topic	Unit No.	Teaching Methodology	Remarks	Corrective Action upon Review
		Introduction	I			
1.	05.01.2016	Introduction to IC Technology	I	Black Board		
2.	05.01.2016	The IC era, MOS and related VLSI technology and basic MOS transistors.	I	B.B		
3-9	08.01.2016 to 22.01.2016	IC production process	I	B.B		
10-12	26.01.2016 to 28.01.2016	MOS and CMOS fabrication process.	I	B.B		
13	29.01.2016	Bi-CMOS technology	I	B.B		
14	29.01.2016	Comparison between CMOS and bipolar technologies.	I	B.B		
		Basic electrical properties of MOS and Bi-CMOS circuits	II			
15	02.02.2016	$I_{ds} - V_{ds}$ relationship	II	B.B		
16	04.02.2016	Aspects of MOS transistor: threshold voltage, trans-conductance, output conductance and figure of merit.	II	B.B		
17	05.02.2016	Pass transistor, MOS inverter	II	B.B		
18	05.02.2016	Determination of pull-up to pull-down ratio of NMOS.	II	B.B		
19	09.02.2016	NMOS inverter driven by another NMOS inverter and driven through one or more pass transistors	II	B.B		
20	16.02.2016	Alternative forms of pull-up	II	B.B		
21	18.02.2016	CMOS inverter	II	B.B		
22	19.02.2016	MOS transistor circuit model	II	B.B		
23	19.02.2016	Bi-CMOS inverter and latch-up in CMOS circuits.	II	B.B		
		VLSI Circuit design process & Scaling of MOS circuits	III			
24	23.02.2016	VLSI design flow,	III	B.B		
25,26	25.02.2016	layers of abstraction	III			
27	26.02.2016	stick diagrams	III	B.B		

28	26.02.2016	Design rules for wires	III	B.B		
29	01.02.2016	contacts and transistor	III	B.B		
30	03.02.2016	layout diagrams for NMOS & CMOS inverters and gates.	III	B.B		
31	03.02.2016	Scaling models,	III	B.B		
32	04.02.2016	Scaling factors	III	B.B		
33	04.02.2016	Device parameters	III	B.B		
34	08.02.2016	Limitations of scaling.	III	B.B		
		Gate Level Design& Basic circuit concepts	IV			
35	10.03.2016	Logic gates and other complex gates	IV			
36	11.03.2016	Switch logic	IV	B.B		
37,38	11.03.2016	Alternate gate circuits.	IV	B.B		
39	15.03.2016	Sheet resistance (R_s) and its concept to MOS.	IV	B.B		
40	22.03.2016	Area capacitance	IV	B.B		
41	24.03.2016	calculations	IV	B.B		
42	24.03.2016	delays	IV	B.B		
43	25.03.2016	driving large capacitive load	IV	B.B		
44	25.03.2016	wiring capacitances	IV	B.B		
45	29.03.2016	fan-in and fan-outs and choice of layers.	IV	B.B		
46	01.04.2016	Subsystem Design, Shifters adders,	IV	B.B		
47	01.04.2016	ALUs	IV	B.B		
48	05.04.2016	multipliers	IV	B.B		
49	07.04.2016	Parity generators.	IV	B.B		
		Design Methods & CMOS Testing	V			
50	08.04.2016	Design-capture tools	V	B.B		
51	08.04.2016	Design- verification tools.	V	B.B		
52	12.04.2016	Need for CMOS testing	V	B.B		
53	13.04.2016	Manufacturing test principles	V	B.B		
54	15.04.2016	Design strategies for test.	V	B.B		
55	19.04.2016	Chip level test techniques	V	B.B		
56	21.04.2016	System level test techniques.	V	B.B		
57	22.04.2016	Revision	V	B.B		

Text books:
1. Essentials of VLSI circuits and systems – Kamran Eshraghian, Eshraghian Dougles and A. Pucknell, PHI, 2005.
2. Principles of CMOS VLSI Design – Weste and Eshraghian, Pearson Education, 1999.

Reference books:
1. VLSI Design – Debaprasad Das, Oxford university press, 2010.
2. VLSI Design – A.Albert Raj and T.Latha, PHI Learing private limited 2010.
3. ASIC design - Smith.