PANIPAT INSTITUTE OF ENGINEERING & TECHNOLOGY
Department of Electronics & Communication Engineering

LESSON PLAN

Subject Name: - Mixed Signal Design **Subject Code: -** ECO-16A
Year: - 4th **Semester: -** 8th

Lecture No.	Unit No.	Topic	References
1	3	**D/A Converter:** Sample-and-Hold Characteristics	Jacob Baker, "CMOS circuit design, layout and simulation", John Wiley India
2	3	DAC Specifications,	
3	3	DAC Specifications, Digital input Code	
4	3	DAC Architectures: Resister Steering	
5	3	R-2R Ladder Networks	
6	3	Current Steering	
7	3	Charge-Scaling DACs	
8	3	Cyclic DACs	
9	3	Pipeline DACs	
10	4	**A/D Converter:** ADC Specifications	
11	4	ADC Architectures: Flash type ADC-single step	
12	4	The Two-Step Flash ADC	
13	4	The Pipeline ADC	
14	4	Accuracy Issues of Pipeline ADC	
15	4	Integrating ADCs: Single slop	
16	4	Dual slop	
17	4	The Successive Approximation ADC	
18	4	The Oversampling ADC	
19	4	Applications of DACs and ADCs	
20	1	**Switched-Capacitor Circuits:** Introduction to Sampling Switches, MOSFETS as switches	Razavi, "Design of analog CMOS integrated circuits", McGraw Hill, Edition 2002
21	1	Speed considerations, precision considerations,	
22	1	charge injection cancellations.	
23	1	Switched-Capacitor Amplifiers: Unity Gain Sampler-Buffer	
24	1	Noninverting Amplifier	
25	1	Precision Multiply-by-Two Circuit	
26	1	Switched-Capacitor Integrator	
27	1	Switched-Capacitor Common-Mode Feedback	
28	2	**Phase Locked Loop:** Characterization of a comparator	
29	2	Basic CMOS comparator design	
30	2	Analog multiplier design	
31	2	PLL-simple PLL	
32	2	charge-pump PLL	
33	2	Applications of PLL	

TEXT BOOKS:

1. Jacob Baker, “CMOS circuit design, layout and simulation”, John Wiley India.
2. Razavi, “Design of analog CMOS integrated circuits”, McGraw Hill, Edition 2002.

REFERENCE BOOKS:

1. CMOS Analog Circuit Design –Philip E. Allen and Douglas R. Holberg, Oxford University Press, International Second Edition/Indian Edition.
2. Gregorian, Temes, “Analog MOS Integrated Circuit for signal processing”, John Wiley & Sons, 1986.
3. Analog Integrated Circuit Design- David A. Johns, Ken Martin, Wiley Student Edition

WEB RESOURCES:

1. **For Switched-Capacitor Circuits:** K. Nagaraj, T.R. Viswanathan, K. Singhal, J. Vlach, "Switched-capacitor circuits with reduced sensitivity to amplifier gain", *IEEE Transactions on Circuits and Systems*, vol. 34, no. 5, May 1987.
2. https://www.youtube.com/watch?v=oia9paQF06k&list=PLG4LDxYH2oQqN5f_eGRCUveQ6xkTPWZd
3. http://www.satishkashyap.com/2012/08/video-lectures-on-mixed-signal.html