

PANIPAT INSTITUTE OF ENGINEERING & TECHNOLOGY

Department of Electronics & Communication Engineering

LESSON PLAN

Subject Name: - Analog Circuits

Subject Code: - EC-206A

Year: - 2nd

Semester:- 4th

Lecture No	Unit No	Topic	References
1	1	Introduction to BJT & FET	S Salivahanan and N Naresh Kumar, Electronics devices and circuits
2	1	Biasing Scheme for BJT & FET Amplifier.	
3	1	Working and various features of various types of Biasing Configuration(CE/CS,CB/CG,CC/CD)	Boylestad & Nashelsky: Electronic Devices & Circuit Theory
4	1	Q-Point, Bias Stability, Related Numerical.	Boylestad & Nashelsky: Electronic Devices & Circuit Theory
5	1	Amplifier Model: Transconductance Amplifier, Transresistance Amplifier, Voltage Amplifier, Current Amplifier.	J B Gupta, Electronics Devices and Circuits
6	1	Small Signal Analysis of Both BJT & FET.	Boylestad & Nashelsky: Electronic Devices & Circuit Theory
7	1	Low Frequency Transistor Model and estimation of input resistance,output resistance, voltage gain.	Boylestad & Nashelsky: Electronic Devices & Circuit Theory
8	1	Low Frequency Analysis of Multistage Amplifier	Boylestad & Nashelsky: Electronic Devices & Circuit Theory
9	1	Design Procedure of Particular Specification.	Boylestad & Nashelsky: Electronic Devices & Circuit Theory

10	1	High Frequency Transistor Model.	Boylestad & Nashelsky: Electronic Devices & Circuit Theory
11	2	Frequency Response of Single stage and Multistage Amplifier.	Millman & Halkias: Integrated Electronics
12	2	Frequency Response of Cascode Amplifier.	Millman & Halkias: Integrated Electronics
13	2	Working Operation of Class A power Amplifier and calculation of their Power efficiency.	Boylestad & Nashelsky: Electronic Devices & Circuit Theory
14	2	Miller effect	Millman & Halkias: Integrated Electronics
15	2	Working Operation of Class B power Amplifier and calculate efficiency.	Boylestad & Nashelsky: Electronic Devices & Circuit Theory
16	2	Working Operation of Class C, D & AB Power Amplifier.	Boylestad & Nashelsky: Electronic Devices & Circuit Theory
17	2	Feedback Topology: Voltage Series, Voltage Shunt, Current Series, Current Shunt.	Boylestad & Nashelsky: Electronic Devices & Circuit Theory
18	2	Effect of Negative Feedback on Gain, Bandwidth, Noise, Impedance.	Boylestad & Nashelsky: Electronic Devices & Circuit Theory
19	3	Concept of Stability, Gain Margin and Phase Margin.	Boylestad & Nashelsky: Electronic Devices & Circuit Theory
20	3	Basic Concept of Oscillator, Barkhausen Criterion of Oscillation.	Boylestad & Nashelsky: Electronic Devices & Circuit Theory
21	3	Working Principle of RC Phase shift Oscillator, Calculation of their Freq.	Boylestad & Nashelsky: Electronic Devices & Circuit Theory
22	3	Working Principle of Wein Bridge Oscillator, Calculation of their Freq.	Boylestad & Nashelsky: Electronic Devices & Circuit Theory
23	3	Working Principle of Hartley Oscillator, Calculation of their Freq.	Boylestad & Nashelsky: Electronic Devices & Circuit Theory
24	3	Working Principle of Colpitts Oscillator, Calculation of their Freq.	Boylestad & Nashelsky: Electronic Devices & Circuit Theory

25	3	Working Principle of Clapp Oscillator, Calculation of their Freq.	Boylestad & Nashelsky: Electronic Devices & Circuit Theory
26	3	Working of 555 Timer as Astable configuration.	R.A. Gayakwad, Linear Integrated circuits and Applications
27	3	Working of 555 Timer as Monostable configuration	
28	4	Basic Concept of Operational Amplifier.	
29	4	Ideal vs Practical OpAmp.	
30	4	Block Diagram of OPAMP.	
31	4	Design Specification of Balance Input Balance Output.	
32	4	Design Specification of Balance Input UnBalance Output.	
33	4	Design Specification of UnBalance Input Balance Output.	
34	4	Design Specification of UnBalance Input UnBalance Output.	
35	4	Calculation of Common Mode Gain, Differential Gain, CMRR, ICMR of each Topology.	
36	4	Simple op-amp circuits: adder, subtractor	
37	4	Working of Schmitt Trigger and their Application.	

Text Books:

1. Millman & Halkias: Integrated Electronics, TMH.
2. Boylestad & Nashelsky: Electronic Devices & Circuit Theory, PHI.

Reference Books:

1. B.G. Streetman, Solid State Electronic Devices, Prentice Hall of India, New Delhi, 1995.
2. E.S. Yang, Microelectronic Devices, McGraw Hill, Singapore, 1988.
3. A.S. Sedra and K.C. Smith, Microelectronic Circuits, Saunder's College Publishing, 1991.
4. S Salivahanan and N Naresh Kumar, Electronics devices and circuits, McGraw Hill, 1998.