



LESSON PLAN FOR ACADEMIC SESSION 2024-25

JHARSUGUDA ENGINEERING SCHOOL, JHARSUGUDA

Name of the Faculty : JYOTI NAIK	Academic Year: 2024-25
Course No: Th.4	Course Name: Analog Electronics and linear IC
Programme: Diploma	Branch: Electronics & Telecommunication Engg
Year/ Semester :IV	Section: A

Sl. No	Period	Time (min)	Unit	Topic to be Covered	Teaching Method
1.	1.	55	1	Working principle, of Diode & its current equation, Specification and use of p-n junction diode.	Chalk & duster
2.	2.	55	1	Breakdown of diode (Avalanche & Zener Breakdown) and Construction, working, Characteristics	Chalk & duster
3.	3.	55	1	Classification of Rectifiers and working of different types of Rectifiers- Half-Wave Rectifier,	Chalk & duster
4.	4.	55	1	Full-Wave Rectifier (CT & BRIDGE type)	Chalk & duster
5	5	55	1	Working principle of p-n-p and n-p-n transistor,	Chalk & duster
6	6	55	1	Different types of transistor connection (CB, CE and CC)& input and output characteristics of transistor in different connections.	Audio -visual
7	7	55	1	Define ALPHA, BETA and GAMMA of transistors in various modes. Establish the Mathematical relationship between them.	Chalk & duster
8	8	55	1	Basic concept of Biasing, Types of Biasing, h-parameter model of BJT, load line (AC & DC) and determine the Q-point.	Chalk & duster
9	9	55	1	Types of Coupling, working principle and use of R-C Coupled Amplifier	Chalk & duster
10	10	55	1	Frequency Responses of R-C coupled Amplifier & draw the curve.	Chalk & duster
11.	11.	55	2	Classify Power Amplifier	Chalk & duster
12.	12.	55	2	Differentiate between Voltage and Power Amplifier.	Chalk & duster
13.	13.	55	2	Working principle of different types of Power Amplifier (Class-A)	Chalk & duster
14.	14.	55	2	Working principle of different types of Power Amplifier (Class-AB)	Chalk & duster
15	15	55	2	Working principle of different types of Power Amplifier (Class-B)	Chalk & duster
16	16	55	2	Working principle of different types of Power Amplifier(Class-C & Class D amplifier)	Chalk & duster
17	17	55	2	Construction and working principle and advantages of Push Pull (Class-B) Amplifiers	Audio -visual
18	18	55	2	Construction and working principle and advantages of Push Pull (Class-B) Amplifiers	Chalk & duster
19	19	55	3	FET & its classifications	Audio -visual
20	20	55	3	Differentiate between JFET & BJT.	Chalk & duster
21.	21.	55	3	Construction, working principle & characteristics of JEFT	Chalk & duster
22.	22.	55	3	Explain JEFT as an amplifier,	Chalk & duster
23.	23.	55	3	Parameters of JFET & Establish relation among JFET parameters.	Chalk & duster
24.	24.	55	3	Construction & working principle MOSFET	Chalk & duster
25	25	55	3	MOSFET & its classification	Chalk & duster

26	26	55	3	MOSFET characteristics (Drain & Transfer)	Chalk & duster
27	27	55	3	Explain the operation of CMOS, VMOS & LDMOS.	Chalk & duster
28	28	55	3	Explain the operation of CMOS, VMOS & LDMOS.	Chalk & duster
29	29	55	4	Define & classify Feedback Amplifier	Chalk & duster
30	30	55	4	principle of negative feedback with the help of block diagram,	Chalk & duster
31.	31.	55	4	Types of feedback – negative & positive feedback.	Chalk & duster
32.	32.	55	4	Types of negative feedback – voltage shunt, voltage series, current shunt & current series	Chalk & duster
33.	33.	55	4	Characteristics: voltage gain, bandwidth, input Impedance output impedance, stability, noise, distortion in amplifiers.	Chalk & duster
34	34	55	4	Oscillator -block diagram of sine wave oscillator, Types Requirement of oscillation- Barkhausen criterion	Chalk & duster
35	35	55	4	RC oscillators – RC phase shift, Crystal: Circuit operation, circuit diagram, equation for frequency of oscillation & frequency stability	Chalk & duster
36	36	55	4	LC oscillators – Colpitts, Hartley & Wien Bridge Oscillators: Circuit operation, circuit diagram, equation for frequency of oscillation & frequency stability	Chalk & duster
37	37	55	5	Defined and classify Tuned amplifier	Audio -visual
38	38	55	5	Explain parallel Resonant circuit, Resonance Curve & sharpness of Resonance.	Chalk & duster
39	39	55	5	working principle of Single tuned Voltage Amplifier & its limitation	Audio -visual
40	40	55	5	working principle of Double tuned Amplifier & its limitation	Chalk & duster
41	41	55	5	Different type of Non-linear circuits - Clipper, diode series & shunt	Chalk & duster
42	42	55	5	positive & negative biased & unbiased and combinational clipper clippers circuit & its application.	Chalk & duster
43	43	55	5	Different type of Clamper circuit (positive & negative clampers) & its application.	Chalk & duster
44	44	55	5	Different type of Clamper circuit (positive & negative clampers) & its application.	Audio -visual
45	45	55	5	Working of Astable, Monostable Multivibrator with circuit diagram	Audio -visual
46	46	55	5	Working of Bistable Multivibrator with circuit diagram	Chalk & duster
47	47	55	5	Working & use of Integrator circuit using R- C circuit (Linear),	Chalk & duster
48	48	55	5	Working & use of Differentiator circuit using R- C circuit (Linear), input / output waveforms & frequency response.	Chalk & duster
49	49	55	6	Differential amplifier & explain its configuration & significance.	Chalk & duster
50	50	55	6	Block diagram representation of a typical Op- Amp, its equivalent circuits and draw the schematic symbol	Chalk & duster
51	51	55	6	Discuss the types of integrated circuits manufacturer's designations of ICs, Package types, pin identification and temperature and ordering information.	Chalk & duster
52	52	55	6	Define the following electrical characteristics input offset voltage, input offset current, CMMR,	Audio -visual
53	53	55	6	Define Large signal voltage gain, Slew rate.	Chalk & duster
54	54	55	6	Draw and explain the Open Loop configuration (inverting, non-inverting Amplifier)	Chalk & duster
55	55	55	6	Draw the circuit diagram of the voltage series feedback amplifier and derive the close loop Voltage gain,	Chalk & duster
56	56	55	6	gain of feedback circuits input resistance, and output resistance	Audio -visual
57	57	55	6	, bandwidth and total output offset voltage with feedback.	Chalk & duster

58	58	55	6	Draw the circuit diagram of the voltage shunt feedback amplifier	Chalk & duster
59	59	55	6	derive the close loop, Voltage gain, gain of feedback circuits	Audio -visual
60	60	55	6	derive the input resistance, and output resistance	Chalk & duster
61	61	55	6	derive the bandwidth and total output offset voltage with feedback.	Chalk & duster
62	62	55	6	Define the following electrical characteristics input offset voltage, input offset current, CMMR, Large signal voltage gain, Slew rate .	Chalk & duster
63	63	55	7	Discuss the summing scaling and averaging of inverting and non-inverting amplifiers	Chalk & duster
64	64	55	7	DC & AC Amplifies using OP-AMP.	Chalk & duster
65	65	55	7	Integrator and differentiator using op-amp.	Chalk & duster
66	66	55	7	Active filter and describe the filter design of fast order low Pass Butterworth	Chalk & duster
67	67	55	7	Concept of Zero-Crossing Detector using Op-Amp	Chalk & duster
68	68	55	7	Block diagram and operation of IC 555 timer & IC 565 PLL & its applications.	Chalk & duster
69	69	55	7	Working of Current to voltage Convertor using Operational Amplifier	Audio -visual
70	70	55	7	Working of the Voltage to Frequency Convertor using Operational Amplifier.	Chalk & duster
71	71	55	7	Working of the Frequency to Voltage Conversion using Operational Amplifier.	Chalk & duster
72	72	55	7	Operation of power supply using 78XX and 79XX with their PIN configuration	Audio -visual
73	73	55	7	Operation of power supply LM 317 Series with their PIN configuration	Audio -visual
74	74	55	7	Functional block diagram & Working of IC regulator LM 723	Chalk & duster
75	75	55	7	Functional block diagram & Working of IC regulator LM 317	Chalk & duster