

LESSION PLAN 4 TH SEMESTER(2023-24)				
SUBJECT- Th2. ANALOG ELECTRONICS AND OP-AMP				
NAME OF THE FACULTY-SANJAY RAY				
MONTH	MODULE/UNIT	COURSE TO BE COVERED	TOTAL NO. OF CLASS	REMARK
JAN	UNIT-1	1 P-N JUNCTION DIODE	06	
		1. 1 P-N Junction Diode 1. 2 Working of Diode	01	
		1. 3 V-I characteristic of PN junction Diode. V-I characteristic of PN junction Diode	01	
		1. 4 DC load line 1. 5 Important terms such as Ideal Diode, Knee voltage	01	
		1. 6 Junctions break down. Zener breakdown Avalanche breakdown	01	
		1. 7 P-N Diode clipping Circuit.	01	
		1.8 P-N Diode clamping Circuit	01	
JAN	UNIT-2	2.SPECIAL SEMICONDUCTOR DEVICES	05	
		2.1 Thermistors, Sensors & barretters	02	
		2. 2 Zener Diode	01	
		2. 3 Tunnel Diode	01	
		2. 4 PIN Diode	01	
FEB	UNIT-3	3.RECTIFIER CIRCUITS & FILTERS	07	
		3.1 Classification of rectifiers	01	
		3.2 Analysis of half wave, full wave centre tapped and Bridge rectifiers	01	
		3.2.1 DC output current and voltage	01	
		RMS output current and voltage Rectifier efficiency	01	
		3.2.4 Ripple factor 3.2.5 Regulation	01	

		Transformer utilization factor Peak inverse voltage	01	
		Filters: Shunt capacitor filter Choke input filter π filter	01	
FEB	UNIT-4	4. TRANSISTORS	07	
		4.1 Principle of Bipolar junction transistor	01	
		4.2 Different modes of operation of transistor	01	
		4.3 Current components in a transistor	01	
		4.4 Transistor as an amplifier	01	
		Transistor circuit configuration & its characteristics CB Configuration CE Configuration CC Configuration	03	
MARCH	UNIT-5	5. TRANSISTOR CIRCUITS	07	
		5.1 Transistor biasing	01	
		5.2 Stabilization	01	
		5.3 Stability factor	01	
		Different method of Transistors Biasing Base resistor method Collector to base bias Self bias or voltage divider method	04	
MARCH	UNIT-6	6. TRANSISTOR AMPLIFIERS & OSCILLATORS	13	
		Practical circuit of transistor amplifier DC load line and DC equivalent circuit	01	
		AC load line and AC equivalent circuit Calculation of gain	01	
		Phase reversal H-parameters of transistors	01	

		6.7 Simplified H-parameters of transistors	01	
		Generalised approximate model Analysis of CB, CE, CC amplifier using generalised approximate model	01	
		6.9 Analysis of CB, CE, CC amplifier using generalised approximate model	01	
		6.10 Multi stage transistor amplifier 6.10.1 R.C. coupled amplifier 6.10.2 Transformer coupled amplifier	02	
		6.11 Feedback in amplifier 6.11.1 General theory of feedback 6.11.2 Negative feedback circuit 6.11.3 Advantage of negative feedback	01	
		Power amplifier and its classification Difference between voltage amplifier and power amplifier	01	
		Transformer coupled class A power amplifier Class A push - pull amplifier 6.12.4 Class B push - pull amplifier	01	
		Oscillators 6.13.1 Types of oscillators Essentials of transistor oscillator Principle of operation of tuned collector, Hartley, Colpitt, phase shift, Wein• bridge oscillator (no mathematical derivations)	02	
APRIL	UNIT-7	7. FIELD EFFECT TRANSISTOR	06	
		7.1 Classification of FET	01	
		Advantages of FET over BJT Principle of operation of BJT	02	
		7.4 FET parameters (no mathematical derivation) 7.4.1 DC drain resistance 7.4.2 AC drain resistance 7.4.3 Trans-conductance	02	
		7.5 Biasing of FET	01	

APRIL	UNIT-8	8.OPERATIONAL AMPLIFIERS	09	
		8.1 General circuit simple of OP-AMP and IC - CA - 741 OP AMP	01	
		8.2 Operational amplifier stages 8.3Equivalent circuit of operational amplifier	01	
		8.4 Open loop OP-AMP configuration	01	
		OPAMP with fed back Inverting OP-AMP	01	
		8.7 Non inverting OP-AMP	01	
		8.8 Voltage follower & buffer	01	
		Differential amplifier Adder or summing amplifier Sub tractor Integrator Differentiator Comparator	03	