LESSON PLAN

ACADEMIC LESSON PLAN OF SUMMER-2023		
Discipline:EE	**Semester: 4th**	**Name of the Teaching Faculty: P BHAWANI**
Subject:Analog Electronics & Op-amp	**No of Days /per week class allotted: 4**	**Semister from date: 14/02/2023 to 23/05/2023** **No of weeks: 15**
Week	**Class Day**	**Theory / Practical Topics**
1st	1st	**P-N JUNCTION DIODE:** 1.1 P-N Junction Diode
	2nd	1.2 Working of Diode
	3rd	1.3 V-I characteristic of PN junction Diode 1.4 DC load line
	4th	1.5 Important terms such as Ideal Diode, Knee voltage 1.6 Junctions break down. 1.6.1 Zener breakdown 1.6.2 Avalanche breakdown
2nd	1st	1.7 P-N Diode clipping Circuit.
	2nd	1.8 P-N Diode clamping Circuit
	3rd	**SPECIAL SEMICONDUCTOR DEVICES:** 2.1 Thermistors, Sensors & barretters
	4th	Contd..
3rd	1st	2.2 Zener Diode
	2nd	2.3 Tunnel Diode
	3rd	2.4 PIN Diode
	4th	**RECTIFIER CIRCUITS & FILTERS:** 3.1 Classification of rectifiers
4th	1st	Analysis of half wave and calculate: 3.2.1 DC output current and voltage 3.2.2 RMS output current and voltage
	2nd	3.2.3 Rectifier efficiency 3.2.4 Ripple factor
	3rd	3.2.5 Regulation 3.2.6 Transformer utilization factor 3.2.7 Peak inverse voltage
	4th	Analysis of full wave centre tapped and Bridge rectifiers and calculate: 3.2.1 DC output current and voltage 3.2.2 RMS output current and voltage
5th	1st	3.2.3 Rectifier efficiency 3.2.4 Ripple factor 3.2.5 Regulation 3.2.6 Transformer utilization factor 3.2.7 Peak inverse voltage
	2nd	3.3 Filters: 3.3.1 Shunt capacitor filter ,3.3.2 Choke input filter, 3.3.3 π filter

	3rd	**TRANSISTORS:** 4.1 Principle of Bipolar junction transistor
	4th	4.2 Different modes of operation of transistor
6th	1st	4.3 Current components in a transistor
	2nd	4.4 Transistor as an amplifier
	3rd	4.5 Transistor circuit configuration & its characteristics 4.5.1 CB Configuration
	4th	4.5.2 CE Configuration
7th	1st	4.5.3 CC Configuration
	2nd	**TRANSISTOR CIRCUITS:** 5.1 Transistor biasing
	3rd	5.2 Stabilization
	4th	5.3 Stability factor
8th	1st	5.4 Different method of Transistors Biasing 5.4.1 Base resistor method
	2nd	5.4.2 Collector to base bias
	3rd	5.4.3 Self bias or voltage divider method
	4th	Contd..
9th	1st	**TRANSISTOR AMPLIFIERS & OSCILLATORS:** 6.1 Practical circuit of transistor amplifier
	2nd	6.2 DC load line and DC equivalent circuit
	3rd	6.3 AC load line and AC equivalent circuit
	4th	6.4 Calculation of gain 6.5 Phase reversal
10th	1st	6.6 H-parameters of transistors 6.7 Simplified H-parameters of transistors
	2nd	6.8 Generalised approximate model 6.9 Analysis of CB, CE, CC amplifier using generalised approximate model
	3rd	6.10 Multi stage transistor amplifier 6.10.1 R.C. coupled amplifier 6.10.2 Transformer coupled amplifier
	4th	Contd..
11th	1st	6.11 Feed back in amplifier 6.11.1 General theory of feed back 6.11.2 Negative feedback circuit 6.11.3 Advantage of negative feed back
	2nd	6.12 Power amplifier and its classification 6.12.1 Difference between voltage amplifier and power amplifier 6.12.2 Transformer coupled class A power amplifier
	3rd	6.12.3 Class A push – pull amplifier 6.12.4 Class B push – pull amplifier
	4th	6.13 Oscillators 6.13.1 Types of oscillators 6.13.2 Essentials of transistor oscillator

12th	1st	6.13.3 Principle of operation of tuned collector, Hartley, colpitt, phase shift, weinbridge oscillator (no mathematical derivations)
	2nd	**FIELD EFFECT TRANSISTOR:** 7.1 Classification of FET 7.2 Advantages of FET over BJT
	3rd	7.3 Principle of operation of FET
	4th	7.4 FET parameters (no mathematical derivation) 7.4.1 DC drain resistance 7.4.2 AC drain resistance 7.4.3 Trans-conductance
13th	1st	Contd..
	2nd	7.5 Biasing of FET
	3rd	Contd..
	4th	**OPERATIONAL AMPLIFIERS:** 8.1 General circuit simple of OP-AMP and IC – CA – 741 OP AMP
14th	1st	8.2 Operational amplifier stages
	2nd	8.3 Equivalent circuit of operational amplifier 8.4 Open loop OP-AMP configuration
	3rd	8.5 OPAMP with fed back 8.6 Inverting OP-AMP
	4th	8.7 Non inverting OP-AMP
15th	1st	8.8 Voltage follower & buffer
	2nd	8.9 Differential amplifier 8.9.1 Adder or summing amplifier
	3rd	8.9.2 Sub tractor 8.9.3 Integrator
	4th	8.9.4 Differentiator 8.9.5 Comparator