

LESSON PLAN FOR Analog Electronics & OPAMP(Th2)

Discipline: Electrical Engineering	Semester: 4th	Name of the Teaching Faculty: Ms. Deepika sarkar (Lect. In ETC)	<i>Deepika</i> <u>13.02.23</u>
Subject: Analog Electronics & OPAMP(th2)	No. of days per week class allotted: 4	Semester From Date : 14.02.23 to Date: 23.05.23	
		No. of Weeks: 14	Session: 2022-23
Week	Class Day	Theory	
1st		1. P-N JUNCTION DIODE:	
	1st	1.1. Overview of the syllabus concept of analog electronics and introduction to PN Junction diode	
	2nd	1.2. Working of Diode 1.3. V-I characteristic of PN junction Diode.	
	3rd	1.4 DC load line 1.5 Important terms such as Ideal Diode, Knee voltage.	
	4th	Junctions break down. 1.6.1 Zener breakdown 1.6.2 Avalanche breakdown	
2nd	1st	1.7 P-N Diode clipping Circuit. 1.8 P-N Diode clamping Circuit	
	2nd	2. SPECIAL SEMICONDUCTOR DEVICES:	
	3rd	2. SPECIAL SEMICONDUCTOR DEVICES: 2.1 Thermistors, Sensors & barretters	
	4th	2.2 Zener Diode 2.3 Tunnel Diode	
3rd	1st	2.4 PIN Diode	
	2nd	3. RECTIFIER CIRCUITS & FILTERS: 3.1 Classification of rectifiers	
	3rd	3.2 Analysis of half wave, full wave centre tapped and Bridge rectifiers	
	4th	3 Calculate: 3.2.1 DC output current and voltage 3.2.2 RMS output current and voltage	
4th	1st	3.2.3 Rectifier efficiency 3.2.4 Ripple factor	
	2nd	3.2.5 Regulation 3.2.6 Transformer utilization factor 3.2.7 Peak inverse voltage 3.2.7 Peak inverse voltage	
	3rd	3.3 Filters: 3.3.1 Shunt capacitor filter	
	4th	3.3.2 Choke input filter 3.3.3 π filter	
5th	1st	4. TRANSISTORS: 4.1 Principle of Bipolar junction transistor	
	2nd	4.2 Different modes of operation of transistor	
	3rd	4.3 Current components in a transistor	
	4th	4.4 Transistor as an amplifier	
6th	1st	4.5 Transistor circuit configuration & its characteristics 4.5.1 CB Configuration	
	2nd	4.5.2 CE Configuration 4.5.3 CC Configuration	
	3rd	5. TRANSISTOR CIRCUITS: 5.1 Transistor biasing	

	4th	5.2 Stabilization
	4th	5.3 Stability factor
7th	1st	5.4 Different method of Transistors Biasing
	2nd	5.4.1 Base resistor method
	3rd	5.4.2 Collector to base bias
	4th	5.4.3 Self bias or voltage divider method
		6. TRANSISTOR AMPLIFIERS & OSCILLATORS:
8th	1st	6.1 Practical circuit of transistor amplifier 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 6.4 Calculation of gain 6.5 Phase reversal
	4th	6.6 H-parameters of transistors 6.7 Simplified H-parameters of transistors
9th	1st	6.8 Generalised approximate model 6.9 Analysis of CB, CE, CC amplifier using generalised approximate model
	2nd	6.10 Multi stage transistor amplifier 6.10.1 R.C. coupled amplifier
	3rd	6.10.2 Transformer coupled amplifier
	4th	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
10th	1st	6.12 Power amplifier and its classification 6.12.1 Difference between voltage amplifier and power amplifier
	2nd	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 6.13.3 Principle of operation of tuned collector, Hartley, colpitt, phase shift, wein-bridge oscillator (no mathematical derivations)
11th	1st	
	2nd	
	3rd	7. FIELD EFFECT TRANSISTOR: 7.1 Classification of FET
	4th	7.2 Advantages of FET over BJT 7.3 Principle of operation of BJT
12th	1st	7.4 FET parameters (no mathematical derivation) 7.4.1 DC drain resistance 7.4.2 AC drain resistance 7.4.3 Trans-conductance
	2nd	
	3rd	7.5 Biasing of FET
	4th	MONTHLY TEST
		8. OPERATIONAL AMPLIFIERS:

13th	1st	8.1 General circuit simple of OP-AMP and IC – CA – 741 OP AMP
	2nd	8.2 Operational amplifier stages
	3rd	8.3 Equivalent circuit of operational amplifier
	4th	8.4 Open loop OP-AMP configuration
14th	1st	8.5 OPAMP with fed back
	2nd	8.6 Inverting OP-AMP
		8.7 Non inverting OP-AMP
	3rd	8.8 Voltage follower & buffer
		8.9 Differential amplifier
8.9.1 Adder or summing amplifier		
4th	8.9.2 Sub tractor	
	8.9.3 Integrator	
4th	8.9.4 Differentiator	
	8.9.5 Comparator	

13/02/2023
HOD ELECT. DEPT.

ACADEMIC CO-ORDINATOR

Principal
Government Polytechnic
NABARANGPUR