

LESSON PLAN

Discipline: ELECTRICAL ENGINEERING	Semester: 4TH	Name of the Teaching Faculty: PARTHA SARATHI MALLICK	
Subject: ANALOG ELECTRONICS LAB (Pr2)	No. of days/ per week class allotted: 01 day/03 period	Semester From Date : 14/02/2023	to Date: 23/05/2023
Week	Class Day	Theory/ Practical Topics	
1st	1	Determine the input and output Characteristics of CE & CB transistor configuration.	
2nd	1	Determine Drain & Transfer Characteristics of JFET.	
3rd	1	Construct Bridge Rectifier using different filter circuit and to determine Ripple factor & analyze wave form with filter	
4th	1	Construct Bridge Rectifier using different filter and to determine Ripple factor.	
5th	1	Construct & test the regulator using Zener diode.	
6th	1	Construct different types of biasing circuit and analyze the wave form: (i) Fixed bias (ii) Emitter bias (iii) Voltage	
7th	1	Study the single stage CE amplifier & find Gain.	
8th	1	Study multi stage R-C coupled amplifier & to determine frequency- response & gain.	
9th	1	Construct & Find the gain: (i) Class A. Amplifier (ii) Class B. Amplifier (iii) Class C Tuned Amplifier.	
10th	1	Construct & test push pull amplifier & observe the wave form.	
11th	1	Construct & calculate the frequency of (i) Hartly Oscillator (ii) Colpitt's Oscillator (iii) Wein Bridge Oscillator (iv) R-C	
12th	1	Construct & Test Differentiator and Integrator using R-C Circuit.	
13th	1	Study Multivibrator (Astable, Bistable, Monstable) Circuit & Draw its Wave forms.	
14th	1	Mini Project.	
15th	1	Mini Project.	

Partha Sarathi Mallik
09/02/2023
Engg
Gr. Lecturer in AE & EI Engg



LESSON PLAN

Discipline: ELECTRICAL ENGG.		Semester: 4TH	Name of the Teaching Faculty: PARTHA SARATHI MALLICK
Subject: ANALOG ELECTRONICS & OP-Amp (Th-2)		No. of days/ per week class allotted: 4	Semester From Date : 14/02/2023 No. of Weeks: 15
Week	Class Day	Theory/ Practical Topics	
1st	1st	P-N JUNCTION DIODE: P-N Junction Diode, Working of Diode.	
	2nd	V-I characteristic of PN junction Diode, DC load line.	
	3rd	Important terms such as Ideal Diode, Knee voltage.	
	4th	Junctions break down: Zener breakdown, Avalanche breakdown.	
2nd	1st	P-N Diode clipping circuit.	
	2nd	P-N Diode clamping circuit.	
	3rd	SPECIAL SEMICONDUCTOR DEVICES: Thermistors.	
	4th	sensors & barreters.	
3rd	1st	Zener Diode.	
	2nd	Tunnel Diode.	
	3rd	PIN Diode.	
	4th	RECTIFIER CIRCUITS & FILTERS: Classification of rectifiers, Analysis of half wave, full wave centre tapped and Bridge rectifiers and calculate: DC output current and voltage.	
4th	1st	RMS output current and voltage.	
	2nd	Rectifier efficiency.	
	3rd	Ripple factor.	
	4th	Regulation.	
5th	1st	Transformer utilization factor, Peak inverse voltage.	
	2nd	Filters: Shunt capacitor filter, Choke input filter, π filter.	
	3rd	TRANSISTORS: Principle of Bipolar junction transistor.	
	4th	Different modes of operation of transistor.	
6th	1st	Current components in a transistor.	
	2nd	Transistor as an amplifier.	
	3rd	Transistor circuit configuration & its characteristics: CB Configuration.	
	4th	CE Configuration.	
7th	1st	CC Configuration.	
	2nd	TRANSISTOR CIRCUITS: Transistor biasing.	
	3rd	Stabilization.	
	4th	Stability factor.	
8th	1st	Stability factor.	

	2nd	Different method of Transistors Biasing: Base resistor method.
	3rd	Collector to base bias.
	4th	Self bias or voltage divider method.
9th	1st	TRANSISTOR AMPLIFIERS & OSCILLATORS: Practical circuit of transistor amplifier.
	2nd	DC load line and DC equivalent circuit.
	3rd	AC load line and AC equivalent circuit.
	4th	Calculation of gain.
10th	1st	Phase reversal.
	2nd	H-parameters of transistors, Simplified H-parameters of transistors.
	3rd	Generalised approximate model.
	4th	Analysis of CB, CE, CC amplifier using generalised approximate model.
11th	1st	Multi stage transistor amplifier, R.C. coupled amplifier, Transformer coupled amplifier.
	2nd	Feed back in amplifier, General theory of feed back, Negative feedback circuit, Advantage of negative feed back.
	3rd	Power amplifier and its classification, Difference between voltage amplifier and power amplifier, Transformer coupled class A power amplifier
	4th	Class A push – pull amplifier, Class B push – pull amplifier.
12th	1st	Oscillators, Types of oscillators, Essentials of transistor oscillator, Principle of operation of tuned collector, Hartley, colpitt, phase shift, wein-bridge oscillator (no mathematical derivations)
	2nd	FIELD EFFECT TRANSISTOR: Classification of FET.
	3rd	Advantages of FET over BJT.
	4th	Principle of operation of BJT.
13th	1st	FET parameters (no mathematical derivation): DC drain resistance, DC drain resistance, Trans-conductance.
	2nd	Biasing of FET.
	3rd	Biasing of FET.
	4th	OPERATIONAL AMPLIFIERS: General circuit simple of OP-AMP and IC – CA – 741 OP AMP, Operational amplifier stages.
14th	1st	Equivalent circuit of operational amplifier, Open loop OP-AMP configuration.
	2nd	OPAMP with fed back, Inverting OP-AMP.
	3rd	Non inverting OP-AMP, Voltage follower & buffer.
	4th	Differential amplifier: Adder or summing amplifier.
15th	1st	Subtractor.
	2nd	Integrator.
	3rd	Differentiator
	4th	Comparator

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