

LESSON PLAN

SUB:-ANALOG ELECTRONICS& OPAMP

BRANCH:- ELECTRICAL ENGG.

SEMESTER: 4TH

NAME OF FACULTY: - TAPAN KU DAS



GOVERNMENT POLYTECHNIC, BHADRAK SESSION:2023-24


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DISCIPLINE ELECTRICAL	SEMESTER 4 TH	NAME OF THE TEACHING FACULTY TAPAN KUMAR DAS (Lect. in ETC)
SUBJECT Analog Electronics & op - Amp	NO. OF DAYS/WEEK CLASS ALLOTTED - 60	SEMESTER FROM DATE 16.01.2024 to 26.04.2024 No. of weeks- 15
WEEK	CLASS DAY	THEORY TOPICS
1 ST	01	Diode. P-N Junction Diode.
	02	V-I characteristic of PN junction Diode.
	03	DC load line. Important terms such as Ideal Diode, Knee voltage
	04	Junctions break down. 1. Zener breakdown 2. Avalanche breakdown
2 ND	01	P-N Diode clipping Circuit.
	02	P-N Diode clamping Circuit.
	03	Thermistors, Sensors & barretters.
	04	Zener Diode, Tunnel Diode, PIN Diode
3 RD	01	Classification of rectifiers. Analysis of half wave
	02	full wave centre tapped and Bridge rectifiers
	03	calculate: DC output current and voltage
	04	RMS output current and voltage
4 TH	01	Rectifier efficiency, Ripple factor
	02	Regulation,
	03	Transformer utilization factor Peak inverse voltage
	04	Problem solving
5 TH	01	Filters: Shunt capacitor filter, Choke input filter, π filter
	02	Principle of Bipolar junction transistor
	03	Different modes of operation of transistor Current components in a transistor
	04	Transistor as an amplifier.
6 TH	01	Transistor circuit configuration & its characteristics. CB Configuration
	02	CE Configuration
	03	CC Configuration
	04	Transistor biasing. Stabilization, Stability factor.
7 TH	01	Different method of Transistors Biasing. Base resistor method.
	02	Collector to base bias.
	03	Self bias or voltage divider method.
	04	Practical circuit of transistor amplifier.
8 TH	01	DC load line and DC equivalent circuit
	02	AC load line and AC equivalent circuit Calculation of gain, Phase reversal
	03	H-parameters of transistors

	04	Simplified H-parameters of transistors
9TH	01	Analysis of CB.
	02	Analysis of CE.
	03	CC amplifier using generalised approximatemodel.
	04	Multi stage transistor amplifier
10TH	01	R.C. coupled amplifier Transformer coupled amplifier
	02	Feed back in amplifier
11TH	03	Negative feedback circuit
	04	Advantage of negative feed back
	01	Power amplifier and its classification Difference between voltage amplifier and power amplifier
	02	Transformer coupled class A power amplifier
12TH	03	Class A push – pull amplifier
	04	Class B push – pull amplifier
	01	Oscillators Types of oscillators, Essentials of transistor oscillator.
	02	Principle of operation of tuned collector, Hartley osc.
13TH	03	Colpitt, phase shift, weinbridge oscillator.
	04	Classification of FET
	01	Advantages of FET over BJT
	02	Principle of operation of BJT
14TH	03	FET parameters
	04	DC drain resistance, AC drain resistance Trans-conductance
	01	Biasing of FET.
	02	General circuit simple of OP-AMP and IC – CA – 741 OP AMP
15TH	03	Operational amplifier stages Equivalent circuit of operational amplifier
	04	Open loop OP-AMP configuration
	01	OPAMP with fed back
	02	Inverting OP-AMP, Non inverting OP-AMP, Voltage follower & buffer
15TH	03	Differential amplifier Adder or summing amplifier, Sub tractor
	04	Integrator, Differentiator, Comparator


 11.01.24