LESSON PLAN

SUB:ANALOG ELECTRONICS & OP-AMP

BRANCH:- ELECTRICAL ENGG.

SEMESTER: 4th

SESSION:2022-2023

NAME OF FACULTY: TAPAN KUMAR DAS

GOVERNMENT POLYTECHNIC, BHADRAK

Hod, Electrical
HOD (ELECT.)
G.P.BHADRAK

Academic Co-ordinator

Principal
Govt. Polytechnic, Bhadrak
Principal
Govt. Polytechnic
Bhadrak

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 13.02.2023 to 23.05.2023 No. of week excluding holiday - 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}	05	P-N Diode clipping Circuit.
	06	P-N Diode clamping Circuit.
	07	Thermistors, Sensors & barretters.
	08	Zener Diode, Tunnel Diode, PIN Diode
3^{RD}	09	Classification of rectifiers. Analysis of half wave
	10	full wave centre tapped and Bridge rectifiers
	11	calculate: DC output current and voltage RMS output current and voltage
4^{TH}	12	Rectifier efficiency, Ripple factor
	13	Regulation, Transformer utilization factor Peak inverse voltage
5^{TH}	14	Filters: Shunt capacitor filter, Choke input filter, π filter
	15	Principle of Bipolar junction transistor Different modes of operation of transistor Current components in a transistor
	16	Transistor as an amplifier.
6^{TH}	17	Transistor circuit configuration & its characteristics. CB Configuration
	18	CE Configuration
	19	CC Configuration
	20	Transistor biasing. Stabilization, Stability factor.
7^{TH}	21	Different method of Transistors Biasing. Base resistor method.
	22	Collector to base bias.
	23	Self bias or voltage divider method.
	24	Practical circuit of transistor amplifier.
8^{TH}	25	DC load line and DC equivalent circuit AC load line and AC equivalent circuit Calculation of gain, Phase reversal
	26	H-parameters of transistors Simplified H-parameters of transistors
9^{TH}	27	Analysis of CB, CE, CC amplifier using generalised approximate model.
	28	Multi stage transistor amplifier
10^{TH}	29	R.C. coupled amplifier Transformer coupled amplifier
	30	Feed back in amplifier

		Negative feedback circuit Advantage of negative feed back
11TH	31	Power amplifier and its classification Difference between voltage amplifier and power amplifier
	32	Transformer coupled class A power amplifier Class A push – pull amplifier Class B push – pull amplifier
12TH	33	Oscillators Types of oscillators, Essentials of transistor oscillator.
	34	Principle of operation of tuned collector, Hartley osc.
	35	Colpitt, phase shift, weinbridge oscillator.
	36	Classification of FET
13TH	37	Advantages of FET over BJT
	38	Principle of operation of BJT
	39	FET parameters
	40	DC drain resistance, AC drain resistance Trans-conductance
14TH	41	Biasing of FET.
	42	General circuit simple of OP-AMP and IC – CA – 741 OP AMP
	43	Operational amplifier stages Equivalent circuit of operational amplifier
	44	Open loop OP-AMP configuration
15TH	45	OPAMP with fed back
	46	Inverting OP-AMP, Non inverting OP-AMP, Voltage follower & buffer
	47	Differential amplifier Adder or summing amplifier, Sub tractor
	48	Integrator, Differentiator, Comparator

Tapas Kumar Dey

SIGNATURE OF FACULTY

10.02.23