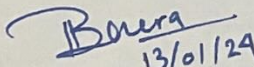


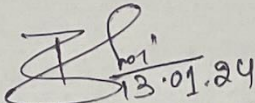
## ACADEMIC SESSION : 2023-24

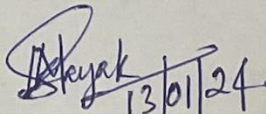
Discipline : Electrical	Semester : 4 <sup>th</sup>	Name of the Teaching Faculty : Tilu Behera (Lecturer in Electronics)
Subject : Analog Electronics and OP-AMP	No. of days / week class allotted	Semester From date: 16/01/2024 To 26/04/2024 Nos. of Weeks per semester : 15
Week	Class Day	Theory/ Practical Topics
1 <sup>ST</sup>	1 <sup>st</sup>	P-N Junction Diode
	2 <sup>nd</sup>	Working of Diode
	3 <sup>rd</sup>	V-I characteristic of PN junction Diode..
	4 <sup>th</sup>	DC load line
2 <sup>ND</sup>	1 <sup>st</sup>	Important terms such as Ideal Diode, Knee voltage
	2 <sup>nd</sup>	Junctions break down.
	3 <sup>rd</sup>	P-N Diode clipping Circuit.
	4 <sup>th</sup>	P-N Diode clamping Circuit
3 <sup>RD</sup>	1 <sup>st</sup>	Thermistors, Sensors & barretters
	2 <sup>nd</sup>	Zener Diode
	3 <sup>rd</sup>	Tunnel Diode
	4 <sup>th</sup>	PIN Diode
4 <sup>TH</sup>	1 <sup>st</sup>	Classification of rectifiers
	2 <sup>nd</sup>	Analysis of half wave, full wave centre tapped and Bridge rectifiers
	3 <sup>rd</sup>	DC output current and voltage
	4 <sup>th</sup>	RMS output current and voltage
5 <sup>TH</sup>	1 <sup>st</sup>	Rectifier efficiency, Ripple factor
	2 <sup>nd</sup>	Regulation, Transformer utilization factor, Peak inverse voltage
	3 <sup>rd</sup>	Shunt capacitor filter , Choke input filter , $\pi$ filter
	4 <sup>th</sup>	Principle of Bipolar junction transistor
6 <sup>TH</sup>	1 <sup>st</sup>	Different modes of operation of transistor
	2 <sup>nd</sup>	Current components in a transistor
	3 <sup>rd</sup>	Transistor as an amplifier
	4 <sup>th</sup>	Transistor circuit configuration & its characteristics
7 <sup>TH</sup>	1 <sup>st</sup>	CB Configuration , CE Configuration , CC Configuration
	2 <sup>nd</sup>	Transistor biasing
	3 <sup>rd</sup>	Stabilization
	4 <sup>th</sup>	Stability factor
8 <sup>TH</sup>	1 <sup>st</sup>	Different method of Transistors Biasing
	2 <sup>nd</sup>	Base resistor method, Collector to base bias , Self bias or voltage divider method
	3 <sup>rd</sup>	Practical circuit of transistor amplifier
	4 <sup>th</sup>	DC load line and DC equivalent circuit
9 <sup>TH</sup>	1 <sup>st</sup>	AC load line and AC equivalent circuit
	2 <sup>nd</sup>	Calculation of gain ,Phase reversal
	3 <sup>rd</sup>	H-parameters of transistors
	4 <sup>th</sup>	Simplified H-parameters of transistors



10 <sup>TH</sup>	1 <sup>st</sup>	Generalized approximate model
	2 <sup>nd</sup>	Analysis of CB, CE, CC amplifier using generalized approximate model
	3 <sup>rd</sup>	Computation of Gain margin and phase margin.
	4 <sup>th</sup>	Multi stage transistor amplifier , R.C. coupled amplifier , Transformer coupled amplifier
11 <sup>TH</sup>	1 <sup>st</sup>	Feed back in amplifier , General theory of feed back
	2 <sup>nd</sup>	Negative feedback circuit , Advantage of negative feed back
	3 <sup>rd</sup>	Power amplifier and its classification
	4 <sup>th</sup>	Difference between voltage amplifier and power amplifier
12 <sup>th</sup>	1 <sup>st</sup>	Transformer coupled class A power amplifier , Class A push – pull amplifier , Class B push – pull amplifier
	2 <sup>nd</sup>	Oscillators , Types of oscillators , Essentials of transistor oscillator
	3 <sup>rd</sup>	Principle of operation of tuned collector, Hartley, colpitt, phase shift, weinbridge oscillator
	4 <sup>th</sup>	Classification of FET ,Advantages of FET over BJT
13 <sup>th</sup>	1 <sup>st</sup>	Principle of operation of BJT
	2 <sup>nd</sup>	FET parameters , drain resistance , AC drain resistance , Trans-conductance
	3 <sup>rd</sup>	Biasing of FET
	4 <sup>th</sup>	General circuit simple of OP-AMP and IC – CA – 741 OP AMP
14 <sup>th</sup>	1 <sup>st</sup>	Operational amplifier stages
	2 <sup>nd</sup>	Equivalent circuit of operational amplifier
	3 <sup>rd</sup>	Open loop OP-AMP configuration.
	4 <sup>th</sup>	OPAMP with fed back
15 <sup>th</sup>	1 <sup>st</sup>	Inverting OP-AMP , Non inverting OP-AMP.
	2 <sup>nd</sup>	Voltage follower & buffer.
	3 <sup>rd</sup>	Adder or summing amplifier , Sub tractor.
	4 <sup>th</sup>	Integrator , Differentiator , Comparator.

  
 13/01/24  
 Prepared By  
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