

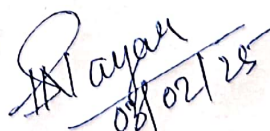
ACADEMIC SESSION : 2024-25

Discipline : Electrical Engineering	Semester : 4 th	Name and Designation of the Teaching Faculty : Sri Shailesh Kumar Nayak, Lecturer Stage-II (ETC)
Subject : Analog Electronics and OP-AMP	No. of days / week class allotted: 04	Semester wef: 04.02.2025 to 17.05.2025 Nos. of Weeks per Semester : 15
Week	Class Day	Theory/ Practical Topics
1 ST	1 st	P-N Junction Diode
	2 nd	Working of Diode
	3 rd	V-I characteristic of PN junction Diode..
	4 th	DC load line
2 ND	1 st	Important terms such as Ideal Diode, Knee voltage
	2 nd	Junctions break down.
	3 rd	P-N Diode clipping Circuit.
	4 th	P-N Diode clamping Circuit
3 RD	1 st	Thermistors, Sensors & barretters
	2 nd	Zener Diode
	3 rd	Tunnel Diode
	4 th	PIN Diode
4 TH	1 st	Classification of rectifiers
	2 nd	Analysis of half wave, full wave centre tapped and Bridge rectifiers
	3 rd	DC output current and voltage
	4 th	RMS output current and voltage
5 TH	1 st	Rectifier efficiency, Ripple factor
	2 nd	Regulation, Transformer utilization factor, Peak inverse voltage
	3 rd	Shunt capacitor filter , Choke input filter , π filter
	4 th	Principle of Bipolar junction transistor
6 TH	1 st	Different modes of operation of transistor
	2 nd	Current components in a transistor
	3 rd	Transistor as an amplifier
	4 th	Transistor circuit configuration & its characteristics
7 TH	1 st	CB Configuration , CE Configuration , CC Configuration
	2 nd	Transistor biasing
	3 rd	Stabilization
	4 th	Stability factor
8 TH	1 st	Different method of Transistors Biasing
	2 nd	Base resistor method, Collector to base bias , Self bias or voltage divider method
	3 rd	Practical circuit of transistor amplifier
	4 th	DC load line and DC equivalent circuit

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


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