KIIT POLYTECHNIC, BHUBANESWAR

LESSON PLAN
Session(2023-2024)

Discipline : Electrical Engineering	**Semester :** **4th** **Summer/2024**	**Name of the Faculty :** Dr. Binodini Tripathy Assistant Professor **Email ID :** binodinifet@kp.kiit.ac.in
Subject : Analog Electronics & OPAMP	**No. of Days/Week:** 04	**Start Date:**16/01/2024 **End Date :** 26/04/2024

Week	Class Day	Theory Topics
1st	1st	Introduction. Construction & working principle of pn-junction.
	2nd	VI-characteristic of pn-junction diode
	3rd	Temperature dependence of pn-junction, Junction break down : avalanche & zener break down voltage
	4th	DC load line, Important terms like ideal diode, knee voltage
2nd	1st	Clipper, types of clipper, applications
	2nd	Description of clippers(positive, negative,bias, combination)
	3rd	Clamper , types of clamper, applications
	4th	Description of clampers(positive and negative)
3rd	1st	Description on Thermisters, Sensors, Barretters
	2nd	Zener diode
	3rd	Tunnel diode
	4th	PIN diode
4th	1st	Rectifier definition and classification, Analysis of half wave rectifier

	2nd	**Review, doubt clearing**
	3rd	**Quiz test**
	4th	Analysis of centre tapped and bridge rectifier
5th	1st	Dc output current and voltage,RMS output current and voltage
	2nd	Rectifier efficiency,ripple factor, regulation, TUF, PIV
	3rd	Filters , types of filters, description of shunt capacitor, Choke input and PI-filter
	4th	Transistor: Working principle of n-p-n & p-n-p
6th	1st	Transistor configurations(CB,CE,CC), alpha, beta, gamma & relations.
	2nd	Modes of operations of transistors, current components
	3rd	Transistor as an amplifier
	4th	Transistor biasing
7th	1st	stabilization, stability factor
	2nd	**Revision, doubt clearing**
	3rd	Methods of transistor biasing :Base resistor,collector to base ,self bias and voltage divider bias method
	4th	Practical circuit of transistor amplifier
8th	1st	DC load line and DC equivalent circuit
	2nd	AC load line and AC equivalent circuit
	3rd	Calculation of gain, Phase reversal
	4th	H-parameters of transistors, simplified H-parameters of transistors
9th	1st	**Review, Practice**
	2nd	**Quiz**
	3rd	Generalised approximation model,analysis of CB,CE,CC by generalised approximation model
	4th	Multistage amplifier, RC coupled, transistor coupled amplifier
10th	1st	Feed back in amplifier, general theory,negative feed back circuit,advantages of negative feed back

	2nd	Power amplifier and classification,difference between voltage and power amplifier
	3rd	Transformer coupled class A, class A push-pull
	4th	Class-B push-pull amplifier
11th	1st	Oscillators, types of oscillators,essentials of oscillators
	2nd	Principle of operation of tuned collector, Hartley, Colpitt Oscillator
	3rd	Principle of operation of phase shift,Wein bridge oscillators
	4th	Classification, advantages of FET
12th	1st	Principle of operation of FET
	2nd	DC drain resistance,AC drain resistance, trans-condutance, Biasing of FET
	3rd	**Review, Practice**
	4th	**Quiz**
13th	1st	General circuit and fundamentals on OPAMP, IC 741 OPAMP, equivalent circuit of OPAMP
	2nd	Open loop OPAMP configuration, OPAMP with feed back
	3rd	Inverting OPAMP
	4th	Non inverting OPAMP
14th	1st	Voltage follower, Buffer amplifier
	2nd	**Revision**
	3rd	Differential amplifier, adder amplifier
	4th	Subtractor
15th	1st	Integrator, differentiator
	2nd	Comparator
	3rd	**Revision (Q/A Discussion)**
	4th	**Revision(Q/A Discussion)**