BHADRAK ENGINEERING SCHOOL & TECHNOLOGY (BEST), ASURALI BHADRAK

ANALOG ELECTRONICS & LINEAR IC. (Th 4)

CHAPTER-WISE DISTRIBUTION OF PERIODS & EXPECTED MARKS

Sl. No.	Name of the Chapter	Periods as per Syllabus	Period actually needed	Expected Marks
01	DIODE, TRANSISTORS AND CIRCUITS	10	10	20
02	AUDIO POWER AMPLIFIERS.	08	04	20
03	FIELD EFFECT TRANSISTOR (FET).	10	05	20
04	FEED BACK AMPLIFIER & OSCILLATOR	08	08	10
05	TUNED AMPLIFIER & WAVE SHAPING CIRCUIT	12	10	10
06	OPERATIONAL AMPLIFIER CIRCUITS & FEEDBACK CONFIGURATION	14	14	10
07	APPLICATION OF OPERATIONAL AMPLIFIER, TIMER CIRCUITS & IC VOLTAGE REGULATOR	13	11	10
	TOTAL	75	62	100

Sign of Lect. **Sign of HOD.** **Sign of AIC** **Sign of Vice Principal**

LESSON PLAN

Discipline: ET & C. Engg.	**Semester:** Forth (4th)	**Name of the Faculty:** Er Debasmita Mohapatra
Subject: Analog Electronics & Linear IC	**No. of days/week class allotted:** Six (6)	**Semester from Date:** 16.02.23 **to Date:** 23.05.23 **No. of Weeks:** 15
WEEK	**CLASS DAY**	**THEORY TOPICS**
1st	1st	**Unit No.- 01 (DIODE, TRANSISTORS AND CIRCUITS)** Introduction to Analog Electronics
	2nd	Working principle, of Diode & its current equation, Specification and use of p-n junction diode.
	3rd	Breakdown of diode (Avalance & Zener Breakdown) and Construction, working, Characteristics.
	4th	Classification of Rectifiers and working of different types of Rectifiers- Half-Wave Rectifier.
	5th	Full-Wave Rectifier (CT & BRIDGE type)
	6th	Working principle of p-n-p and n-p-n transistor.
2nd	1st	Different types of transistor connection (CB, CE and CC)& input and output characteristics of transistor in different connections.
	2nd	Define ALPHA, BETA and GAMMA of transistors in various modes. Establish the Mathematical relationship between them.
	3rd	Basic concept of Biasing, Types of Biasing,h-parameter model of BJT,load line (AC &DC) and determine the Q-point.
	4th	Types of Coupling, working principle and use of R-C Coupled Amplifier & Frequency Responses of R-C coupled Amplifier & draw the curve.
	5th	***Possible Question Answer Discussion***
	6th	**Unit No.- 02 (AUDIO POWER AMPLIFIERS)** Classify Power Amplifier &Differentiate between Voltage and Power Amplifier.

3rd	1st	Working principle of different types of Power Amplifier (Class-A, Class-AB.
	2nd	Class-B and Class-C & Class D amplifier).
	3rd	Construction and working principle and advantages of Push Pull (Class-B) Amplifiers.
	4th	***Possible Question Answer Discussion***
	5th	**Unit No.- 03 (FET)**FET & its classifications &Differentiate between JFET & BJT.
	6th	Construction, working principle & characteristics of JEFT &Explain JEFT as an amplifier.
4th	1st	Parameters of JFET & Establish relation among JFET parameters.
	2nd	Construction & working principle MOSFET & its classification & characteristics (Drain & Transfer)
	3rd	Explain the operation of CMOS, VMOS & LDMOS.
	4th	***Possible Question Answer Discussion***
	5th	**Unit No.- 04(FEED BACK AMPLIFIER & OSCILLATOR)**Define & classify Feedback Amplifier, principle of negative feedback with the help of block diagram.
	6th	**Monthly Test-1**
5th	1st	Types of feedback – negative &positive feedback.
	2nd	Types of negative feedback – voltage shunt, voltage series, current shunt& current series and characteristics voltage gain.
	3rd	Bandwidth, input Impedance output impedance, stability, noise, distortion in amplifiers.
	4th	Oscillator -block diagram of sine wave oscillator.
	5th	Types Requirement of oscillation-Barkhuisen criterion.
	6th	RC oscillators – RC phase shift ,Crystal, LC oscillators – Colpitts , Hartley & Wien Bridge Oscillators .
6th	1st	Circuit operation, circuit diagram, equation for

		frequency of oscillation & frequency stability.
	2nd	***Possible Question Answer Discussion***
	3rd	**Unit No.- 05(TUNED AMPLIFIER & WAVE SHAPING CIRCUIT)**Defined and classify Tuned amplifier,
	4th	Explain parallel Resonant circuit, Resonance Curve & sharpness of Resonance.
	5th	working principle of Single tuned Voltage& Double tuned Amplifier.
	6th	Its limitation
7th	1st	Different type of Non-linear circuits - Clipper, diode series &shunt, positive& negative biased & unbiased .
	2nd	**Monthly Test-2**
	3rd	Combinational clipper clippers circuit & its application.
	4th	Different type of Clamper circuit (positive & negative clampers) & its application.
	5th	Working of Astable, Monostable & BistableMultivibrator with circuit diagram.
	6th	Working& use of Integrator and Differentiator circuit using R- C circuit(Linear).
8th	1st	Input / output waveforms & frequency response.
	2nd	***Possible Question Answer Discussion***
	3rd	**Unit No.- 06 (OPAM CKT & FEEDBACK CONFIGURATION)** Differential amplifier
	4th	Explain its configuration &significance.
	5th	Block diagram representation of a typical Op-Amp.
	6th	Its equivalent circuits and draw the schematic symbol.
9th	1st	Discuss the types of integrated circuits manufacturer's designations of ICs, Packagetypes.
	2nd	Pin identification and temperature and ordering information.

	3rd	Define the following electrical characteristics input offset voltage, input offset current.
	4th	CMMR, Large signal voltage gain, Slew rate .
	5th	Draw and explain the Open Loop configuration (inverting Amplifier)
	6th	Draw and explain the Open Loop configuration (non-inverting Amplifier)
10th	1st	Draw the circuit diagram of the voltage series feedback amplifier and derive the close loop Voltage gain.
	2nd	Gain of feedback circuits input resistance, and output resistance, bandwidth and total output offset voltage with feedback.
	3rd	**Monthly Test-3**
	4th	Draw the circuit diagram of the voltage shunt feedback amplifier and derive the close loop, Voltage gain.
	5th	Gain of feedback circuits and input resistance, and output resistance, bandwidth and total output offset voltage with feedback.
	6th	***Possible Question Answer Discussion***
11th	1st	**Unit No.- 07(APPLICATION OF OPERATIONAL AMPLIFIER,TIMER CKTS&IC VOLTAGE REGULATOR)** Discuss the summing scaling and averaging of inverting and non-inverting amplifiers.
	2nd	DC & AC Amplifies using OP-AMP.
	3rd	Integrator and differentiator using op-amp.
	4th	Active filter and describe the filter design of fast order low Pass Butterworth.
	5th	Concept of Zero-Crossing Detector using Op-Amp
	6th	Block diagram and operation of IC 555 timer &IC 565 PLL& its applications.
12th	1st	Working of Current to voltage Convertor using Operational Amplifier

	2nd	Working of the Voltage to Frequency Convertor using Operational Amplifier.
	3rd	Working of the Frequency to Voltage Conversion using Operational Amplifier.
	4th	Operation of power supply using 78XX and 79XX,LM 317 Series with their PIN configuration.
	5th	Functional block diagram & Working of IC regulator LM 723 & LM 317.
	6th	***Possible Question Answer Discussion***
13th	1st	**Monthly Test-4**
	2nd	Review Class for Chapter No.- 01
	3rd	Review Class for Chapter No.- 02
	4th	Review Class for Chapter No.- 03
	5th	Review Class for Chapter No.- 04
	6th	Review Class for Chapter No.- 05
14th	1st	Review Class for Chapter No.- 06
	2nd	Review Class for Chapter No.- 07
	3rd	Previous Year (S- 22) Question Answer Discussion
	4th	Previous Year (S- 22) Question Answer Discussion
	5th	Previous Year (S- 21) Question Answer Discussion
	6th	Previous Year (S- 21) Question Answer Discussion
15th	1st	Previous Year (S- 20) Question Answer Discussion
	2nd	Previous Year (S- 20) Question Answer Discussion
	3rd	Previous Year (S- 21) Question Answer Discussion
	4th	Previous Year (S- 20) Question Answer Discussion
	5th	Previous Year (S- 19) Question Answer Discussion
	6th	Previous Year (S- 19) Question Answer Discussion

Coverage of Syllabus up to Internal Exam(I.A.)- Chapers-1,2,3&4.