PNS SCHOOL OF ENGINEERING & TECHNOLOGY
MARSHAGHAI,KENDRAPARA
LESSON PLAN
SESSON-(2022-2023)

SUBJECT: Th.4. ANALOG ELECTRONICS & LINEAR IC
DEPARTMENTN OF ELECTERONICS AND TELECOMMUNICATION

BRANCH: ELCTRONICS & TELECOMMUNICATION	**NO.OF CLASSES ALLOTED-6**	**NAME OF THE LECTURER:ER.AMARENDRA SAHOO**
WEEK	**DAY**	**THEORY**
1ST	1	**Unit-1:DIODE, TRANSISTORS AND CIRCUITS.** Working principle, of Diode & its current equation, Specification anduse of p-n junction diode.1.ifier & draw the curve.
	2	Breakdown of diode (Avlance&Zener Breakdown) and Construction, working,Characteristics
	3	Classification of Rectifiers and working of different types of Rectifiers- Half-Wave
	4	Rectifier, Full-Wave Rectifier (CENTRE TAPPED & BRIDGE type)
	5	Working principle of p-n-p and n-p-n transistor, different types of transistor connection (CB, CE and CC)connection
	6	input and output characteristics of transistor in different connections.
2ND	1	DOUBT CLEARING/INSIDEQUESTION/CLASS TEST
	2	Define ALPHA, BETA and GAMMA of transistors in various modes. Establish the Mathematical relationship between them
	3	Basic concept of Biasing, Types of Biasing,h-parameter model of BJT,load line (AC &DC) and determine the Q-point.
	4	1.7 Types of Coupling, working principle and use of R-C Coupled Amplifier

	5	DOUBT CLEARING/INSIDEQUESTION
	6	Frequency Responses of R-C coupled Amplifier & draw the curve
3RD	1	**Unit-2: AUDIO POWER AMPLIFIER** Classify Power Amplifier &Differentiate between Voltage and Power Amplifier
	2	1.2 Working principle of different types of Power Amplifier (Class-A, 1.2 Working principle of different types of Power Amplifier (Class-A,
	3	1.2 Working principle of different types of Power Amplifier (Class-A, Class-AB, Class-B and Class-C & Class D amplifier).
	4	worl king principle of class B amplifier.
	5	1.2 Working principle of different types of Power Amplifier (Class-AB, Class-B
	6	Class-C & Class D amplifier).
4TH	1	DOUBT CLEARING/INSIDEQUESTION
	2	1.3 Construction and working principle and advantages of Push Pull (Class-B) Amplifiers
	3	**Unit-3: FIELD EFFECT TRANSISTOR (FET)**. 3.1 FET & its classifications.
	4	Differentiate between JFET & BJT.
	5	3.2 Construction, working principle & characteristics of JEFT
	6	Explain JEFT as an amplifier, parameters of JFET & Establish relation among JFET parameters.
5TH	1	3.3 Construction & working principle MOSFET
	2	characteristics (Drain & Transfer)
	3	DOUBT CLEARING/INSIDEQUESTION
	4	3.4 Explain the operation of CMOS,
	5	VMOS & LDMOS.

	6	**Unit-4: FEED BACK AMPLIFIER & OSCILLATOR** Define & classify Feedback Amplifier, principle of negative feedback with the help of block diagram
6TH	1	Types of feedback – negative &positive feedback.
	2	Types of negative feedback – voltage shunt, voltage series, current shunt
	3	current series and characteristics voltage gain,
	4	DOUBT CLEARING/INSIDEQUESTION
	5	bandwidth , input Impedance output impedance
	6	stability, noise , distortion in amplifiers.
7TH	1	Oscillator -block diagram of sine wave oscillator ,T
	2	Types Requirement of oscillationBarkhausen criterion
	3	RC oscillators – RC phase shift ,Crystal,
	4	LC oscillators – Colpitts , Hartley & Wien Bridge Oscillators
	5	DOUBT CLEARING/INSIDEQUESTION
	6	Circuit operation, circuit diagram, equation for frequency of oscillation & frequency stability
8TH	1	**Unit-5: TUNED AMPLIFIER & WAVE SHAPING CIRCUIT** Defined and classify Tuned amplifier,
	2	Explain parallel Resonant circuit, Resonance Curve & sharpness of Resonance.
	3	working principle of Single tuned Voltage&
	4	Double tuned Amplifier & its limitation
	5	Different type of Non-linear circuits - Clipper,
	6	diode series &shunt, positive& negative biased
	1	unbiased and combinational clipper clippers circuit & its application
	2	Different type of Clamper circuit (positive & negative clampers) & its

9TH	3	Working of Astable, Monostable & BistableMultivibrator with circuit diagram
	4	5.6 Working & use of Integrator and Differentiator circuit using R- C circuit
	5	DOUBT CLEARING/INSIDEQUESTION
	6	output waveforms & frequency response.
10TH	1	**Unit-6: OPERATIONAL AMPLIFIER CIRCUITS & FEEDBACK CONFIGURATIONS** 6.1 Differential amplifier & explain its configuration &significance.
	2	Block diagram representation of a typical Op- Amp, its eq schematic symbo
	3	Discuss the types of integrated circuits manufacturer's designations of ICs, Package types, pin identification
	4	temperature and ordering information.
	5	Define the following electrical characteristics input offset voltage, input offset current,
	6	CMMR, Large signal voltage gain, Slew rate .
11TH	1	6.5 Draw and explain the Open Loop configuration (inverting, non-inverting Amplifier)
	2	Draw the circuit diagram of the voltage series feedback amplifier and derive the close loop Voltage gain, gain of feedback circuits input resistance,
	3	output resistance, bandwidth and total output offset voltage with feedback.
	4	Draw the circuit diagram of the voltage shunt feedback amplifier and derive the closeloop, Voltage gain of feedback circuits and input resistance,
	5	DOUBT CLEARING/INSIDEQUESTION/CLASS TEST
	6	output resistance, bandwidth and total output offset voltage with feedback.

12TH	1	**Unit-7. APPLICATION OF OPERATIONAL AMPLIFIER,** TIMER CIRCUITS& IC voltage regulator Discuss the summing scaling and averaging of inverting and non-inverting amplifiers
	2	DC & AC Amplifies using OP-AMP.
	3	Integrator and differentiator using op-amp.
	4	Active filter and describe the filter design of fast order low Pass Butterworth
	5	Concept of Zero-Crossing Detector using Op-Amp
	6	DOUBT CLEARING/INSIDEQUESTION
13TH	1	Block diagram and operation of IC 555 timer &IC 565 PLL& its applications.
	2	Working of Current to voltage Convertor using Operational Amplifier
	3	Working of the Voltage to Frequency Convertor using Operational Amplifier.
	4	Working of the Frequency to Voltage Conversion using Operational Amplifier.
	5	Operation of power supply using 78XX and 79XX,LM 317 Series with their PIN configuration
	6	Functional block diagram & Working of IC regulator LM 723 & LM 317.

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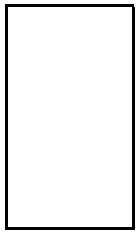

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