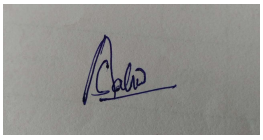
PNS SCHOOL OF ENGG. & TECH., MARSHAGHAI DEPARTMENT OF ELECTRONICS & TELECOMMUNICATION ENGINEERING
LESSON PLAN 2024-2025

BRANCHE: ELECTRONICS & TELECOMMUNICATION.	**SEMESTER : 4TH**	**NAME OF TEACHING FACULTY :** **ER. AMARENDRA SAHOO**
SUBJECT: : Th.4. ANALOG ELECTRONICS & LINEAR IC	**NO. OF DAYS/ PER WEEK CLASS ALLOTTED : 05**	**SEMESTER FROM DATE : 04.02.2025 TO 17.05.2025** **NO. OF WEEKS : 14**

WEEK	CLASSDAY	THEORY TOPICS
1ST	1st	Working principle, of Diode & its current equation, Specification anduse of p-n junction diode.
	2nd	Breakdown of diode (Avlance&Zener Breakdown) and Construction, working, Characteristics
	3rd	Classification of Rectifiers and working of different types of Rectifiers- Half-Wave Rectifier, Full-Wave Rectifier (CT & BRIDGE type)
	4th	Working principle of p-n-p and n-p-n transistor, different types of transistor connection(CB, CE and CC)& input and output characteristics of transistor in different connections.
	5th	Define ALPHA, BETA and GAMMA of transistors in various modes. Establish the Mathematical relationship between them.
2ND	1st	Basic concept of Biasing, Types of Biasing,h-parameter model of BJT,load line (AC &DC) and determine the Q-point
	2nd	Types of Coupling, working principle and use of R-C Coupled Amplifier & Frequency
	3rd	Responses of R-C coupled Amplifier & draw the curve.
	4th	Unit-2: AUDIO POWER AMPLIFIERS. 1.1 Classify Power Amplifier &Differentiate between Voltage and Power Amplifier
	5th	1.2 Working principle of different types of Power Amplifier (Class-A
3RD	1st	Class-AB, Class-B
	2nd	Class-C & Class D amplifier
	3rd	Construction and working principle and advantages of Push Pull (Class-B) Amplifiers
	4th	DOUBT CLEARING/INSIDEQUESTION
	5th	Unit-3: FIELD EFFECT TRANSISTOR (FET). 3.1 FET & its classifications &Differentiate between JFET & BJT.
	1st	Construction, working principle & characteristics of JEFT

4TH	**2nd**	Explain JEFT as an amplifier, parameters of JFET & Establish relation among JFET parameters
	3rd	Construction & working principle MOSFET
	4th	its classification & characteristics (Drain& Transfer)
	5th	Explain the operation of CMOS
5TH	**1st**	Explain the operation of VMOS
	2nd	Explain the operation of LDMOS
	3rd	Unit-4: FEED BACK AMPLIFIER & OSCILLATOR 4.1 Define & classify Feedback Amplifier, principle of negative feedback with the help
	4th	Types of feedback – negative &positive feedback.
	5th	4.2 Types of negative feedback – voltage shunt, voltage series, current shunt& current series
6TH	**1st**	characteristics voltage gain, bandwidth , input Impedance output impedance, stability, noise , distortion in amplifiers.
	2nd	4.3 Oscillator -block diagram of sine wave oscillator
	3rd	Types Requirement of oscillationBarkhausen criterion
	4th	RC oscillators – RC phase shift ,Crysta
	5th	LC oscillators – Colpitts
7TH	**1st**	Hartley Bridge Oscillators :Circuit operation, circuit diagram, equation for frequency ofoscillation & frequency stability
	2nd	Wien Bridge Oscillators :Circuit operation, circuit diagram, equation for frequency of oscillation & frequency stability
	3rd	DOUBT CLEARING/INSIDEQUESTION
	4th	Unit-5: TUNED AMPLIFIER & WAVE SHAPING CIRCUIT Defined and classify Tuned amplifier
	5th	Explain parallel Resonant circuit, Resonance Curve & sharpness of Resonance.
8TH	**1st**	working principle of Single tuned Voltage& Double tuned Amplifier & its limitation
	2nd	Different type of Non-linear circuits
	3rd	Clipper, diode series &shunt, positive& negative biased & unbiased and combinational clipper clippers circuit & its application.
	4th	Different type of Clamper circuit (positive & negative clampers) & its application.
	5th	5.5 Working of Astable, Monostable & BistableMultivibrator with circuit diagram.
	1st	5.6 Working& use of Integrator and Differentiator circuit using R- C circuit(Linear), input / output waveforms & frequency response
	2nd	Unit-6: OPERATIONAL AMPLIFIER CIRCUITS & FEEDBACK CONFIGURATIONS 6.1 Differential amplifier & explain its configuration &significance.

9TH	**3rd**	Block diagram representation of a typical Op- Amp, its equivalent circuits and draw the schematic symbol
	4th	Discuss the types of integrated circuits manufacturer's designations of ICs, Package types, pin identification and temperature and ordering information.
	5th	Define the following electrical characteristics input offset voltage, input offset current, CMMR, Large signal voltage gain, Slew rate .
10TH	**1st**	DOUBT CLEARING/INSIDEQUESTION
	2nd	Draw and explain the Open Loop configuration
	3rd	inverting, non-inverting Amplifier
	4th	Draw the circuit diagram of the voltage series feedback amplifier and derive the close loop Voltage gain,
	5th	gain of feedback circuits input resistance, and output resistance, bandwidth and total output offset voltage with feedback.
11TH	**1st**	DOUBT CLEARING/INSIDEQUESTION
	2nd	Draw the circuit diagram of the voltage shunt feedback amplifier and derive the close loop, Voltage gain,
	3rd	DOUBT CLEARING/INSIDEQUESTION
	4th	feedback circuits and input resistance, and output resistance, bandwidth and total output offset voltage with feedback.
	5th	DOUBT CLEARING/INSIDEQUESTION
12TH	**1st**	Unit-7. APPLICATION OF OPERATIONAL AMPLIFIER, TIMER CIRCUITS& 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
13TH	**1st**	DOUBT CLEARING/INSIDEQUESTION
	2nd	Block diagram and operation of IC 555 timer &IC 565 PLL& its applications.
	3rd	DOUBT CLEARING/INSIDEQUESTION
	4th	Working of Current to voltage Convertor using Operational Amplifier
	5th	Working of the Voltage to Frequency Convertor using Operational Amplifier.
14TH	**1st**	Working of the Frequency to Voltage Conversion using Operational Amplifier.
	2nd	DOUBT CLEARING/INSIDEQUESTION
	3rd	Operation of power supply using 78XX and 79XX,LM 317 Series with their PIN configuration
	4th	Functional block diagram & Working of IC regulator LM 723 & LM 317.
	5th	DOUBT CLEARING/INSIDEQUESTION



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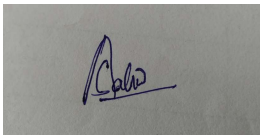

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