Lesson Plan

	Discipline: ETC	Semester 4th Summer-2025	Name of the Teachng Faculty:- Asutosh Sahoo (ETC Engg)
Sl. No.	Subject-Th.4. (ANALOG ELECTRONICS & LINEAR IC)	No. Of Days/Week class alloted:05	Semester From date: 04.02.2025 To date: 17.05.2025 (No of weeks: 15)
	Weeks/Months	Class Day	Topic
1	1st week of February	1st	Unit-1:DIODE, TRANSISTORS AND CIRCUITS. 1.1 Working principle, of Diode & its current equation, Specification anduse of p-n junction diode.
		2nd	1.2 Breakdown of diode (Avlance&Zener Breakdown) and Construction, working, Characteristics
		3rd	1.3 Classification of Rectifiers and working of different types of Rectifiers- Half-Wave Rectifier, Full-Wave Rectifier (CT & BRIDGE type)
		4th	1.4 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
		5th	1.4 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
2	2nd week of February	1st	1.5 Define ALPHA, BETA and GAMMA of transistors in various modes. Establish the Mathematical relationship between them.
		2nd	1.6 Basic concept of Biasing, Types of Biasing,h-parameter model of BJT,load line (AC &DC) and determine the Q-point.
		3rd	1.6 Basic concept of Biasing, Types of Biasing,h-parameter model of BJT,load line (AC &DC) and determine the Q-point.
		4th	1.7 Types of Coupling, working principle and use of R-C Coupled Amplifier & Frequency
		5th	1.7 Responses of R-C coupled Amplifier & draw the curve.
3	3rd week of February	1st	Unit-2: AUDIO POWER AMPLIFIERS.
		2nd	1.1 Classify Power Amplifier &Differentiate between Voltage
		3rd	1.2 Working principle of different types of Power Amplifier
			1,2(Class-A, Class-AB, Class-B and Class-C & Class D amplifier).
		4th	1,2(Class-A, Class-AB, Class-B and Class-C & Class D amplifier).
4	4th week of February	1st	1.3 Construction and working principle and advantages of Push Pull (Class-B) Amplifiers
		2nd	Unit-3: FIELD EFFECT TRANSISTOR (FET).
		3rd	3.1 FET & its classifications &Differentiate between JFET & BJT.
		4th	3.2 Construction, working principle & characteristics of JEFT &Explain JEFT as an
		5th	3.2 Construction, working principle & characteristics of JEFT &Explain JEFT as an

5	1st week of March	1st	3.2 amplifier, parameters of JFET & Establish relation among JFET parameters.
		2nd	3.3 Construction & working principle MOSFET & its classification & characteristics (Drain & Transfer)
		3rd	3.4 Explain the operation of CMOS, VMOS & LDMOS.
		4th	3.4 Explain the operation of CMOS, VMOS & LDMOS.
		4th	Unit-4: FEED BACK AMPLIFIER & OSCILLATOR
6	2nd week of March	1st	4.1 Define & classify Feedback Amplifier, principle of negative feedback with the help of block diagramla
		2nd	4.1Types of feedback – negative &positive feedback.
		3rd	4.2 Types of negative feedback – voltage shunt, voltage series, current shunt& current series
		4th	4.2and characteristics voltage gain, bandwidth , input Impedance output impedance, stability, noise , distortion in amplifiers.
		4th	4.2and characteristics voltage gain, bandwidth , input Impedance output impedance, stability, noise , distortion in amplifiers.
7	3rd week of March	1st	4.3 Oscillator -block diagram of sine wave oscillator ,Types Requirement of oscillationBarkhausen criterion .
		2nd	4.4 RC oscillators – RC phase shift ,Crystal, LC oscillators – Colpitts , Hartley & Wien Bridge Oscillators
		3rd	4.4Circuit operation, circuit diagram, equation for frequency ofoscillation & frequency stability
		4th	4.4Circuit operation, circuit diagram, equation for frequency ofoscillation & frequency stability
		4th	Unit-5: TUNED AMPLIFIER & WAVE SHAPING CIRCUIT
8	4th week of March	1st	5.1 Defined and classify Tuned amplifier, Explain parallel Resonant circuit, Resonance Curve & sharpness of Resonance.
		2nd	5.2 working principle of Single tuned Voltage& Double tuned Amplifier & its limitation
		3rd	5.3 Different type of Non-linear circuits - Clipper, diode series &shunt, positive& negative
		4th	5.4 Different type of Clamper circuit (positive & negative clampers) & its application.
		5th	5.4 Different type of Clamper circuit (positive & negative clampers) & its application.
9	1st week of April	1st	5.5 Working of Astable, Monostable & BistableMultivibrator with circuit diagram.
		2nd	5.6 Working& use of Integrator and Differentiator circuit using
		3rd	5.6 R- C circuit(Linear), input / output waveforms & frequency response
		4th	5.6 R- C circuit(Linear), input / output waveforms & frequency response
		5th	Unit-6: OPERATIONAL AMPLIFIER CIRCUITS & FEEDBACK CONFIGURATIONS

10	2nd week of April	1st	6.1 Differential amplifier & explain its configuration &significance.
		2nd	6.2 Block diagram representation of a typical Op- Amp, its equivalent circuits and draw the schematic symbol
		3rd	6.3 Discuss the types of integrated circuits manufacturer's designations of ICs, Package types, pin identification and temperature and ordering information.
		4th	6.3 Discuss the types of integrated circuits manufacturer's designations of ICs, Package types, pin identification and temperature and ordering information.
		5th	6.4 Define the following electrical characteristics input offset voltage, input offset current, CMMR, Large signal voltage gain, Slew rate .
11	3rd week of April	1st	6.5 Draw and explain the Open Loop configuration (inverting, non-inverting Amplifier)
		2nd	amplifier and derive the close loop Voltage gain, gain of feedback circuits input resistance, and output resistance, bandwidth and total output offset voltage with feedback.
		3rd	amplifier and derive the close loop Voltage gain, gain of feedback circuits input resistance, and output resistance, bandwidth and total output offset voltage with feedback.
		4th	6.7 Draw the circuit diagram of the voltage shunt feedback amplifier and derive the close loop, Voltage gain
		5th	6.7 votage gain of feedback circuits and input resistance, and output resistance, bandwidth and total output offset voltage with feedback.
12	4th week of April	1st	Unit-7. APPLICATION OF OPERATIONAL AMPLIFIER, TIMER CIRCUITS& IC voltage regulator
		2nd	7.1 Discuss the summing scaling and averaging of inverting and non-inverting amplifiers
		3rd	7.2 DC & AC Amplifies using OP-AMP.
		4th	7.2 DC & AC Amplifies using OP-AMP.
		5th	7.3 Integrator and differentiator using op-amp. feedback control:
13	1st week of May	1st	7.4 Active filter and describe the filter design of fast order low Pass Butterworth
		2nd	7.5 Concept of Zero-Crossing Detector using Op-Amp
		3rd	7.6 Block diagram and operation of IC 555 timer &IC 565 PLL& its applications.
		4th	7.6 Block diagram and operation of IC 555 timer &IC 565 PLL& its applications.
		5th	7.7 Working of Current to voltage Convertor using Operational Amplifier
		1st	7.8 Working of the Voltage to Frequency Convertor using Operational Amplifier

14	2nd week of May	2nd	7.9 Working of the Frequency to Voltage Conversion using Operational Amplifier.
		3th	7.10 Operation of power supply using 78XX and 79XX
		4th	7.10LM 317 Series with their PIN configuration
		5th	7.11 Functional block diagram & Working of IC regulator LM 723 & LM 317
15	3rd week of May	1st	7.6 Block diagram and operation of IC 555 timer &IC 565 PLL & its applications
		2nd	7.8 Working of the Voltage to Frequency Convertor using
		3rd	7.8 Working of the Voltage to Frequency Convertor using
		4th	8.1 Frequencyresponse,Relationship between time & frequency response
		5th	7.10LM 317 Series with their PIN configuration

Asutosh Sahoo

Signature of the Teacher