



UTKAL INSTITUTE OF ENGINEERING & TECHNOLOGY

DISCIPLINE:	SEMESTER:	NAME OF THE TEACHING FACULTY:	
ETC	4TH Sem	Er.BISIKESHAN SAHOO	
SUBJECT: Th.4. ANALOG ELECTRONICS & LINEAR IC	No of Days/Per week class allotted: 4 Class P/W(60)	Semester From Date:16/01/2024 To Date:26/04/2024 No. Of Weeks: 15	
WEEK	CLASS DAY		REMARKS
1 st	1 st	1.1 Working principle, of Diode & its current equation, Specification and use of p-n junction diode	Date
	2 nd	1.2 Breakdown of diode (Avlance&Zener Breakdown) and Construction, working, Characteristics	Dean/Principal
	3 rd	1.3 Classification of Rectifiers and working of different types of Rectifiers- Half-Wave Rectifier, Full-Wave Rectifier (CT & BRIDGE type)	
	4 th	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 connections	
2 nd	1 st	1.5 Define ALPHA, BETA and GAMMA of transistors in various modes. Establish the Mathematical relationship between them.	
	2 nd	1.6 Basic concept of Biasing, Types of Biasing, h-parameter model of BJT, load line (AC & DC) and determine the Q-point	
	3 rd	1.7 Types of Coupling, working principle and use of R-C Coupled Amplifier & Frequency Responses of R-C coupled Amplifier & draw the curve.	
	4 th	1.1 Working principle, of Diode & its current equation, Specification and use of p-n junction diode	
		1.2 Breakdown of diode (Avlance&Zener Breakdown) and Construction, working, Characteristics	

3rd	1 st	1.3 Classification of Rectifiers and working of different types of Rectifiers- Half-Wave Rectifier, Full-Wave Rectifier (CT & BRIDGE type)		
	2 nd	1.1 Classify Power Amplifier & Differentiate between Voltage and Power Amplifier		
	3 rd	types of Power Amplifier (Class-A, Class-AB, Class-B and Class-C & Class D amplifier).		
	4 th	types of Power Amplifier (Class-A, Class-AB, Class-B and Class-C & Class D amplifier).		
4th	1 st	1.3 Construction and working principle and advantages of Push Pull (Class-B) Amplifiers		
	2 nd	3.2 Construction, working principle & characteristics of JEFT & Explain JEFT as an amplifier, parameters of JFET & Establish relation among JFET parameters.		
	3 rd	3.3 Construction & working principle MOSFET & its classification & characteristics (Drain & Transfer)		
	4 th	3.4 Explain the operation of CMOS, VMOS & LDMOS.		
5 th	1 st	3.1 FET & its classifications & Differentiate between JFET & BJT.		
	2 nd	3.2 Construction, working principle & characteristics of JEFT & Explain JEFT as an amplifier, parameters of JFET & Establish relation among JFET parameters.		
	3 rd	3.3 Construction & working principle MOSFET & its classification & characteristics (Drain & Transfer)		
	4 th	3.4 Explain the operation of CMOS, VMOS & LDMOS		
6 th	1 st	3.1 FET & its classifications & Differentiate between JFET & BJT.		
	2 nd	3.1 FET & its classifications & Differentiate between JFET & BJT.		
	3 rd	3.2 Construction, working principle & characteristics of JEFT & Explain JEFT as an amplifier, parameters of JFET & Establish relation among JFET parameters.		
	4 th	3.3 Construction & working principle MOSFET & its classification & characteristics (Drain & Transfer)		

7 th	1 st	3.1 FET & its classifications & Differentiate between JFET & BJT.		
	2 nd	3.1 FET & its classifications & Differentiate between JFET & BJT.		
	3 rd	4.1 Define & classify Feedback Amplifier, principle of negative feedback with the help of block diagram, Types of feedback – negative & positive feedback.		
	4 th	4.2 Types of negative feedback – voltage shunt, voltage series, current shunt & current series and characteristics voltage gain, bandwidth, input Impedance output		
8 th	1 st	sine wave oscillator, Types		
	2 nd	4.4 RC oscillators – RC phase shift, Crystal, LC oscillators – Colpitts, Hartley & Wien Bridge Oscillators :Circuit operation, circuit diagram, equation for frequency of oscillation & frequency stability		
	3 rd	4.1 Define & classify Feedback Amplifier, principle of negative feedback with the help of block diagram, Types of feedback – negative & positive feedback		
	4 th	4.2 Types of negative feedback – voltage shunt, voltage series, current shunt & current series and characteristics voltage gain, bandwidth, input Impedance output impedance, stability, noise, distortion in amplifiers.		
9 th	1 st	4.3 Oscillator -block diagram of sine wave oscillator, Types Requirement of oscillation Barkhausen criterion		
	2 nd	4.4 RC oscillators – RC phase shift, Crystal, LC oscillators – Colpitts, Hartley & Wien Bridge Oscillators :Circuit operation, circuit diagram, equation for frequency of oscillation & frequency stability		
	3 rd	5.7 Traffic Management		
	4 th	5.1 Defined and classify Tuned amplifier, Explain parallel Resonant circuit, Resonance Curve & sharpness of Resonance		

10 th	1 st	5.2 working principle of Single tuned Voltage & Double tuned Amplifier & its limitation		
	2 nd	5.3 Different type of Non-linear circuits - Clipper, diode series & shunt, positive & negative biased & unbiased and combinational clipper clippers circuit & its application.		
	3 rd	5.4 Different type of Clamper circuit (positive & negative clampers) & its application.		
	4 th	5.5 Working of Astable, Monostable & Bistable Multivibrator with circuit diagram.		
11 th	1 st	5.6 Working & use of Integrator and Differentiator circuit using R-C circuit (Linear), input / output waveforms & frequency response		
	2 nd	6.1 Differential amplifier & explain its configuration & significance		
	3 rd	6.2 Block diagram representation of a typical Op- Amp, its equivalent circuits and draw the schematic symbol		
	4 th	6.3 Discuss the types of integrated circuits manufacturer's designations of ICs, Package types, pin identification and temperature and ordering information. 6.4 Define the following electrical characteristics input offset voltage, input offset current,		
12 th	1 st	6.5 Draw and explain the Open Loop configuration (inverting, non-inverting Amplifier) 6.6 Draw the circuit diagram of the voltage series feedback 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		
	2 nd	6.7 Draw the circuit diagram of the voltage shunt feedback amplifier and derive the close loop, Voltage gain, gain of feedback circuits and input resistance, and output resistance, bandwidth and total output offset voltage with feedback.		

	3 rd	7.1 Discuss the summing scaling and averaging of inverting and non-inverting amplifiers		
	4 th	7.2 DC & AC Amplifiers using OP-AMP.		
13th	1 st	7.3 Integrator and differentiator using op-amp. 7.4 Active filter and describe the filter design of fast order low Pass Butterworth		
	2 nd	7.5 Concept of Zero-Crossing Detector using Op-Amp		
	3 rd	7.6 Block diagram and operation of IC 555 timer & IC 565 PLL & its applications.		
	4 th	7.7 Working of Current to voltage Converter using Operational Amplifier		
14th	1 st	7.8 Working of the Voltage to		
	2 nd	7.9 Working of the Frequency to V		
	3 rd	7.10 Operation of power supply using 78XX and 79XX, LM 317 Series with their PIN configuration		
	4 th	7.11 Functional block diagram & Working of IC regulator LM 723 & LM 317		
15th	1 st	7.2 DC & AC Amplifiers using OP-AMP.		
	2 nd	7.3 Integrator and differentiator using op-amp. 7.4 Active filter and describe the filter design of fast order low Pass Butterworth		
	3 rd	Doubt Clear Class		
	4 th	SAMPLE PAPER QUESTION DISCUSSION		

Jyotipnakash Swain

HOD

Chittaranjan Panda

DEAN

(Signature)

PRINCIPAL