

SUBJECT-Th4. ANALOG ELECTRONICS AND OP-AMP				
NAME OF THE FACULTY- Siba Prasad Panda				
MONTH	MODULE/UNIT	COURSE TO BE COVERED	TOTAL NO. OF CLASS	REMARK
January	UNIT-1	1 P-N JUNCTION DIODE	06	
		1. 1 P-N Junction Diode	01	
		1. 2 Working of Diode		
		1. 3V-I characteristic of PN junction Diode.	01	
		1. 4 DC load line	01	
		1. 5 Important terms such as Ideal Diode, Knee voltage		
		1. 6 Junctions break down.	01	
		1.6.1 Zener breakdown		
		1.6.2 Avalanche breakdown		
		1. 7 P-N Diode clipping Circuit.	01	
		1.8 P-N Diode clamping Circuit	01	
January	UNIT-2	2.SPECIAL SEMICONDUCTOR DEVICES	05	
		2.1 Thermistors, Sensors & barretters	02	
		2. 2 Zener Diode	01	
		2. 3 Tunnel Diode	01	
		2. 4 PIN Diode	01	
	UNIT-3	3.RECTIFIER CIRCUITS & FILTERS	07	
		3.1 Classification of rectifiers	01	
		3.2 Analysis of half wave, full wave centre tapped and Bridge rectifiers	01	
		3.2.1 DC output current and voltage	01	
		3.2.2 RMS output current and voltage	01	
		3.2.3 Rectifier efficiency		
		3.2.4 Ripple factor	01	
		3.2.5 Regulation		
		3.2.6 Transformer utilization factor	01	
		3.2.7 Peak inverse voltage		

		3.3 Filters: 3.3.1 Shunt capacitor filter 3.3.2 Choke input filter 3.3.3 π filter	01	
February	UNIT-4	4.TRANSISTORS	07	
		4.1 Principle of Bipolar junction transistor	01	
		4.2 Different modes of operation of transistor	01	
		4.3 Current components in a transistor	01	
		4.4 Transistor as an amplifier	01	
		4.5 Transistor circuit configuration & its characteristics 4.5.1 CB Configuration 4.5.2 CE Configuration 4.5.3 CC Configuration	03	
February	UNIT-5	5. TRANSISTOR CIRCUITS	07	
		5.1 Transistor biasing	01	
		5.2 Stabilization	01	
		5.3 Stability factor	01	
		5.4 Different method of Transistors Biasing 5.4.1 Base resistor method 5.4.2 Collector to base bias 5.4.3 Self bias or voltage divider method	04	
February	UNIT-6	6.TRANSISTOR AMPLIFIERS & OSCILLATORS	07	
		6.1 Practical circuit of transistor amplifier	01	
		6.2 DC load line and DC equivalent circuit		
		6.3 AC load line and AC equivalent circuit	01	
		6.4 Calculation of gain		
		6.5 Phase reversal	01	
		6.6 H-parameters of transistors		
		6.7 Simplified H-parameters of transistors	01	

		6.8 Generalised approximate model 6.9 Analysis of CB, CE, CC amplifier using generalised approximate model	01	
		6.9 Analysis of CB, CE, CC amplifier using generalised approximate model	01	
		6.10 Multi stage transistor amplifier 6.10.1 R.C. coupled amplifier 6.10.2 Transformer coupled amplifier	02	
March		6.11 Feed back in amplifier 6.11.1 General theory of feed back 6.11.2 Negative feedback circuit 6.11.3 Advantage of negative feed back	01	
		6.12 Power amplifier and its classification 6.12.1 Difference between voltage amplifier and power amplifier	01	
		6.12.2 Transformer coupled class A power amplifier 6.12.3 Class A push - pull amplifier 6.12.4 Class B push - pull amplifier	01	
		6.13 Oscillators 6.13.1 Types of oscillators 6.13.2 Essentials of transistor oscillator 6.13.3 Principle of operation of tuned collector, Hartley, colpitt, phase shift, wein- bridge oscillator (no mathematical derivations)	02	
March	UNIT-7	7. FIELD EFFECT TRANSISTOR	06	
		7.1 Classification of FET	01	
		7.2 Advantages of FET over BJT 7.3 Principle of operation of BJT	02	
		7.4 FET parameters (no mathematical derivation) 7.4.1 DC drain resistance 7.4.2 AC drain resistance 7.4.3 Trans-conductance	02	
		7.5 Biasing of FET	01	
April	UNIT-8	8. OPERATIONAL AMPLIFIERS	09Z	
		8.1 General circuit simple of OP-AMP and IC - CA - 741 OP AMP	01	
		8.2 Operational amplifier stages 8.3 Equivalent circuit of operational amplifier	01	
		8.4 Open loop OP-AMP configuration	01	

		8.5 OPAMP with fed back	01	
		8.6 Inverting OP-AMP		
		8.7 Non inverting OP-AMP	01	
		8.8 Voltage follower & buffer	01	
		8.9 Differential amplifier	03	
		8.9.1 Adder or summing amplifier		
		8.9.2 Sub tractor		
		8.9.3 Integrator		
		8.9.4 Differentiator		
		8.9.5 Comparator		

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