

LESSON PLAN : Analog Electronics		
Discipline: Computer Engineering	Semester: 2 nd	Name of the Teaching Faculty: Mr. Amit Kumar Lecturer Computer Engineering
No. of days per week class allotted: 2		No. of Weeks: 15
Week	Class Day	Theory
1st		1. P-N JUNCTION DIODE:
	1st	1.1. Overview of the syllabus concept of analog electronics and introduction to PN Junction diode
		1.2. Working of Diode 1.3. V-I characteristic of PN junction Diode.
	2nd	1.4 DC load line 1.5 Important terms such as Ideal Diode, Knee voltage.
		Junctions break down. 1.6.1 Zener breakdown 1.6.2 Avalanche breakdown
2nd	1st	1.7 P-N Diode clipping Circuit. 1.8 P-N Diode clamping Circuit
		SPECIAL SEMICONDUCTOR DEVICES:
	2nd	1 Zener diode, Thermistors, varistor
		2 Zener diode as voltage regulator
3rd	1 st	3. RECTIFIER CIRCUITS & FILTERS:
		3.1 Classification of rectifiers
		3.2 Analysis of half wave, full wave centre tapped and Bridge rectifiers
	2nd	3 Calculate: 3.2.1 DC output current and voltage 3.2.2 RMS output current and voltage
		3.2.3 Rectifier efficiency 3.2.4 Ripple factor
4th	1st	3.2.5 Regulation 3.2.6 Transformer utilization factor 3.2.7 Peak inverse voltage 3.2.7 Peak inverse voltage
	2nd	3.3 Filters:
		3.3.1 Shunt capacitor filter
		3.3.2 Choke input filter 3.3.3 π filter
5th		4. TRANSISTORS:
		4.1 Principle of Bipolar junction transistor
		4.2 Different modes of operation of transistor
6th	1st	4.3 Current components in a transistor
		4.4 Transistor as an amplifier
	2nd	4.5 Transistor circuit configuration & its characteristics
		4.5.1 CB Configuration
		4.5.2 CE Configuration
7th	1st	4.5.3 CC Configuration

		5. TRANSISTOR CIRCUITS:
	2nd	5.1 Transistor biasing
		5.2 Stabilization
		5.3 Stability factor
8th	1st	5.4 Different method of Transistors Biasing
		5.4.1 Base resistor method
	2nd	5.4.2 Collector to base bias
		5.4.3 Self bias or voltage divider method
9th		6. TRANSISTOR AMPLIFIERS & OSCILLATORS:
	1st	6.1 Practical circuit of transistor amplifier 6.2 DC load line and DC equivalent circuit
		6.3 AC load line and AC equivalent circuit
	2nd	6.4 Calculation of gain 6.5 Phase reversal
		6.6 H-parameters of transistors 6.7 Simplified H-parameters of transistors
10th	1st	6.8 Generalised approximate model 6.9 Analysis of CB, CE, CC amplifier using generalised approximate model
		6.10 Multi stage transistor amplifier 6.10.1 R.C. coupled amplifier
	2nd	6.10.2 Transformer coupled amplifier
		6.11 Feed back in amplifier 6.11.1 General theory of feed back
11th	1st	6.11.2 Negative feedback circuit 6.11.3 Advantage of negative feed back
		6.12 Power amplifier and its classification 6.12.1 Difference between voltage amplifier and power amplifier
	2nd	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
		6.13 Oscillators 6.13.1 Types of oscillators
12th	1st	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)
		7. FIELD EFFECT TRANSISTOR:
	2nd	7.1 Classification of FET
		7.2 Advantages of FET over BJT
13th	1st	7.3 Principle of operation of BJT 7.4 FET parameters (no mathematical derivation) 7.4.1 DC drain resistance
	2nd	7.4.2 AC drain resistance 7.4.3 Trans-conductance
		7.5 Biasing of FET
		8. OPERATIONAL AMPLIFIERS:

		8.1 General circuit simple of OP-AMP and IC – CA – 741 OP AMP
14th	1st	8.2 Operational amplifier stages
		8.3 Equivalent circuit of operational amplifier
	2nd	8.4 Open loop OP-AMP configuration
		8.5 OPAMP with fed back
15th	1st	8.6 Inverting OP-AMP 8.7 Non inverting OP-AMP
		8.8 Voltage follower & buffer 8.9 Differential amplifier
	2nd	8.9.1 Adder or summing amplifier 8.9.2 Sub tractor 8.9.3 Integrator
		8.9.4 Differentiator 8.9.5 Comparator