SATISH KISPOTTA

LESSON PLAN

Subject: Basics of Electronics Engineering **Semester**: Second **Branch**: CSE

Unit Number	Name of the Topic	No of Class Required	Remarks
Unit 1.0 **Semiconductor Diode**	PN- Junction diode working, formation of depletion layer	1	
	construction, symbol and equivalent circuits of pn- Junction diode	1	
	Barrier potential voltage, forward and reverse biasing V-I characteristics of diode	2	
	Diode current equation, Static and Dynamic resistance	2	
	Quiz conduction, Doubt Class	1	
	Unit Test	1	
Unit-2.0 **Rectifiers and Filters**	Need for rectification, rectifier Parameters, PIV, Ripple factor,	1	
	Efficiency, Peak Inverse Voltage (PIV), Transformer utilization factor (TUF) of rectifiers	1	
	Types of rectifier : Half Wave Rectifier, Full Wave rectifier, Center taped and Bridge type full wave rectifier	2	
	Filter Circuits: L-filter, C-filter, LCfilter, CLC- filter	2	
	Quiz conduction, Doubt Class	1	
	Unit Test	1	
Unit-3.0 **Diode Circuits**	Zener diode: working, construction and equivalent circuits of Zener diode	1	
	Zener and avalanche breakdown phenomenon, Zener diode as voltage regulator	2	
	Clipper: Function of clipper circuit, circuit diagram, types of clipper : positive and negative clipper Circuits	2	
	Clamper: Function of clamper, types of clamper, positive and negative clamper circuits	2	
	Quiz conduction, Doubt Class	1	
	Unit Test	1	
Unit-4.0 Bipolar Junction Transistor (BJT) and Field effect transistor (FET)	BJT: Working, types of BJT : NPN and PNP, construction and operation of NPN and PNP transistor, base width modulation	2	
	Modes of operation : active, saturation and cutoff, current amplification factor **β and α,**	1	
	Transistor biasing: need for biasing, types of biasing, base resistor biasing, base collector biasing, voltage divider biasing, thermal runaway	1	
	Transistor configurations: Common Emitter (CE), Common Base(CB) and Common collector configuration circuit , working and input and output characteristics, gain, amplification factor	3	
	Field Effect Transistor (FET): Working, construction, input and output characteristics, drain current, pinch-off voltage	2	
	Quiz conduction, Doubt Class	1	

	Unit Test	1	
Unit-5.0 Introduction to Operational Amplifier(Op-Amp)	Basics of differential amplifier, Working principle, input and output characteristics, amplifier, different modes of operation	2	
	Basics of Op-Amp: OP-AMPIC-741, functional block diagram, virtual ground, configurations of working : inverting and non inverting , parameters : I/O resistance, gain, slew rate, bandwidth, power,various IC packages, identification of specifications from data sheet	3	
	Applications op amp : Summing, multiplier, and divider amplifier, integrator and differentiator, Log and Anti-Log amplifier, instrumentation, oscillators	2	
	Quiz conduction, Doubt Class	1	
	Unit Test	1	
Total Class Required		45	