GOVERNMENT CO-ED POLYTECHNIC, RAIPUR

DEPARTMENT OF ELECTRICAL ENGINEERING

LESSON PLAN				
Name of the faculty :- Semester :- 3RD Subject **Basic Electronics** Lesson Plan Duration (CL+LI+SL) :-				
S.No.	No. Of Periods	Topic Name	Practical	Remarks
	(Approx.Hrs: CI+ LI =17)	**Unit-1.0 Semiconductor Diode**		
1	3	pn- Junction diode: working, formation of depletion layer, construction, symbol and equivalent circuits of pn-Junction diode.	LE1.1 Test the performance of pn-Junction diode in the forward and reverse biased condition. LE-1.2 Identify the different refrigeration system and components in various application systems such as air conditioner, domestic refrigerator, water cooler etc. LE-1.3 Measure different operating parameters like pressure, temperature, humidity, velocity etc at different locations in a given system.	
2	2	Barrier potential voltage, forward and reverse biasing, V-I characteristics of diode.		
3	3	Diode current equation, Static and Dynamic resistance, Diode capacitance		
4	4	Symbol, working and characteristic of other diodes like: LED,Photo diode		
5	2	Symbol, working and characteristic of other diodes like: Varactor diode		
	(CI-14,LI-3)			
	(Approx. Hrs: CI+ LI =13)	**Unit-2 Rectifiers and Filters**		
1	2	Need for rectification, rectifier Parameters, PIV, Ripple factor, Efficiency, Peak Inverse Voltage(PIV), Transformer utilization actor(TUF) of rectifiers	LE2.1 Test the input and output waveform of Half Wave Rectifier a) without filter b) with filter LE2.2 Test the input and output waveform of full Wave center tapped Rectifier a) without filter	
2	1	Types of rectifier: Half Wave Rectifier		

3	2	Full Wave rectifier	b) with filter	
4	2	Center taped and Bridge type full wave rectifier	LE2.3 Test the input and output waveform of full Wave Bridge Rectifier a) without filter b) with filter	
5	3	Filter Circuits: L –filter, C –filter, LC- filter, CLC filter		
	(CL-10,LI-3)			
	(Approx. Hrs: CI+ LI =14)	**Unit-3 Diode Circuits**		
1	2	Zener diode: working, construction and equivalent circuits of Zener diode	LE3.1 Test the performance of Zener diode. LE3.2 Test the output of the given Zener voltage regulator. LE3.3 Test the output waveform of a) Positive Clipper b) Negative Clipper LE3.4 Test the output waveform of a) Positive Clamper b) Negative Clamper	
2	2	Zener and avalanche breakdown phenomenon, Zener diode as voltage regulator		
3	3	Clipper: Function of clipper circuit, types of clipper :positive and negative clipper circuit		
4	3	Clamper: Function of clamper, types of clamper, positive and Negative clamper circuits.		
	(CL-10,LI-4)			
	(Approx. Hrs: CI+ LI =16)	**Unit-4 Bipolar Junction Transistor (BJT) and Field effect transistor (FET)**		
1	2	BJT: Working, types of BJT ; NPN and PNP, construction and operation of NPN and PNP transistor.	LE4.1 Determine the current gain of CE configuration with the help of input output characteristics of CE configuration. LE4.2 Determine the current gain of CB configuration with the help of input output characteristics. LE4.3 Determine the current gain of CC configuration with the help of input output characteristics. LE4.4 Build and test the operation	
2	2	Modes of operation : active, saturation and cutoff, current amplification factor β and α		
3	2	Transistor biasing: need for biasing, types of biasing, thermal runaway		

4	3	Transistor configurations: Common Emitter(CE), Common Base(CB) and Common collector configuration circuit , working and input and output characteristics.	of BJT as a switch. LE4.5 Bias the given NPN transistor in the active region by voltage divider biasing method. LE4.6 Test the performance of the given FET.	
5	2	Field Effect Transistor(FET): Working, construction, input and output characteristics, drain current, pinch-off voltage		
	(CL-11,LI-5)			
	(Approx. Hrs: CI+LI = 15)	**Unit-5 Introduction to Operational Amplifier(Op-Amp)**		
1	2	Basics of differential amplifier, Working principle, input and output characteristics.	LE5.1 Test the performance of the given Op-Amp IC in inverting mode. LE5.2 Build and test Op-Amp based summing amplifier. LE5.3 Test the output of non-inverting amplifier. LE5.4 Test the performance of Op-Amp based integrator and differentiator circuit. LE5.5 Build and test the performance of Instrumentation amplifier.	
2	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.		
3	6	Applications op-amp : Summing, multiplier, and divider amplifier, integrator and differentiator, Log and Anti-Log amplifier.		
	(CL-10,LI-5)			

Number of Total periods planned :

Number of Total periods actually taken :

Subject Teacher :

HOD
(Department of Electrical Engineering)