

Lesson Plan

*Name of the Faculty: Mr. Revti Raman

Discipline : Computer Engg.

Semester : 2nd

Subject : BASIC ELECTRONICS

Lesson Plan Duration: 15 weeks (from January, 2018 to April, 2018)

**Work Load (Lecture/Practical) per week (in hours): Lectures-03, Practicals-03

Week	Theory		Practical	
	Lecture day	Topic (including assignment/test)	Practical Day	Topic
1st	1 st	Introduction to syllabus & students		
	2 nd	Semiconductor Physics: Review of basic atomic structure and energy levels, concept of insulators, conductors and semi conductors, atomic structure of Germanium (Ge) and Silicon (Si), covalent bonds	1st	Operation and use of the following instruments: Multi-meter, CRO, Signal generator, LCR meter, Regulated Power Supply by way of Taking readings of relevant quantities with their help
	3 rd	Concept of intrinsic and extrinsic semi conductor, process of doping.		
2nd	1 st	Energy level diagram of conductors, insulators and semi conductors; minority And majority charge carriers.		
	2 nd	N type semiconductors and their conductivity, effect of temperature on Conductivity of intrinsic semi conductors.		
	3 rd	Semiconductor Diode : PN junction diode, mechanism of current flow in PN junction, forward and reverse biased PN junction, potential barrier, drift and diffusion currents		
3rd	1 st	Depletion layer, concept of junction capacitance in forward and reverse biased Condition.	3rd	Plotting of V-I characteristics of a Zener diode
	2 nd	V-I characteristics, static and dynamic resistance and their value calculation From the characteristics. Application of diode as half-wave, full wave and bridge rectifiers. Peak Inverse Voltage		
	3 rd	rectification efficiencies and ripple factor calculations, shunt capacitor filter, series inductor filter, LC and π filters		
4th	1 st	Types of diodes, characteristics and applications of Zener diodes. Zener and avalanche breakdown	4th	To observe output of clipping and clamping circuits.

	2 nd	Clipping Circuits		
	3 rd	Clamping Circuits		
5th	1 st	Introduction to Bipolar-Transistors:	5th	Measurement of the voltage gain, input and output impedance in a single state CE Amplifier circuit.
	2 nd	Concept of a bipolar transistor, its structure, PNP and NPN transistors, their symbols and mechanism of current flow		
	3 rd	Current relations in a transistor; concept of leakage current;		
6th	1 st	CB, CE, CC configurations of a transistor;	6th	Design of following circuit on breadboard and observe the output of : A.) Half-wave rectifier circuit using one diode
	2 nd	Input and output characteristics in CB and CE configurations;		
	3 rd	input and output dynamic resistance in CB and CE configurations;		
7th	1 st	Current amplification factors. Comparison of CB, CE and CC Configurations;	7th	6.B) Full-wave rectifier circuit using two diodes
	2 nd	Transistor as an amplifier in CE Configuration; concept of DC load line		
	3 rd	calculation of current gain and voltage gain using DC load l		
8th	1 st	Transistor Biasing Circuits:	8th	6.C) Bridge-rectifier circuit using four diodes
	2 nd	Concept of transistor biasing and selection of operating point		
	3 rd	Need for stabilization Of operating point.		
9th	1 st	Different types of biasing circuits.	9th	Plotting of the wave shape of full wave rectifier with A.) Shunt capacitor filter
	2 nd	Introduction to Single Stage Transistor Amplifier		
	3 rd	Single Stage Transistor Amplifier: Single stage transistor amplifier circuit		
10th	1 st	Concept of dc and ac load line and its use.	10th	7.B) Series inductor filter
	2 nd	Explanation of phase reversal of output voltage with respect to input voltage		
	3 rd	Explanation of phase reversal of output voltage with respect to input voltage		
11th	1 st	Field Effect Transistors : Introduction to Field Effect Transistors	11th	Plotting of input and output characteristics and calculation of parameters of Transistors in CE configuration.
	2 nd	Construction, operation and characteristics of FET.		
	3 rd	FETs and their applications.		
12th	1 st	Construction, operation and characteristics of a MOSFET	12th	Plotting of input and output characteristics and calculation of parameters of transistors in CB configuration.
	2 nd	MOSFET in depletion and Enhancement modes and its applications.		
	3 rd	MOSFET and its applications.		
13th	1 st	C MOS - advantages and applications	13th	Measurement of voltage gain, input and output impedance in a single state CE Amplifier circuit.
	2 nd	Comparison of JFET, MOSFET and BJT.		
	3 rd	Revision of Syllabus of week 1 st		

14th	1 st	Discussion of various problems of students.	14th	Plotting of V-I characteristics of a FET based amplifier
	2 nd	Surprise Test		
	3 rd	Revision of Syllabus of week 2nd		
15th	1 st	Presentation given by Students on any topic of Syllabus	15th	Revision of Practicals
	2 nd	Presentation given by Students on any topic of Syllabus		
	3 rd	Presentation given by Students on any topic of Syllabus		