LECTURE SCHEDULE

Department : E.C.E.

Faculty : N. ROOPA VATHI

Subject : Electronic Devices and Circuits

Class : 2nd YEAR 1stSEMESTER E.C.E-1.

UNIT	TOPICS	No. Periods	PERIODS REQUIRED
UNIT - I	**SEMI-CONDUCTOR PHYSICS**		**11**
	Introduction: Atomic Structure	1	
	Insulators, Semi-Conductors, Metals Classification Based on their Energy band Diagrams	1	
	Drift Current, Mobility of Charge Particles	1	
	Conductivity in Intrinsic semi-conductor	1	
	Carrier Concentrations & Fermi Level in an Intrinsic Semi-conductor	1	
	Extrinsic semi-conductors and its conductivity	1	
	Diffusion Current, Total Current Due to Drift & Diffusion	1	
	Continuity Equation	1	
	Hall-Effect	1	
	Problems	2	
UNIT-II	**JUNCTION DIODE CHATECTERISTICS**		**14**
	Introduction to P-N junction Diode	1	
	Biasing P-N junction Diode	2	
	Band Structure of P-N junction Diode	1	
	Current Components in P-N junction Diode	1	
	V-I characteristics of Diode	1	
	Characteristic Equation of P-N junction Diode	1	
	Temperature Dependence & Transition Capacitance	1	
	Zener Diode	1	
	LED,LCD, Photo Diode	1	
	Varacter Diode, Tunnel Diode	1	
	DIAC, TRIAC, SCR	1	
	UJT	1	
	Problems	1	

UNIT - III	**RECTIFIERS AND FILTERS**		
	Block Diagram of Regulated Power Supply	1	**10**
	Half-Wave Rectifier	2	
	Full-Wave Rectifier	2	
	Bridge Rectifier	1	
	L-Filter, C-Filter	1	
	L-Section Filter	1	
	π-Section Filter	1	
	Multiple L and π-Section Filter	1	
UNIT IV	**TRANSISTOR CHARACTERISTICS :**		
	JUNCTION TRANSISTOR, TRANSISTOR CONSTRUCTION	1	**16**
	TRANSISTORS CURRENT COMPONENTS	1	
	TRANSISTOR EQUATION	2	
	TRANSISTOR CONFIGURATIONS	1	
	TRANSISTOR AS AN AMPLIFIER	1	
	CHARACTERISTICS OF TRANSISTOR IN COMMON BASE	1	
	CHARACTERISTICS OF TRANSISTOR IN COMMON EMITTER	1	
	CHARACTERISTICS OF TRANSISTOR IN COMMON COLLECTOR	1	
	EBMERS MODEL OF A TRANSISTOR	1	
	PUNCH THROUGH OR REACH THROUGH, PHOTO TRANSISTOR,	1	
	TYPICAL TRANSISTOR JUNCTION VOLTAGE VALUES	1	
	FET TYPES, CONSTRUCTION, OPERATION, CHARACTERISTICS, PARAMETERS	2	
	MOSFET TYPES, CONSTRUCTION, OPERATION, CHARACTERISTICS, PARAMETERS	1	
	PROBLEMS COMPARISION OF JFET AND MOSFET	1	
UNIT- V	**TRANSISTOR BIASING THERMAL STABILIZATION**		
	NEED FOR BIASING, OPERATING POINT, LOAD LINE ANLYSIS	1	**8**
	STABILITY, FIXED BIAS , SELF BIAS	1	
	COLLECTOR TO BASE BIAS, STABILIZATION AGAINST VARIATIONS IN VBE, IC	2	
	STABILITY FACOR, COMPENSATION	1	
	THERMAL RUNAWAY, THERMAL STABILITY	1	
	FET BIASING METHODS AND STABILIZATION PROBLEMS	2	

UNIT - VI	SMALL SIGNAL LOW FREQUENCY TRANSISTOR AMPLIFIER MODELS		
	TRANSISTOR HYBRID MODEL, h-PARAMETERS, CONVERSION OF h-PARAMETERS	2	9
	ANALYSIS OF TRANSISTOR AMPLIFIER MODEL USING h-PARAMETERS	1	
	ANALYSIS OF CB,CE,CC AMPLIFIERS USING EXACT AND APPROXIMATE ANALYSIS	2	
	COMPARISION OF TRANSISTOR AMPLIFIERS.	1	
	SMALL SIGNAL MODEL FOR FET	1	
	ANALYSIS OF CG,CS,CD AMPLIFIERS AND COMPARISION OF FET AMPLIFIERS PROBLEMS	2	