SAMSKRUTI COLLEGE OF ENGINEERING & TECHNOLOGY

Department of Electrical & Electronics Engineering

III-B.TECH SEM-I

LESSON PLAN(2017-2018)

SUB: – Power Electronics (A50220) **NAME OF THE FACULTY: A. SURESHKUMAR**

Sl. No	**Name of the Topic**	**No. of Classes required**	**Cumulative number of periods**	
Unit – I				
1.	Introduction to Power Electronics& its applications	01	01	
2.	Basic theory operation of SCR - Static Characteristics	01	02	
3.	Dynamic Turn ON & Turn OFF Characteristics	01	03	
4.	Turn on & turn off methods of SCR	01	04	
5.	Principle operation & Dynamic Characteristics of BJT	01	05	
6.	MOSFET & its Dynamic characteristics	01	06	
7.	IGBT & its Dynamic characteristics & other thyristor's family devices.	01	07	
8.	Problems on gate characteristics of SCR.	01	08	
9.	Two transistor model of SCR	01	09	
10.	Uni – Junction Transistor(UJT)- its operation &characteristics **(GAPS)**	**01**	10	
11.	UJT- Firing Circuits	01	11	
12.	Firing circuit layout of SCR, Firing Schemes Of SCR-R&RC **(GAPS)**	**01**	12	
Unit – II				
19.	Introduction to line commutated inverter - Principle of Phase controlled rectifier operation	01	13	

20.	Expression for the RMS value of o/p voltage of a single phase half wave controlled rectifier with R – load & Performance parameters of phase controlled rectifiers	01	14	
21.	Single Phase half wave controlled rectifier with RL load & Performance parameters of phase controlled rectifiers	01	15	
22.	Single Phase Half wave controlled rectifier with RL Load & Freewheeling diode-performance parameters	01	16	
23.	Single Phase Half wave controlled rectifier with RLE Load – performance parameters	01	17	
24.	Active And Reactive Power Inputs To The Converters With& Without Freewheeling diode	01	18	
25.	Problems on 1-phase half wave controlled converter for R, RL, RLE loads. **(tutorial**)	**01**	19	
26.	Single phase full wave controlled rectifier using a centre tapped Transformer for R, RL, Loads.	01	20	
27.	Performance parameters of 1-phase F.W. controlled converter for R load, with & without freewheeling diode for RL Load.	01	21	
28.	Single phase full wave controlled rectifier using a centre tapped Transformer for RLE Loads.-performance parameters	01	22	
29.	1-phase full wave bridge controlled converter for R,RL , RLE loads- performance parameters	01	23	
Unit – III				
40.	Introduction to DC Chopper- step down chopper with R,R-L,– Load-performance parameters	02	25	
41.	step down chopper with R-L-E – Load-performance parameters	03	28	
42.	Methods of control methods , Step up chopper-performance parameters	03	31	
43.	Jones Chopper& problems	02	33	
44.	Morgan Chopper, AC Chopper	02	35	

45.	oscillation chopper	02	37	
Unit – IV				
49.	Introduction to AC Voltage Controllers -Expression for the RMS Value of o/p Voltage for ON – OFF control method	02	39	
50.	Principle of Phase control technique and operation of single phase half-wave AC Voltage controller with R, R L– Load- performance parameters	02	41	
51.	Single phase full wave AC vtg. controller with R,R-L – Load - performance parameters	02	43	
52	TRIAC & its modes of operation-Single phase F.W ac vtg. controller using TRIAC for R,R-L loads –performance parameters , converter	02	45	
53.	Cyclo converter- midpoint 1 ϕ to 1ϕ bridge type cyclo converter with R & R – L Load	03	48	
Unit – V				
56.	Introduction to Inverters & its applications	02	50	
57.	Basic Series inverter	02	52	
58.	Parallel Capacitor inverter and	02	54	
59.	bridge inverter-waveforms	02	56	
60.	Voltage Control in single phase inverter	02	58	
61.	Three phase inverters	02	60	