NAME OF THE FACULTY : RAVINDER KUMAR

DISCIPLINE : ECE

SEMESTER : IV

SUBJECT : POWER ELECTRONICS

LESSON PLAN DURATION : - 15 weeks (from January- 2019 to April- 2019)

WORK LOAD (LECTURE/PRACTICAL) PER WEEK (IN HOURS):- LECTURE-**03**, PRACTIACL-**03** PER GROUP

WEEK	THEORY		PRACTICAL		
	Lecture / Hrs	TOPIC (Including Assignment/Test)	Practical / Hrs		Experiment
1st	1	**Introduction to Thyristors** and other Power Electronics Devices	Group-1	1	To plot V-I characteristic of an SCR.
				2	
	2	Construction, Working principle of SCR		3	
			Group-2	1	To plot V-I characteristic of an SCR.
	3	Two transistor analogy of SCR, V-I characteristics of SCR.		2	
				3	
2nd	4	SCR specifications and ratings, Different methods of SCR triggering	Group-1	1	To plot V-I characteristics of TRIAC
				2	
	5	Different commutation circuits for SCR, Series and parallel operation of SCR		3	
			Group-2	1	To plot V-I characteristics of TRIAC
	6	Construction and working principle of DIAC.		2	
				3	
3rd	7	Construction and working principle of DIAC, TRIAC	Group-1	1	To plot V-I characteristics of UJT.
				2	
	8	DIAC, TRIAC and their V-I characteristics		3	
			Group-2	1	To plot V-I characteristics of UJT.
	9	Construction, working principle of UJT, V-I characteristics of UJT. UJT as relaxation oscillator		2	
				3	
4th	10	Brief introduction to Gate Turn off Thyristor (GTO), Programmable Uni-junction Transistor (PUT), MOSFET	Group-1	1	To plot V-I characteristics of DIAC
				2	
	11	Basic idea about the selection of Heat Sink for Thyristors		3	
			Group-2	1	To plot V-I characteristics of DIAC
	12	Applications such as light intensity control, speed control of universal motors, fan regulator, battery charger.		2	
				3	
5th	13	**Assignment-1**	Group-1	1	Revision Experiment Performed
				2	
	14	**Sessional Test-1**		3	
			Group-2	1	Revision Experiment Performed
	15	Controlled Rectifiers Introduction		2	
				3	

6th	16	Single phase half wave controlled rectifier with load (R)	Group-1	1 2 3	Study of UJT relaxation oscillator. And observe I/P and O/P wave forms
	17	Single phase half wave controlled rectifier with load (R-L)	Group-2	1 2 3	Study of UJT relaxation oscillator. And observe I/P and O/P wave forms
	18	Single phase half controlled full wave rectifier with load (R)			
7th	19	Single phase half controlled full wave rectifier with load (R-L)	Group-1	1 2 3	Observation of wave shape of voltage at relevant point of single-phase half wave controlled
	20	Fully controlled full wave bridge rectifier.	Group-2	1 2 3	Observation of wave shape of voltage at relevant point of single-phase half wave controlled
	21	Single phase full wave centre tap rectifier			
8th	22	Inverters, Choppers,	Group-1	1 2 3	Observation of wave shapes and measurement of voltage at relevant points in TRIAC based.
	23	Dual Converters and Cyclo-converters	Group-2	1 2 3	Observation of wave shapes and measurement of voltage at relevant points in TRIAC based
	24	Principle of operation of basic inverter circuits			
9th	25	Concepts of duty cycle, series and parallel	Group-1	1 2 3	Revision Experiment Performed
	26	Inverters and their applications	Group-2	1 2 3	Revision Experiment Performed
	27	Choppers: Introduction, types of choppers (Class A)			
10th	28	Choppers: Introduction, types of choppers (Class B, Class C and Class D)	Group-1	1 2 3	Revision Experiment Performed
	29	**Assignment-2**	Group-2	1 2 3	Revision Experiment Performed
	30	**Sessional Test-2**			
11th	31	Step up and Step down choppers	Group-1	1 2 3	Installation of UPS system and routine maintenance of batteries.
	32	Dual Converters and cyclo converters: Introduction, types and basic working principle of Dual converters and cyclo Converters.	Group-2	1 2 3	Installation of UPS system and routine maintenance of batteries.
	33	Dual converters and cyclo converters and their applications			

12th	34	Thyristorised Control of Electric drives: Introduction	Group-1	1	Revision Experiment Performed
				2	
	35	DC drive control, Half wave drives		3	
			Group-2	1	Revision Experiment Performed
	36	Full wave drives, Chopper drives (Speed control of DC motor using choppers)		2	
				3	
13th	37	AC drive control, Phase control	Group-1	1	Revision Experiment Performed
				2	
	38	Constant V/F operation, Cycloconverter /Inverter drives		3	
			Group-2	1	Revision Experiment Performed
	39	Un interrupted Power Supply (UPS): Introduction		2	
				3	
14th	40	UPS: Block Diagram & specifications of on-line	Group-1	1	Revision Experiment Performed
				2	
	41	UPS: Block Diagram & specifications of Off line UPS		3	
			Group-2	1	Revision Experiment Performed
	42	UPS: Block Diagram & specifications of Smart UPS		2	
				3	
15th	43	Concept of high voltage DC transmission	Group-1	1	Revision Experiment Performed
				2	
	44	**Assignment- 3**		3	
			Group-2	1	Revision Experiment Performed
	45	**Sessional Test- 3**		2	
				3	