Raja Jait Singh Govt. Polytechnic, Neemka
Lesson Plan

Name of the Faculty	Jyoti
Discipline	Electronics & Communication Engineering
Semester	4
Subject	Power Electronics

Week	Lecture Day	Topic	Practical	Topic
1st	1	Construction, Working principle of SCR, two transistor analogy of SCR, V-I characteristics of SCR.	1	1) To plot V-I characteristic of an SCR.
	2	b) SCR specifications and ratings.		
	3	Different methods of SCR triggering.		
2nd	4	Different commutation circuits for SCR.	2	2) To plot V-I characteristics of TRIAC.
	5	Series and parallel operation of SCR. -		
	6	Construction and working principle of DIAC, TRIAC and their V-I characteristics.		
3rd	7	Construction, working principle of UJT, V-I characteristics of UJT. UJT as relaxation oscillator.	3	3) To plot V-I characteristics of UJT.
	8	Brief introduction to Gate Turn off thyristor (GTO), Programmable Uni-		

		junction Transistor (PUT), MOSFET. -		
	9	1) Basic idea about the selection of Heat sink for thyristors.		
4th	10	Applications such as light intensity control, speed control of universal motors, fan	4	4) To plot V-I characteristics of DIAC.
	11	regulator, battery charger		
	12	Controlled Rectifiers (07 hrs) -		
5th	13	a) Single phase half wave controlled rectifier with load (R, R-L) -	5	5) Study of UJT relaxation oscillator. And observe I/P and O/P wave forms
	14	b) Single phase half controlled full wave rectifier with load (R, R-L)		
	15	c) Fully controlled full wave bridge rectifier. -		
6th	16	d) Single phase full wave centre tap rectifier	6	6) Observation of wave shape of voltage at relevant point of single-phase half wave controlled rectifier and effect of change of firing angle.
	17	a) Principle of operation of basic inverter circuits, concepts of duty cycle, series and parallel Inverters and their applications.		
	18	b) Choppers: Introduction, types of choppers (Class A, Class B, Class C and Class D). Step up and step down choppers.		
7th	19	c) Dual Converters and cyclo converters: Introduction, types and basic working principle of dual converters	7	7) Observation of wave shapes of voltage at relevant point of single phase full wave controlled rectifier and effect of change of firing angle.
	20	and cyclo converters and their applications.		
	21	Thyristorised Control of Electric drives		
8th	22	DC drive control i) Half wave drives	8	8) Observation of wave shapes and

	23	ii) Full wave drives		measurement of voltage at relevant points in TRIAC based AC phase control circuit for Varying lamp intensity and AC fan speed control.
	24	iii) Chopper drives (Speed control of DC motor using choppers)		
9th	25	b) AC drive control	9	9) Installation of UPS system and routine maintenance of batteries.
	26	i) Phase control		
	27	ii) Constant V/F operation		
10th	28	iii) Cycloconverter/Inverter drives		Revise 1st Practical
	29	Un interrupted Power Supply (UPS)		
	30	a) UPS: Block Diagram & specifications of on-line, off line and Smart UPS		
11th	31	b) Concept of high voltage DC transmission		Revise 2nd Practical
	32	Revision		
	33	Revision		
12th	34	Revision		Revise 3rd Practical
	35	Revision		
	36	Revision		
13th	37	Revision		Revise 4th Practical
	38	Revision		
	39	Revision		
14th	40	Revision		Revise 5th Practical
	41	Revision		
	42	Revision		