lesson Plan

Name of Faculty : Varunendra Kumar singh

Discipline : I&C

Semester : 5th sem

Subject : INDUSTRIAL ELECTRONICS AND CONTROL OF DRIVES

Lesson Plan Duration : 15 weeks(from Aug to Dec 2024)

Work Load (lecture/practical)per week (in hours) : Lectures- 03, practical- 04

Week		Theory	Practical		
	Lecture		Practical		
	Day	Topic(including assignment/test)	week	Practical Topic	
1	1(unit 1)	Construction, Working principle of SCR			
	2	Two transistor analogy of SCR, V-I characteristics of SCR.	1	To plot VI characteristic of an SCR.	
	3	SCR specifications and ratings.			
	4	Different methods of SCR triggering.	2	To plot VI characteristics of TRIAC	
2	5	Different commutation circuits for SCR.			
	6	Series and parallel operation of SCR.			
	7	Construction and working principle of DIAC, TRIAC and their V-I characteristics			
3	8	Construction, working principle of UJT, V I characteristics of UJT. UJT as relaxation oscillator	3	To plot VI characteristics of UJT.	
	9	Brief introduction to Gate Turn off thyristor (GTO), Programmable Uni- junction Transistor (PUT), MOSFET			
	10	Basic idea about the selection of Heat sink for thyristors	4	To plot VI characteristics of DIAC.	
4	11	Applications such as light intensity control, speed control of universal motors			
	12	Fan regulator, battery charger.			
5	13(unit 2)	Single phase half wave controlled rectifier with load (R, R-L)	5	Study of UJT relaxation oscillator. And observe I/P and O/P wave forms	
	14	Single phase half controlled full wave rectifier with load(R, R-L)			
	15	First sessional test			

18(unit 3) Principle of operation of basic inverter circuits, concepts of duty cycle, series and parallel. Inverters & their applications rectifier and effect of change of firing angle 7 19 Choppers: Introduction, types of choppers (Class A, Class B, Class C and Class D). 7 20 Step up and step down choppers 7 20 Step up and step down choppers 7 21 Assignment 1 7 22 Dual Converters and cyclo converters: Introduction, types and basic working principle of dual converters 8 23 Cyclo converters and their applications. 8 24 2nd sessional test revision 8 9 25 2nd sessional test 9 26(unit 4) DC drive control, Half wave drives 9 VIVA - VOICE 27 Full wave drives 9 28 Assignment 2 9 29 All notebooks are checked 10 10 30 Chopper drives (Speed control of DC motor using choppers) 10 11 32 Constant V/F operation 11 33 Cycloconverter/Inverter CKT's 11 12 34 Assignment 3 12 12 35 AC/DC drive control application in automobile 12					
6 17 Single phase full wave centre tap rectifier. 6 shape of voltage at relevant point of single-phase half wave controlle rectifier and effect of change of firing angle 7 19 Choppers: Introduction, types of choppers (Class A, Class B, Class C and Class D). 7 20 Step up and step down choppers 7 20 Step up and step down choppers 7 21 Assignment 1 7 22 Dual Converters and eyclo converters: Introduction, types and basic working principle of dual converters 8 23 Cyclo converters and their applications. 8 24 2nd sessional test 9 25 2nd sessional test 9 29 All notebooks are checked 10 10 30 Chopper drives (Speed control of DC motor using choppers) 11 32 Constant V/F operation 11 32 Constant V/F operation 11 32 Constant V/F operation 12 Assignment 3 11	6	16	Fully controlled full wave bridge rectifier.	6	shape of voltage at relevant point of single- phase half wave controlled rectifier and effect of
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1235AC/DC drive control application in automobile12Installation of UPS system and routine maintenance of batteries.	12	34	Assignment 3	12	
			AC/DC drive control application in		
		36(unit 5)	ON line UPS		

13	37	OFF line UPS	13	Speed control of motor using SCRs
	38	Specifications of UPS		
	39	Power Converter for Electrical Vehicle charging		
14	40	Conceptof SMPS	14	VIVA-VOICE
	41	Power Converter for Renewable Energy: solar and wind		
	42	3rd sessional test revision		
15	43	3rd sessional test	15	All files are checked
	44	Revision		
	45	Revision		