Govt. Polytechnic Loharu Electronics and Communication Engineering

Lesson plan(MARCH 2023 -JUNE 2023)

	NAME OF FACULTY	**:**	**MRS. ANSHU BHALLA**
	DISCIPLINE	**:**	**Electronics and Communication Engg.**
	SEMESTER	**:**	**4th**
	SUBJECT	**:**	**POWER ELECTRONICS**
	LESSON PLAN DURATION:		**15 weeks**
	WORK LOAD (LECTURE/ PRACTICAL): LECTURES - 03 , PRACTICALS – 03		

Week	Theory		Practical	
	Lecture day	Topic	Practical Period	Topic
1	1	- Role of Power electronics	1	Introduction & 1) To plot V-I characteristic of an SCR
	2	Construction, Working principle of SCR	2	
	3	Two transistor analogy of SCR, V-I characteristics of SCR.	3	
2	1	SCR specifications and SCR ratings.	1	1) To plot V-I characteristic of an SCR
	2	Different methods of SCR triggering	2	
	3	Different commutation circuits for SCR	3	
3	1	$\frac{di}{dt}$ & $\frac{dv}{dt}$ $protection\ of\ SCR$	1	2. To plot V-I characteristic of TRIAC
	2	Construction and working principle of TRIAC and their V-I characteristics	2	
	3	Construction, working principle of DIAC, V-I characteristics of DIAC. Introduction of UJT	3	
4	1	Construction, working principle of UJT, V-I characteristics of UJT	1	3.. To plot V-I characteristic of DIAC
	2	UJT as relaxation oscillator	2	

	3	Basic idea about the selection of Heat sink for thyristors.	3	
5	1	Applications such as light intensity control, fan regulator	1	REVISION/VIVA
	2	Applications such as speed control of universal motors, battery charger	2	
	3	Assignment 1&Revision	3	
6	1	- TEST	1	4. To plot V-I characteristic of UJT
	2	Controlled Rectifier: Introduction ,Phase controlled Rectifier ,comparison with Uncontrolled Rectifier, Single phase half wave controlled rectifier with load (R)	2	
	3	Single phase half wave controlled rectifier with load (R,L)Use of freewheeling Diode	3	
7	1	Single Phase full wave centre tap rectifier.	1	5) Study of UJT relaxation oscillator. And observe I/P and O/P wave forms
	2	Single phase half controlled full wave rectifier with(R,R-L) load	2	
	3	Fully controlled full wave bridge rectifier.	3	
8	1	Comparison between half control& Fully control Rectifier	1	Observation of wave shape of voltage at relevant point of single-phase half wave controlled rectifier and effect of change of firing angle
	2	a) Principle of operation of basic inverter circuits, concepts of duty cycle, series Inverter and their applications.	2	
	3	Parallel Inverter & their applications	3	
9	1	Revision of Inverter	1	8) Observation of wave shapes and measurement of voltage at relevant points in TRIAC based AC phase control circuit for Varying lamp intensity and AC fan speed control.
	2	Choppers: Introduction, types of choppers , step down chopper/series CHOPPER, Applications	2	
	3	Choppers: Step up choppers/parallel Chopper ,Applications	3	
10	1	choppers :(Class A, Class B, Class C and Class D).	1	Revision/Viva voce
	2	Dual Converters: Introduction, types and basic working principle of dual converters	2	
	3	Cyclo converter : types and basic working principle of Cyclo converter and their applications	3	

11	1	cyclo converters: Introduction, types and basic working principle cyclo converters and their applications&Assignment on chapter 2&3	1	1) To observe output wave shape in a circuit for single phase full wave controlled rectifier.
	2	Revision &Test	2	
	3	Thyristorised Control of Electric drives : Introduction of Electric Drive ,Control Methods,Types	3	
12	1	DC drive control i) Half wave drives	1	Revision
	2	DC drive control ii) Full wave drive	2	
	3	DC drive control iii) Chopper drives (Speed control of DC motor using choppers)	3	
13	1	AC drive control i) Phase control	1	9) Installation of UPS system and routine maintenance of batteries
	2	AC drive control ii) Constant V/F operation	2	
	3	AC drive control iii) Cycloconverter/Inverter drives	3	
14	1	5. Un interrupted Power Supply (UPS) a) UPS: concept, Block Diagram of on-line, off line	1	Revision
	2	specifications of on-line, off line	2	
	3	Classification of batteries , Concept of high voltage DC transmission ,Assignment on chapter 4&5	3	
15	1	Concept of high voltage DC transmission	1	Revision/Viva voce
	2	REVISION/TEST	2	
	3	REVISION/TEST	3	

SESSIONAL TEST CONDUCTED AS PER HSBTE TIME TABLE/SYLLABUS