ARYAN SCHOOL OF ENGINEERING & TECHNOLOGY

Dicipline: EE	Semester: 5th Sem	Name of the Teaching Faculty: Ajit Kumar panda,	
Subject: PE & PLC	No of Days/Week Class Allotted: 04	Semester From date: 15/09/22 To date 17/01/23	No.of Weeks: 09

WEEK	Class Day	Theory Topics
	1st	Construction, operation, V-I characteristics & Applications of power diode.
	2nd	Construction, operation, V-I characteristics and application of power MOSFET
	3rd	Construction, operation, V-I characteristics and application of IGBT
	4th	Construction, operation, V-I characteristics and application of SCR
	5th	
	1st	Concept of Turn on method of SCR
	2nd	Construction, operation, V-I characteristics and application of GTO.
	3rd	Construction, operation, V-I characteristics & application of DIAC and TRIAC
	4th	Two Transistor Analogy of SCR
	5th	
	1st	Switching characteristics of SCR during Turn on and Turn off.
	2nd	Gate characteristics of SCR
	3rd	Turn off method of SCR (Line commutation and load commutation)
	4th	Turn off method of SCR (Forced commutation) Resonant pulse commutation.
	5th	

WEEK	Class Day	Theory Topics
	1st	Protection of SCR over voltage protection, design of Snubber circuits
	2nd	Protection of SCR over current protection, Gate protection.
	3rd	Voltage and current rating of SCR
	4th	Firing circuits general layout diagram of firing circuit firing circuits
	5th	Firing circuits R-C firing circuit.
	1st	Firing circuits R-C firing circuits
	2nd	Firing circuits UJT pulse trigger circuits synchronous triggering (Ramp triggering)
	3rd	Controlled Rectifiers Techniques (Phase angle, Extinction angle control), Single quadrant semi converter, Two quadrant full converter and dual converter.
	4th	Working of 1-ϕ, half wave controlled converter with resistive and R-L loads. Understand need of free wheeling diode
	5th	
	1st	Working of 1-ϕ fully controlled converter with resistive loads.
	2nd	Working of 1-ϕ fully controlled converter with R-L loads.
	3rd	Working of three phase half wave controlled converter with resistive load.
	4th	Working of three phase fully controlled converter with resistive load.
	5th	

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Dicipline:		Semester:	Name of the Teaching Faculty:	
Subject:		No of Days/Week Class Allotted:_____	Semester From date:_____ To date_____	No.of Weeks:

WEEK	Class Day	Theory Topics
	1st	Working of singe phase AC regulator
	2nd	Working of singe phase AC regulator
	3rd	Working principle of step up and step down chopper.
	4th	Control mode of chopper
	5th	
	1st	Operation of chopper in all four quadrants.
	2nd	speeation of Chopper in all four quadrants.
	3rd	Class test
	4th	Classification of inverters explain the working of Single-phase bridge inverter
	5th	
	1st	Explain the Working of Series inverter.
	2nd	Explain the working of Parallel inverter.
	3rd	Class test question discussion & distribution of evaluated answer sheet to the students
	4th	Explain the basic principle of Cyclo-converter explain the working of Single-phase Step-up cyclo converter.
	5th	

WEEK	Class Day	Theory Topics
	1st	Explain the basic working of Single-phase Step down Cyclo Converter. Application of Cyclo-converter.
	2nd	List applications of power electronics circuits List the factors affecting the speed of DC Motors.
	3rd	Speed control of DC shunt motor using Converter.
	4th	Speed control of DC Shend motor using Chopper.
	5th	
	1st	List the factors affecting speed Speed of the ac motors.
	2nd	Speed Control of induction motor by using AC-Voltage Regulator.
	3rd	Speed Control of induction motor by using Converters and inverters (V/f Control)
	4th	Working of ups with block diagram. Battery changer circuit using SCR with the help of a diagram
	5th	
	1st	Basic Switched mode power Supply (SMPS) Explain its working & applications.
	2nd	Introduction of programmable logic controller (PLC) Advantages of PLC, Application of PLC.
	3rd	Different parts of PLC by drawing the block diagram and purpose of each part of PLC Distribution of alignment facilities.
	4th	Ladder Diagram; Discription of contacts and coils in the following States i) Normally open ii) Normally closed iii) Energized output iv) Latched o/p v) Branching,
	5th	

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Subject:		No of Days/Week Class Allotted:____	Semester From date:_____ To date_____	No.of Weeks:

WEEK	Class Day	Theory Topics
	1st	Ladder Diagrams for i) AND Gate ii) OR Gate And iii) NOT Gate. Ladder Diagrams for combinationation ckts using NAND, NOR AND, OR And NOT.
	2nd	Timers i) TON ii) T-off And iii) Rentitive Timer.
	3rd	Counters – CTU, CTD Ladder Diagrams using timers and counters.
	4th	PLC instruction set
	5th	
	1st	Ladder Diagrams for following.
	2nd	Special control Systems – Basics DCS & SCADA Systems computer control – Data ACQUISITION, Direct control system (Basic only) Digital
	3rd	Class Test
	4th	Discussion of Assignment Question.
	5th	
	1st	previous Semester Question Discussion
	2nd	previous Semester Questions Discussion.
	3rd	OMR Test
	4th	Class Test Question Discussion & Distribution of evaluated Answer Sheet to the Student for their References.
	5th	