BHARAT INSTITUTE OF ENGINEERING & TECHNOLOGY

SIVARAM VIHAR, GHATAKESWAR HILLS
MOHADA, BERHAMPUR (GM.)

STUDENT'S ATTENDANCE REGISTER

Time / Day		9.55 – 10.45	10.45 – 11.35	11.35 – 12.25	11.35 – 12.25
Mon					
Tue		PE & PLC			
Wed			PE & PLC		
Thu				PE & PLC	
Fri					PE & PLC
Sat					

Year/ Session : 2023 (winter)	Semester from Date: 01/08/2023 To Date : 30/11/2023
Semester & Branch	5th Sem & E&TC Engg. Branch
Subject with Code	Power Electronics & PLC (Th.5)
Name of the Faculty Member	Er. K. Srinivas
No of Weeks:	No of Class Allotted/Week : 04

B.I.E.T., COURSE PLAN

Month	Week	Class Day	Theory/Practical Topic
AUGUST 2023	1		**Ch:1:** Understand the construction and working of Power Electronic Devices:
		01/08/23	1.1: Construction, Operation, V-I Characteristics & application of Power diode, SCR
		02/08/23	SCR DIAC
		03/08/23	TRIAC Power MOSFET
		04/08/23	GTO IGBT
	2	08/08/23	1.2: Two transistor analogy of SCR.
		09/08/23	1.3: Gate Characteristics of SCR.
		10/08/23	1.4: Switching Characteristics of SCR during turn on & turn off.

Signature of the Faculty: 29/07/23

Seen 29.7.23

Signature of the Principal/Course Co-ordinator/HOD: 29/07/23

B.I.E.T.; COURSE PLAN

Month	Week	Class Day	Theory/Practical Topic
AUGUST 2023	2	11/08/23	1.5: Turn on methods of SCR.
	3	16/08/23	1.6: Turn off methods of SCR. → Line commutation
		17/08/23	→ Forced commutation
			1.6.1: Load commutation
		18/08/23	1.6.2: Resonant Pulse commutation.
	4	22/08/23	1.7: Voltage & Current ratings of SCR.
		23/08/23	1.8: Protection of SCR. → Over voltage protection → Over current protection → Gate Protection.

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Signature of the Principal/Course Co-ordinator/HOD:

B.I.E.T., COURSE PLAN

Month	Week	Class Day	Theory/Practical Topic
AUGUST 2023	4	24/08/23	1.9: Firing Circuits: 1.9.1: General layout diagram of firing circuit.
		25/08/23	1.9.2: R- firing circuits. 1.9.3: R-C firing circuit.
	5	29/08/23	1.9.4: UJT Pulse trigger Circuit.
		31/08/23	1.9.5: Synchronous triggering (Ramp triggering)
SEPTEMBER 2023		01/09/23	1.10: Design of Snubber Circuit.

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Signature of the Principal/Course Co-ordinator/HOD: 1/8/23

B.I.E.T., COURSE PLAN

Month	Week	Class Day	Theory/Practical Topic	Month
SEPTEMBER 2023	6		Ch:2: Understand the working of Converters, AC regulators & Choppers.	
		05/09/23	2.1: Controlled rectifiers techniques (Phase Angle, Extinction Angle Control) → Single quadrant semi converter → Two quadrant full converter → Dual converter.	
		07/09/23	2.2: Working of 1ø half wave Controlled Converter with	
		08/09/23	resistive and R-L loads.	
	7	12/09/23	2.3: Understand need of freewheeling diode.	
		13/09/23	2.4: Working of Single phase fully controlled converter with R load	
		14/09/23	& R-L load.	

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B.I.E.T., COURSE PLAN

Month	Week	Class Day	Theory/Practical Topic
SEPTEMBER 2023	7	15/09/23	2.5: Working of three-phase half wave controlled converter with Resistive load.
	8	21/09/23	2.6: Working of 3Ø fully controlled converter with Resistive load.
		22/09/23	2.7: Working of 1Ø AC Regulator.
	9	26/09/23	2.8: Working Principle of Step Up & Step down chopper.
		27/09/23	2.9: Control modes of chopper.
		28/09/23	2.10: Operation of chopper in all four quadrants.

Signature of the Faculty: 29/09/23

Signature of the Principal/Course Co-ordinator/HOD: 1/10/23

B.I.E.T., COURSE PLAN

Month	Week	Class Day	Theory/Practical Topic
OCTOBER 2023	10		Ch.3: Understand the inverters and cyclo-converters.
		03/10/23	3.1: Classify Inverters.
		04/10/23	3.2: Explain the working of Series inverter.
		05/10/23	3.3: Explain the working of parallel inverter.
		06/10/23	3.4: Explain the working of 1Ø bridge inverter.
	11	10/10/23	3.5: Explain the basic principle of cyclo-converter.
		11/10/23	3.6: Explain the working of 1Ø step up & step down cyclo-converter
		12/10/23	
		13/10/23	3.7: Applications of Cyclo-Converter

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B.I.E.T., COURSE PLAN

Month	Week	Class Day	Theory/Practical Topic
OCTOBER 2023	12	17/10/23	Ch:4: Understand applications of Power Electronic circuits: 4.1: List applications of power electronic circuits.
		18/10/23	4.2: List the factors affecting the speed of DC motors.
		19/10/23	4.3: Speed control of DC shunt motor using converter.
	13	31/10/23	4.4: Speed control of DC shunt motor using chopper.
NOVEMBER 2023		01/11/23	4.5: List the factors affecting speed of the AC. Motors.
		02/11/23	4.6: Speed Control of induction motor by using AC voltage regulator.
		03/11/23	4.7: Speed Control of induction motor by using converters & inverters (V/f control)

Signature of the Faculty: 29/07/23

Signature of the Principal/Course Co-ordinator/HOD: 1/8/23

B.I.E.T., COURSE PLAN

Month	Week	Class Day	Theory/Practical Topic
NOVEMBER 2025	14	07/11/25	4.8: Working of UPS with block diagram.
		08/11/25	4.9: Battery charger circuit using SCR with the help of a diagram.
		09/11/25	4.10: Basic Switched mode Power supply (SMPS). (explain its working & applications)

Signature of the Faculty: 29/07/25

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B.I.E.T., COURSE PLAN

Month	Week	Class Day	Theory/Practical Topic
NOVEMBER 2023	14	10/11/23	Ch:5: PLC & PTS Applications: 5.1: Introduction of Programmable logic Controller (PLC) 5.2: Advantages of PLC.
	15	14/11/23	5.3: Different parts of PLC by drawing the block diagram and purpose of each part of PLC. 5.4: Application of PLC. 5.5: Ladder diagram.
		15/11/23	5.6: Description of contacts and coils in the following states. i) Normally Open. ii) Normally closed. iii) Energized output. iv) Latched output v) Branching.

Signature of the Faculty: 29/07/23

Signature of the Principal/Course Co-ordinator/HOD: 1/08/23

B.I.E.T., COURSE PLAN

Month	Week	Class Day	Theory/Practical Topic
NOVEMBER 2023	15	16/11/23	5.7: Ladder diagrams for i) AND Gate ii) OR Gate. iii) NOT Gate.
		17/11/23	5.8: Ladder diagram for combination circuits using NAND, NOR, AND, OR and NOT.
	16	21/11/23	5.9: Timers i) T ON ii) T off iii) Retentive timer.
		22/11/23	5.10: Counters → CTU → CTD

Signature of the Faculty: 29/04/23

Signature of the Principal/Course Co-ordinator/HOD: 1/05/23

B.I.E.T., COURSE PLAN

Month	Week	Class Day	Theory/Practical Topic
NOVEMBER 2023	16	23/11/23	S.11: Ladder diagrams using Timers & Counters.
		24/11/23	S.12: PLC instruction Set.
			S.13: Ladder diagrams for following i) DOL Starter & STAR-DELTA Starter. ii) Stair case lighting
	17	28/11/23	iii) Traffic light control iv) Temperature Controller.
		29/11/23	S.14: Special control system Basics DCS & SCADA System.
		30/11/23	S.15: Computer control - Data acquisition, Direct Digital Control System. (Basics Only)

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20.7.23

Signature of the Faculty: 29/07/23

Signature of the Principal/Course Co-ordinator/HOD: 1/8/23