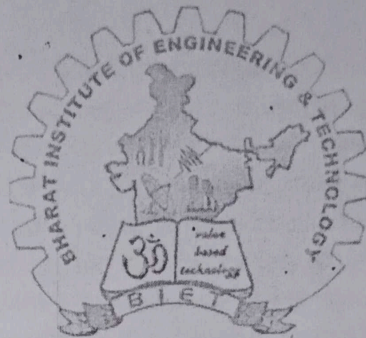


BHARAT INSTITUTE OF ENGINEERING & TECHNOLOGY

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



REGISTER FOR PROGRESS COURSE

Time	12.25 01.15	12.25 01.15	9.55 10.45	9.55 10.45
Day				
WED	PE PLC			
THU		PE & PLC		
FRI			PE & PLC	
SAT				PE & PLC

Year/ Session : 2022/Winter	Semester from Date: 15/09/2022 To Date: 22/12/2022
Semester & Branch :	5th Sem, Electrical Engg.
Subject with Code :	Power Electronics & PLC (Th.5)
Name of faculty:	Dr. K. Srinivas

B.I.E.T. SYLLABUS COVERAGE

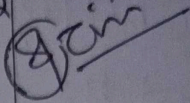
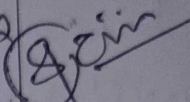
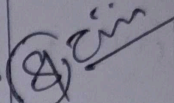
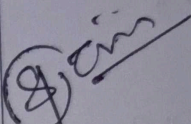
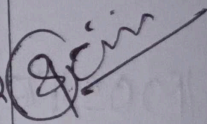
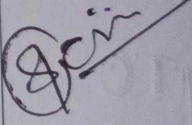
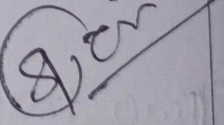
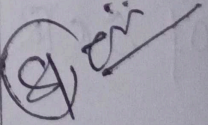
①

TOPIC	DATE	SIGNATURE OF THE FACULTY	SIGNATURE OF THE H.O.D.
<p style="text-align: center;"><u>Chapter: 1</u></p> <p><u>Understand the construction & working of Power Electronics Devices</u></p> <p><u>1.1: Construction, operation, V-I characteristics & application of power diode,</u></p> <p style="margin-left: 40px;">SCR } DIAc } TRIAC }</p> <p style="margin-left: 40px;">Power MOSFET } GTO } IGBT }</p> <p><u>1.2: Two transistor Analogy of SCR.</u></p>	<p>16/09/22</p> <p>21/09/22</p> <p>22/09/22</p> <p>23/09/22</p> <p>24/09/22</p>	<p><i>(Signature)</i></p> <p><i>(Signature)</i></p> <p><i>(Signature)</i></p> <p><i>(Signature)</i></p> <p><i>(Signature)</i></p>	<p></p> <p></p> <p></p> <p></p> <p></p> <p><i>Seen</i> <i>Jacobymmm</i> <i>12/09/22</i></p>

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B.I.E.T.

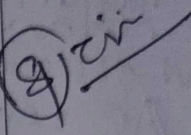
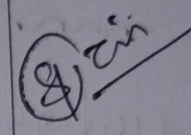
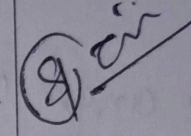
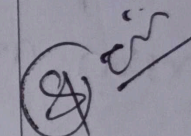
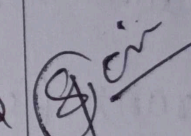
SYLLABUS COVERAGE

TOPIC	DATE	SIGNATURE OF THE FACULTY	SIGNATURE THE H.A.
<u>1.3</u> : Gate Characteristics of SCR	28/09/22		
<u>1.4</u> : Switching Characteristics of SCR during turn on & turn off.	29/09/22		
<u>1.5</u> : Turn on method of SCR.	30/09/22		
<u>1.6</u> : Turn off methods of SCR.	01/10/22		
<ul style="list-style-type: none"> ↳ Line commutation ↳ Forced commutation ↳ Load commutation ↳ Resonant pulse commutation 	12/10/22		
<u>1.7</u> : Voltage & Current ratings of SCR.	13/10/22		
<u>1.8</u> : Protection of SCR:			
<ul style="list-style-type: none"> ↳ Over Voltage Protection ↳ Over Current Protection ↳ Gate Protection 	14/10/22		
	15/10/22		

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SYLLABUS COVERAGE

3

TOPIC	DATE	SIGNATURE OF THE FACULTY	SIGNATURE OF THE H.O.D.
<u>1.9:</u> Firing Circuits: <ul style="list-style-type: none"> → General layout diagram of firing circuit. → R firing circuit. → R-C Firing circuit. → UJT pulse trigger circuit. → Synchronous triggering (Ramp Triggering) 	19/10/22 20/10/22 21/10/22 22/10/22 26/10/22	    	
<u>1-10:</u> Design of snubber circuit.			

④

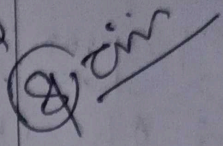
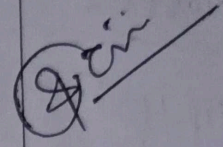
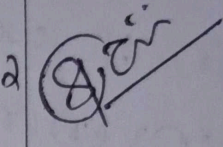
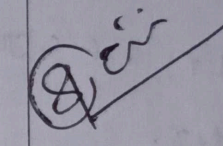
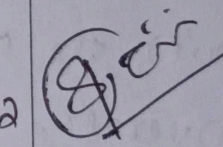
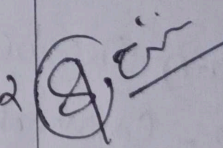
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SYLLABUS COVERAGE

TOPIC	DATE	SIGNATURE OF THE FACULTY	SIGNATURE OF THE H
<p style="text-align: center;"><u>Chapter: 2:</u> Understand the working of Converters, AC regulator and Choppers:</p> <p><u>2.1:</u> Controlled rectifiers Techniques</p> <ul style="list-style-type: none"> ↳ Phase angle control ↳ Extinction angle control ↳ Single quadrant Semi Converter ↳ Two quadrant Full converter ↳ Dual converter. 	27/10/22	@vir	
<p><u>2.2:</u> Working of 1ϕ half wave Controlled converter with R & R-L loads.</p>	28/10/22	@vir	
	29/10/22	@vir	
<p><u>2.3:</u> Understand need of freewheeling diode.</p>	02/11/22	@vir	
<p><u>2.4:</u> Working of 1ϕ fully controlled converter with R & RL loads.</p>	03/11/22	@vir	
	04/11/22	@vir	

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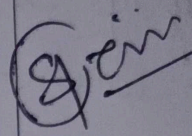
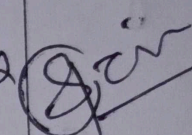
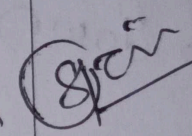
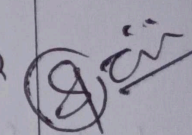
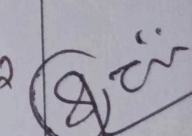
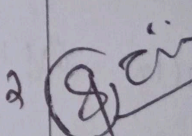
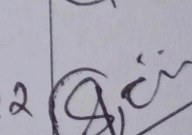
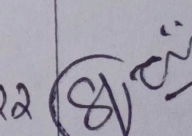
SYLLABUS COVERAGE

TOPIC	DATE	SIGNATURE OF THE FACULTY	SIGNATURE OF THE H.O.D.
<u>2.5</u> : Working of 3ϕ half wave controlled converter with R load.	05/11/22		
<u>2.6</u> : Working of 3ϕ fully controlled converter with R load.	09/11/22		
<u>2.7</u> : Working of 1ϕ A.C. regulator.	10/11/22		
<u>2.8</u> : Working principle of step up & step down chopper.	11/11/22		
<u>2.9</u> : Control modes of chopper.	12/11/22		
<u>2.10</u> : Operation of chopper in all four quadrants.	16/11/22		

B.I.E.T.

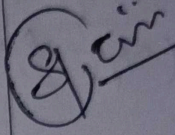
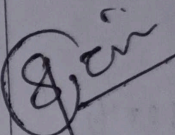
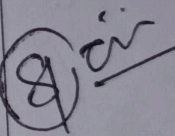
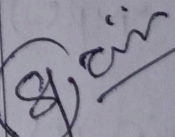
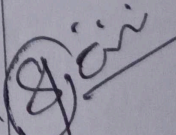
SYLLABUS COVERAGE

6

TOPIC	DATE	SIGNATURE OF THE FACULTY	SIGNATURE THE H
<u>Chapter: 3</u>			
<u>Understand the inverters and Cycloconverters:</u>			
<u>3.1</u> : Classify Converters.	17/11/22		
<u>3.2</u> : Explain the working of Series inverter.			
<u>3.3</u> : Explain the working of parallel inverter.	18/11/22		
<u>3.4</u> : Explain the working of 1ϕ bridge inverter.	19/11/22		
	23/11/22		
<u>3.5</u> : Explain the basic principle of cyclo-converter.	²⁴ 24/11/22		
<u>3.6</u> : Explain the working of 1ϕ step up & step down cyclo-converter.	25/11/22		
	26/11/22		
<u>3.7</u> : Application of cyclo-converter.	30/11/22		

B.I.E.T. SYLLABUS COVERAGE

2

TOPIC	DATE	SIGNATURE OF THE FACULTY	SIGNATURE OF THE H.O.D.
<u>Chapter: 4</u> <u>Understand application of power electronic circuits:</u>			
<u>4.1</u> : List applications of power electronic circuits.	01/12/22		
<u>4.2</u> : List the factors affecting the speed of D.C. motors.			
<u>4.3</u> : Speed control of D.C. shunt motor using converter.	02/12/22		
<u>4.4</u> : Speed control of D.C. shunt motor using chopper.	03/12/22		
<u>4.5</u> : List the factors affecting speed of the AC motors.	07/12/22		
<u>4.6</u> : Speed control of Induction motor by using AC voltage regulator.	08/12/22		

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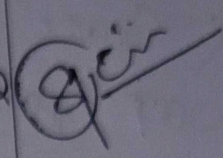
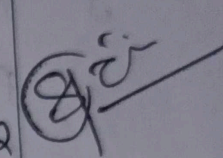
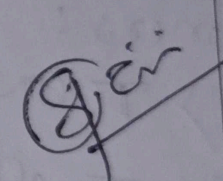
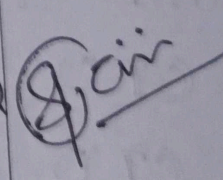
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TOPIC	DATE	SIGNATURE OF THE FACULTY	SIGNATURE OF THE STUDENT
<u>4.7</u> : Speed control of Induction motor by using converters. by using Converters (V/F control)	09/12/22	<u>Q. An</u>	
	10/12/22	<u>Q. An</u>	
<u>4.8</u> : Working of Ups with block diagram.	14/12/22	<u>Q. An</u>	
<u>4.9</u> : Battery charger circuit using SCR with the help of a diagram.	15/12/22	<u>Q. An</u>	
<u>4.10</u> : Basic Switched mode power supply (SMPS). explain its working & applications,	16/12/22	<u>Q. An</u>	

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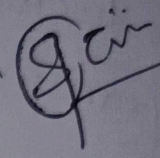
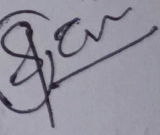
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TOPIC	DATE	SIGNATURE OF THE FACULTY	SIGNATURE OF THE H.O.D.
<u>Chapter 5 :</u>			
<u>PLC & Its Applications.</u>			
<u>5.1</u> : Introduction of PLC (Programmable Logic Controller)	17/12/22		
<u>5.2</u> : Advantages of PLC.			
<u>5.3</u> : Different parts of PLC by drawing the block diagram & purpose of each part of PLC.	21/12/22		
<u>5.4</u> : Application of PLC.	22/12/22		
<u>5.5</u> : Ladder diagram.			
<u>5.6</u> : Description of contacts & coils in the following states : i) Normally open. ii) Normally closed iii) Energized output iv) Latched output v) Branching	22/12/22		

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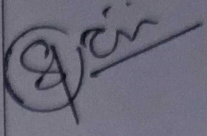
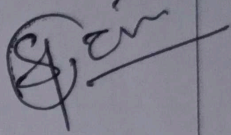
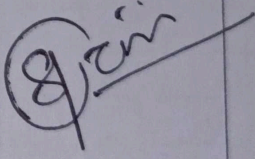
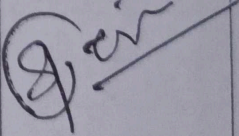
10

TOPIC	DATE	SIGNATURE OF THE FACULTY	SIGNATURE OF THE
<p><u>S.7:</u> Ladder diagrams for</p> <ul style="list-style-type: none">i) AND Gateii) OR Gateiii) NOT Gate <p><u>S.8:</u> Ladder diagrams for combinations Circuits using NAND, NOR, AND, OR, NOT</p>	23/12/22		
<p><u>S.9:</u> Timers :</p> <ul style="list-style-type: none">i) T ONii) T offiii) Retentive timer	23/12/22		
<p><u>S.10:</u> Counters :</p> <ul style="list-style-type: none">CTUCTD	24		

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SYLLABUS COVERAGE

11

TOPIC	DATE	SIGNATURE OF THE FACULTY	SIGNATURE OF THE H.O.D.
<u>s.11:</u> Ladder diagrams using Timers & Counters.	23/12/22 04		
<u>s.12:</u> PLC instruction set.			
<u>s.13:</u> Ladder diagrams for following: <ul style="list-style-type: none"> i) DOL starter & STAR-DELTA starter ii) Stair Case lighting iii) Traffic Light Control. iv) Temperature Controller. 	24/12/22 05		
<u>s.14:</u> Special control systems. Basics DCS & SCADA systems.	24/12/22 06		
<u>s.15:</u> Computer Control Data Acquisition, Direct Digital Control System. (Basics only)	24/12/22 07		Seen Pradyumn 12.9.22