

**BIJU PATTANAİK INSTITUTE OF TECHNOLOGY**  
**GOVERNMENT POLYTECHNIC, PURI**  
ସରକାରୀ ବହୁବୃତ୍ତି ଅନୁଷ୍ଠାନ, ପୁରୀ

# **LESSON PLAN**

**ON**

**POWER ELECTRONICS & P.L.C LAB**

**5<sup>TH</sup> SEMESTER**

***PREPARED BY***

**MR. AUROBINDO GHOSE**

**LECTURER IN ELECTRICAL ENGINEERING DEPARTMENT,  
GOVERNMENT POLYTECHNIC, PURI.**



# GOVERNMENT POLYTECHNIC, PURI

## DEPARTMENT OF ELECTRICAL ENGINEERING

<b>Discipline:</b> <b>ELECTRICAL ENGINEERING</b>	<b>Semester:</b> <b>5<sup>TH</sup></b>	<b>Name of the Teaching Faculty:</b> MR AUROBINDO GHOSE <b>LECTURER IN ELECTRICAL ENGINEERING</b>
<b>Subject:</b> POWER ELECTRONICS & PLC LAB	<b>No. of days/ per week</b> <b>class allotted:</b> 02	<b>Semester From date:</b> 15/09/22 <b>To Date:</b> 22/12/22 <b>No. of Weeks:</b> 15
<b>PRE-REQUISITE</b>	The sole objective of the subject is to be familiar with solid state devices used in power system. To perform experiments for determining the characteristics of components and become fit to meet the challenges in practical implementation	
<b>COURSE OUTCOMES</b>	CO1: Determine characteristic of semiconductor devices CO2: Develop ability to design drive circuit for above CO3: Design low voltage power circuit to be used in electronics circuit	
Week	Class Day	Practical Topics
1 <sup>ST</sup>	1st	Study of switching characteristics of a power transistor.
	2nd	Study of switching characteristics of a power transistor.
2 <sup>ND</sup>	1st	Study of V-I characteristics of SCR
	2nd	Study of V-I characteristics of SCR
3 <sup>RD</sup>	1st	Study of V-I characteristics of TRIAC
	2nd	Study of V-I characteristics of TRIAC
4 <sup>TH</sup>	1st	Study of V-I characteristics of DIAC
	2nd	Study of V-I characteristics of DIAC
5 <sup>TH</sup>	1st	Study of drive circuit for SCR & TRIAC using DIAC
	2nd	Study of drive circuit for SCR & TRIAC using DIAC
6 <sup>TH</sup>	1st	Study of drive circuit for SCR & TRIAC using UJT
	2nd	Study of drive circuit for SCR & TRIAC using UJT
7 <sup>TH</sup>	1st	To study phase controlled bridge rectifier using resistive load.
	2nd	To study phase controlled bridge rectifier using resistive load.
8 <sup>TH</sup>	1st	To study series Inverter.
	2nd	To study series Inverter.
9 <sup>TH</sup>	1st	Study of voltage source Inverter
	2nd	Study of voltage source Inverter
10 <sup>TH</sup>	1st	To perform the speed control of DC motor using Chopper.
	2nd	To perform the speed control of DC motor using Chopper.
11 <sup>TH</sup>	1st	To study single-phase Cyclo-converter
	2nd	To study single-phase Cyclo-converter
12 <sup>TH</sup>	1st	PLC Programming (Introduction/Familiarization PLC Trainer & its Installation with PC (a) Learn the basics and hardware components of PLC (b) Understand configuration of PLC system (c) Study various building blocks of PLC (d) Determine the No. of digital I/O & Analog I/O)
	2nd	PLC Programming (Introduction/Familiarization PLC Trainer & its Installation with PC (a) Learn the basics and hardware components of PLC (b) Understand configuration of PLC system (c) Study various building blocks of PLC (d) Determine the No. of digital I/O & Analog I/O)
13 <sup>TH</sup>	1st	Execute the different Ladder Diagrams (a) Demonstrate PLC and Ladder diagram-Preparation downloading and running (b) Execute Ladder diagrams



		for different Logical Gates (c) Execute Ladder diagrams using timers & counters
	2nd	Execute the different Ladder Diagrams (a) Demonstrate PLC and Ladder diagram-Preparation downloading and running (b) Execute Ladder diagrams for different Logical Gates (c) Execute Ladder diagrams using timers & counters
14 <sup>TH</sup>	1st	Execute the Ladder Diagrams with model applications (i) DOL starter (ii)Star-Delta starter
	2nd	Execute the Ladder Diagrams with model applications (i) DOL starter (ii)Star- Delta starter
15 <sup>TH</sup>	1st	Execute Ladder diagrams with model applications (i) Stair case lighting (ii) Traffic light controller
	2nd	Execute Ladder diagrams with model applications (i) Stair case lighting (ii) Traffic light controller

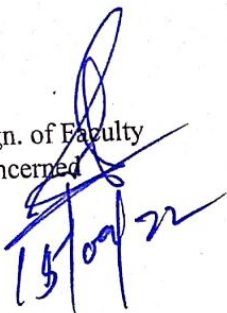
#### LEARNING RESOURCES:


1. Power Electronics Dr. P. S. Bhimbhra Khanna Publisher
2. Modern Power Electronics B.K.Bose PHI Publisher


#### WEBSITE RESOURCES:

01. <http://youtu.be/pwjrtljkak>

Sign. of Faculty  
concerned

  
15/09/22

  
Principal  
G.P Puri 15/9/22

  
Sign. of HOD i/c 15/9/22

