



**GOVERNMENT POLYTECHNIC KORAPUT
DEPARTMENT OF ELECTRICAL ENGINEERING**

Pr.2 POWER ELECTRONICS & PLC LAB

Name of the Course: Diploma in Electrical Engineering			
Name of the Faculty: Mrs. S. Bichiballi			
Course code:	Pr.2	Course code:	5 th W.E.F. 01/10/2021
Total Period:	45	Total Period:	3 hrs
Lab. periods:	3 P / week	Lab. periods:	25
Maximum marks:	75	Maximum marks:	50

VISION:

To create competent & industry ready Electrical Diploma Engineers with professional and social values to meet future challenges.

MISSION:

- To prepare diploma holders through “qualitative competency based education system” to compete with national requirement along with core values.
- To produce dynamic Electrical Engineers to serve the society and industry.
- To develop leadership qualities, communication skills, critical thinking and attitude for lifelong learning.

PROGRAM EDUCATIONAL OBJECTIVES:

PEO1	Apply technical knowledge and skills learned in the field of Electrical Engineering to excel in Professional and/or higher education.
PEO2	To provide students an excellent academic environment and make them aware the needs of Society and Industry to become a successful Professional/Entrepreneur.
PEO3	To engage in lifelong learning, career enhancement to adopt emerging technologies

COURSE OUTCOMES:

CO1	Analyze characteristics of power electronic devices.
CO2	Design basic power electronic circuits.
CO3	Explore usage of power converters in commercial and industrial applications.
CO4	Demonstrate programmable logic controller and execute basic ladder diagrams.



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LESSON PLAN

Week	Day	Experiment
1 st	1 st	Study of switching characteristics of a power transistor.
	2 nd	
	3 rd	
2 nd	1 st	Study of V-I characteristics of SCR.
	2 nd	
	3 rd	
3 rd	1 st	Study of V-I characteristics of TRIAC.
	2 nd	
	3 rd	
4 th	1 st	Study of V-I characteristics of DIAC.
	2 nd	
	3 rd	
5 th	1 st	Study of drive circuit for SCR & TRIAC using DIAC.
	2 nd	
	3 rd	
6 th	1 st	Study of drive circuit for SCR & TRIAC using UJT.
	2 nd	
	3 rd	
7 th	1 st	To study phase controlled bridge rectifier using resistive load.
	2 nd	
	3 rd	
8 th	1 st	To study series Inverter.
	2 nd	
	3 rd	
9 th	1 st	Study of voltage source Inverter.
	2 nd	
	3 rd	
10 th	1 st	To perform the speed control of DC motor using Chopper.
	2 nd	
	3 rd	
11 th	1 st	To study single-phase Cyclo-converter
	2 nd	
	3 rd	
12 th	1 st	Introduction/Familiarization PLC Trainer & its Installation with PC I. Learn the basics and hardware components of PLC II. Understand configuration of PLC system III. Study various building blocks of PLC IV. Determine the No. of digital I/O & Analog I/O
	2 nd	
	3 rd	
13 th	1 st	Execute the different Ladder Diagrams I. Demonstrate PLC and Ladder diagram-Preparation downloading and running II. Execute Ladder diagrams for different Logical Gates III. Execute Ladder diagrams using timers & counters
	2 nd	
	3 rd	

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14 th	1 st	Execute the Ladder Diagrams with model applications I. DOL starter II. Star- Delta starter
	2 nd	
	3 rd	
15 th	1 st	Execute Ladder diagrams with model applications I. Stair case lighting II. Traffic light controller
	2 nd	
	3 rd	

P. Chibelli
01/10/2023

Signature of faculty concerned

[Signature]
01/10/23

H.O.D. Electrical