

BHUBANANANDA ODISHA SCHOOL OF ENGINEERING, CUTTACK
DEPARTMENT OF APPLIED ELECTRONICS & INSTRUMENTATION ENGINEERING



LESSON PLAN

SUBJECT: PLC PROGRAMMING & AUTOMATION

ACADEMIC SESSION: 2026-27

FACULTY: SMT RASHMITA GOUDA, LECTURER(STAGE-I)

SEMESTER: 5th


H O D (AE&I)
AE & I Department
B.O.S.E, Cuttack-753007

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COURSE OUTCOMES

After completion of course the student will be able to

CO1: Understand the need of **Industrial Automation**

CO2:- Explain the architecture of PLC and role of PLC for process instrumentation

CO3:- Understand the ladder logic programming in PLC

CO4:- Remember the instruction set for ladder logic programming

CO5:- Apply PLC for automation in different field

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Discipline: AE&I Engineering	Semester: 5th	Name of the teaching faculty: Rashmita Gouda
Subject: PLC Prog & Automation	No. of Days/ per week class allotted: 03 periods per week.	Semester From Date: 01-07-2026 To Date: 05-11-2026 No of weeks:19
Week	Class Day	Topics to be covered
1	1st	Unit-I: Introduction to Industrial Automation History of industrial automation
	2nd	Need of automations in industries and example for industrial automation
2	1st	Control system in Industry
	2nd	Field Instruments
	3rd	Types and working of field devices
3	1st	Automation using relays and field devices, Examples for relays and field devices
	2nd	Logical functions done by relays and field devices
4	1st	Discrete state process automation system
	2nd	Continuous state process automation system
	3rd	Revision of Unit-I

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5	1st	Unit-I I: PLC details Introduction to PLC
	2nd	History of PLC
	3rd	Architecture of PLC
6	1st	CPU, IO Modules
	2nd	Power Supply and communications
	3rd	Input and Output Devices, PLC registers
7	1st	Role of PLC (Programmable Logic Controller) for process automation system
	2nd	Operation of Relays
	3rd	latching of relays, relay logic for sequential operation
8	1st	Replacing of Relays by PLC for automation system
	2nd	Revision of Unit-II
	3rd	Unit-III: PLC programming Introduction
9	1st	Types of PLC Models
	2nd	Introduction about PLC Programming
10	1st	Types of Programming Languages

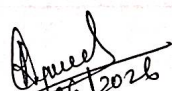
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	2nd	Introduction about PLC Programming software- Ladder logic diagram and Structure of program
11	1st	Procedure for creating ladder diagram
	2nd	Logical function done by ladder program in software
	3rd	PLC scan and execution time
12	1st	Revision of Unit-III
	2nd	Unit-IV: Main Instruction Set
13	1st	Latching Instructions
	2nd	Counter operation
	3rd	Timer operation and Accuracy
14	1st	Master Controls
	2nd	Shift Registers
15	1st	Moving Data
	2nd	Math Function
	3rd	Bit function
16	1st	Revision of Unit-IV
	2nd	Unit-V: PLC Applications for automation

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	3rd	Application of PLC as discrete state controller
17	1st	Application of PLC as P, PI and PID controller
	2nd	Application for control of conveyor system
18	1st	Application for automatic bottle filling system
	2nd	Application for liquid level control system
	3rd	Probable Q& A discussion
19	1st	Probable Q& A discussion
	2nd	Probable Q& A discussion
	3rd	Probable Q& A discussion


 20/06/2026
 Signature of Faculty


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