

C. V. RAMAN POLYTECHNIC, BHUBANESWAR

LESSON PLAN Session (2026-2027)

Discipline: ELECTRICAL ENGINEERING	Semester: 5 TH Semester, Winter/2026	Name of the Faculty: RASHMI RANJAN MARTHA ASST.PROF Email ID: rashmi.martha@cvrp.edu.in
Subject Name with code: INDUSTRIAL AUTOMATION & DRIVES (EEPE301)	No. of Days/week: 03 Total No. of Class (Required): 45	Start Date: 01.07.2026 End Date: 05.11.2026

Week	Class Day	Brief description of the Topic/Chapter to be taught
1st	1st	Unit-I: Introduction to Industrial Automation – Automation: Need and Benefits
	2nd	Types of Automation System – Fixed, Programmable and Flexible Automation
	3rd	Industrial Automation Systems – PLC, HMI, SCADA, DCS and Drives
2nd	1st	Unit-II: PLC Fundamentals – Building Blocks of PLC: CPU, Memory Organization
	2nd	Input and Output Modules (Discrete and Analog), Power Supply
	3rd	Special I/O Modules and PLC Power Supply
3rd	1st	Fixed and Modular PLC, PLC Redundancy
	2nd	I/O Module Selection Criteria
	3rd	Interfacing Different I/O Devices with PLC Modules
4th	1st	Unit-III: PLC Programming and Applications – PLC I/O Addressing
	2nd	PLC Programming Instructions – Relay Type and Timer Instructions
	3rd	Counter Instructions and High-Speed Counter Instructions
5th	1st	Logical, Comparison and Data Handling Instructions
	2nd	Arithmetic Instructions
	3rd	PLC Programming Languages – Ladder Diagram and Functional Block Diagram (FBD)
6th	1st	Structured Text (ST), Instruction List (IL) and Sequential Function Chart

		(SFC)
	2nd	Ladder Logic Examples – Relay, Timer, Counter and Arithmetic Applications
	3rd	Revision-I (Units I, II & PLC Basics)
7th	1st	PLC Applications – Motor Sequence Control
	2nd	Traffic Light Control and Elevator Control
	3rd	Tank Level Control and Conveyor System
8th	1st	Stepper Motor Control and Reactor Control
	2nd	Capacitive and Resistive Circuit Applications
	3rd	Question Discussion-I
9th	1st	Unit-IV: Electric Drives – Fundamental Concept of Electric Drives
	2nd	Need, Functional Block Diagram, Types and Functions of Electric Drives
	3rd	Four Quadrant Operation of Motor Drives
10th	1st	Electric Braking – DC Motor Braking
	2nd	Regenerative Braking, AC and DC Rheostatic Braking
	3rd	Selection of Motor Power Rating
11th	1st	DC Motor Drives – Single Phase and Three Phase Controlled Drives
	2nd	Dual Converter Controlled DC Drives
	3rd	Chopper Controlled DC Drives and Closed Loop Control
12th	1st	Maintenance Procedure of DC Drives
	2nd	Induction Motor Drives – Stator Voltage Control
	3rd	V/f Controlled Induction Motor Drives
13th	1st	Slip Power Recovery and Direct Torque Control
	2nd	Introduction to Synchronous Motor Drives
	3rd	Applications of AC and DC Motor Drives
14th	1st	Unit-V: SCADA – Introduction, Architecture and Block Diagram
	2nd	Benefits of SCADA and Various Editors
	3rd	Interfacing SCADA with PLC – Typical Connection Diagram
15th	1st	OPC Architecture, Tag Creation, SCADA Screen Development and Industrial Applications
	2nd	Revision-II (Units IV & V)

	3rd	Question Discussion-II / Final Doubt Clearing
--	-----	--



Signature of the Faculty



Signature of the H.O.D