



**SIDDHARTH INSTITUTE OF ENGINEERING AND TECHNOLOGY, KORAPUT**  
**DEPARTMENT OF ELECTRICAL ENGINEERING**  
**LESSON PLAN**

Name of the Course : TH-3: INDUSTRIAL AUTOMATION AND DRIVES			
Name of the Faculty: Er. MONALISA HATI			
Semester from date : 01.07.2026 TO 05.11.2026			
Course Code :	EEPE301(a)	Semester :	5 <sup>th</sup>
Total Periods:	45 Periods	Examination :	3Hrs
Theory Periods :	45 Hrs.	Progressive Assessment :	30
Lecture :	3Hrs/week	End Term Exam :	70
Credit :	3	Total Marks :	100

**VISION:**

To create competent and 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	Applying 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 to emerging technologies.

**COURSE OUTCOME:**

CO1	Identify different types of automation systems.
CO2	Illustrate interfacing of I/O devices with the PLC modules
CO3	Write programming using ladder logic for simple applications
CO4	Explain the selection of the suitable motor drives for different applications
CO5	Explain selection of relevant DC motor and AC motor for various electric drive applications
CO6	Explain SCADA and its applications

**TOPIC WISE DISTRIBUTION OF PERIODS**

Unit No.	Topics	Periods
I	Introduction to Industrial Automation	04
II	PLC Fundamentals	05
III	PLC Programming and Applications	10
IV	Electric Drives	16
V	Supervisory Control and Data Acquisition System (SCADA)	10



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Week	Day	Theory Topic	Corresponding CO
1 <sup>st</sup>	WEDNES DAY	Automation: Need and benefits.	CO1
	THURS DAY	Types of automation system: Fixed, Programmable, Flexible	CO1
	FRI DAY	Different systems used for Industrial automation: PLC, HMI,	CO1
2 <sup>nd</sup>	WEDNES DAY	SCADA, DCS, Drives	CO1
	THURS DAY	Building blocks of PLC: CPU, Memory organization, Input-output modules (discrete and analog),	CO2
	FRI DAY	Specialty I/O Modules, Power supply	CO2
3 <sup>rd</sup>	WEDNES DAY	Fixed and Modular PLC and their types, Redundancy in PLC module	CO2
	THURS DAY	I/O module selection criteria	CO2
	FRI DAY	Interfacing different I/O devices with appropriate I/O modules	CO2
4 <sup>th</sup>	WEDNES DAY	PLC I/O addressing	CO3
	THURS DAY	PLC programming Instructions: Relay type instructions, Timer instructions: On delay, off delay, retentive	CO3
	FRI DAY	Counter instructions: Up, Down, High speed, Logical instructions	CO3
5 <sup>th</sup>	WEDNES DAY	Comparison Instructions, Data handling Instructions, Arithmetic instructions.	CO3
	THURS DAY	PLC programming language: Functional Block Diagram (FBD), Instruction List. Structured text	CO3
	FRI DAY	Sequential Function Chart (SFC), Ladder Programming.	CO3
6 <sup>th</sup>	WEDNES DAY	Simple Programming examples using ladder logic: Language based on relay, timer counter, logical, comparison	CO3
	THURS DAY	arithmetic and data handling instructions	CO3
	FRI DAY	PLC Based Applications: Motor sequence control, Traffic light control, Elevator control, Tank Level control,	CO3
7 <sup>th</sup>	WEDNES DAY	Conveyor system, Stepper motor control, Reactor Control Gate trigger circuits	CO3
	THURS DAY	Resistance and Resistance-Capacitance circuits.	CO3
	FRI DAY	Need of Electric Drives, Functional Block diagrams of an electric drives.	CO4
8 <sup>th</sup>	WEDNES DAY	Types and Functions , Four Quadrant Operation of Motor Drive	CO4
	THURS DAY	Electric Braking of DC motor during lowering of loads and stopping	CO4
	FRI DAY	Regenerative braking, AC and DC rheostatic braking	CO4
9 <sup>th</sup>	WEDNES DAY	Selection of motor power rating	CO4
	THURS DAY	Single phase and three phases controlled DC drives, Dual converter control of DC drives.	CO4
	FRI DAY	Chopper controlled DC drives, Close loop control of DC drive	CO4
10 <sup>th</sup>	WEDNES DAY	Maintenance procedure	CO4
	THURS DAY	Stator voltage control, V/f controlled induction motors,	CO4
	FRI DAY	Slip power recovery, direct torque control	CO4
11 <sup>th</sup>	WEDNES DAY	Introduction to Synchronous Motor Drives	CO4
	THURS DAY	Applications of Speed control of AC motor /DC Motor.	CO5
	FRI DAY	Introduction to SCADA:	CO5
	WEDNES DAY	Typical SCADA architecture/block diagram	CO5
	THURS DAY	Benefits of SCADA	CO5

12 <sup>th</sup>	FRI DAY	Various editors of SCADA	CO5
13 <sup>th</sup>	WEDNES DAY	Interfacing SCADA system with PLC: Typical connection diagram,	CO5
	THURS DAY	Object Linking & embedding for Process Control (OPC) architecture	CO5
	FRI DAY	Steps in Creating SCADA Screen for simple object,	CO5

*M. Mohi*  
22/06/2026

Signature of Faculty Concerned  
(Electrical Engg.)

*K. Parthasarathy*  
22/6/26

Head of Department  
(Electrical Engg.)

**H.O.D.**  
**Electrical Engg.**  
**SIEL KORAPUT**

*R. Prasad*  
22/6/2026

Principal  
S.I.E.&T, KORAPUT

**Principal**  
**Siddharth Institute of Engineering &**  
**Technology Ektaguda, Koraput**