SWARNANDHRA
COLLEGE OF ENGINEERING & TECHNOLOGY
(Autonomous)
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Approved by AICTE, New Delhi, Permanent Affiliated to JNTU K, Kakinada
Seetharampuram, NARSAPUR-534 280, W.G-Dist., Andhra Pradesh

Department of Electrical and Electronics Engineering

TEACHING PLAN

Course Code	Course Title	Semester	Branches	Contact Periods/ Week	Academic Year	Date of Commencement of Semester
20EE7O02	INTRODUCTION TO PROGRAMMABLE LOGIC CONTROLLER	B.Tech /VII sem	CSE	6	2025 - 2026	9/06/2025

Course Outcomes: *After successful completion of this course, students should be able to:*

1	Illustrate I/O modules of PLC systems and ladder diagrams
2	Demonstrate various types registers and programming instructions
3	Examine various types of PLC functions and its applications
4	Assess different data handling functions and its applications.
5	Describe the analog operations and PID modules

Unit	Outcome/ Bloom's Level	Topics No.	Topics/ Activity	Text Book/ Reference	Contact Hour	Delivery Method/ LMS
I	CO1;Illustrate I/O modules of PLC systems and ladder diagrams	**Illustrate I/O modules of PLC systems and ladder diagrams**				
		1.1	I/O modules and interfacing	T1,R1	1	Chalk & Talk
		1.2	CPU processor	T1,R1	1	Chalk & Talk
		1.3	programming Equipment	T1,R1	1	Chalk & Talk
		1.4	programming formats	T1,R1	1	Chalk & Talk
		1.5	construction of PLC ladder diagrams	T1,R1	1	Chalk & Talk
		1.6	Devices connected to I/O Modules. Digital logic gates	T1,R1	1	Chalk & Talk
		1.7	programming in the Boolean algebra system	T1,R1	2	PPT
		1.8	conversion examples Ladder Diagrams for process control	T1,R1	1	PPT
		1.9	Ladder diagrams & sequence listings	T1,R1	1	PPT
		1.10	ladder diagram construction and flowchart for spray process system	T1,R1	2	PPT
Content beyond syllabus (if need)						

Total					12	
II	**CO2** : Demonstrate various types registers and programming instructions	**Demonstrate various types registers and programming instructions**				
		2.1	PLC Programming	**T1,R2**	1	Chalk & Talk
		2.2	Input instructions outputs	**T1,R2**	1	Chalk & Talk
		2.3	operational procedures	**T1,R2**	1	Chalk & Talk
		2.4	programming examples using contacts and coils.	**T1,R2**	1	Chalk & Talk
		2.4	Drill press operation	**T1,R2**	1	Chalk & Talk
		2.5	PLC Registers	**T1,R2**	1	Chalk & Talk
		2.6	Characteristics of Registers	**T1,R2**	1	Chalk & Talk
		2.7	module addressing	**T1,R2**	1	Chalk & Talk
		2.8	holding registers	**T1,R2**	1	Chalk & Talk
		2.9	Input Registers	**T1,R2**	1	Chalk & Talk
		2.10	Output Registers.	**T1,R2**	1	Chalk & Talk
Content beyond syllabus (if need)						
				Total	10	
III	**CO3** : Examine various types of PLC functions and its applications	**Examine various types of PLC functions and its applications**				
		3.1	Timer functions & Industrial applications	**T3,R1**	2	Chalk & Talk
		3.2	counters	**T3,R1**	2	Chalk & Talk
		3.3	counter function industrial applications	**T3,R1**	2	Chalk & Talk
		3.4	Arithmetic functions	**T3,R1**	2	PPT
		3.5	Number comparison functions	**T3,R1**	2	Chalk & Talk
		3.6	number conversion functions	**T3,R1**	1	Chalk & Talk
				Total	11	
IV	**CO4** : Assess different data handling functions and its applications.	**Assess different data handling functions and its applications.**				
		4.1	SKIP	**T2,R1,R2**	1	Chalk & Talk
		4.2	Master control Relay	**T2,R1,R2**	1	Chalk & Talk
		4.3	Jump - Move	**T2,R1,R2**	1	PPT
		4.4	FIFO - FAL	**T2,R1,R2**	1	PPT
		4.5	ONS – CLR	**T2,R1,R2**	1	Chalk & Talk
		4.6	Sweep functions and their applications.	**T2,R1,R2**	1	Chalk & Talk
		4.7	Bit Pattern and changing	**T2,R1,R2**	1	Chalk & Talk

			a bit shift register			
		4.8	sequence functions and applications	T2,R1,R2	2	Chalk & Talk
		4.9	controlling of two-axis & three axis Robots with PLC	T2,R1,R2	2	Chalk & Talk
		4.10	Matrix functions	T2,R1,R2	1	Chalk & Talk
Content beyond syllabus (if need)						
				Total	12	
		Describe the analog operations and PID modules				
V	**CO5** : Describe the analog operations and PID modules	5.1	Analog modules & systems	**T1,T2,R1**	1	Chalk & Talk
		5.2	Analog signal processing	**T1,T2,R1**	1	PPT
		5.3	Multi bit Data Processing	**T1,T2,R1**	1	Chalk & Talk
		5.4	Analog output Application	**T1,T2,R1**	1	Chalk & Talk
		5.5	Examples - PID principles	**T1,T2,R1**	1	Chalk & Talk
		5.7	position indicator with PID control	**T1,T2,R1**	1	Stud. Seminars
		5.8	PID Modules	**T1,T2,R1**	1	Chalk & Talk
		5.9	PID tuning	**T1,T2,R1**	1	Smart Board
		5.10	PID functions.	**T1,T2,R1**	1	Chalk & Talk
Content beyond syllabus (if need)						
				Total	10	
				Cumulative Proposed Periods	61	

Text Books:

S. No.	Author,Book Title, Edition, Publisher, Year of Publication
1	Programmable Logic Controllers- Principles and Applications by John W. Webb & Ronald A. Reiss - Fifth Edition – PHI.
2	Programmable Logic Controllers- Programming Method and Applications JR.Hackworth&nF.D Hackworth Jr. –Pearson - 2004

Reference Books:

S. No	Authors, Book Title, Edition, Publisher, Year of Publication
1	Introduction to Programmable Logic Controllers- Gary A. Dunning - 3rd edition – Cengage Learning - 2005. 2
2	Programmable Logic Controllers –W.Bolton - 5th Edition - Elsevier publisher - 2009.

		Name	Signature with Date
i.	Course Coordinator	Mr.B Bhargav santosh	B. Bhargav
ii.	Programme Coordinator	Dr.A Satyanarayana	A. Satyanarayana

Principal