

SWARNANDHRA

COLLEGE OF ENGINEERING & TECHNOLOGY

(AUTONOMOUS)

Accredited by National Board of Accreditation, AICTE, New Delhi, Accredited by NAAC with "A" Grade – 3.32 CGPA Recognized under 2(f) & 12(B) of UGC Act 1956, Approved by AICTE, New Delhi, Permanent Affiliation to JNTUK, Kakinada Seetharampuram, W.G.DT., Narsapur-534280, (Andhra Pradesh)

DEPARTMENT OF MECHANICAL ENGINEERING & ROBOTICS TEACHING PLAN

		4.4.4.4	71111011					
1475 (2021 POR) THE CO.		Semester	Branch	Contact Periods /Week	-		e c	Date of commencement of Semester
20RB6T02 E 1 CONT		VI	ROBOTICS	6	2	024-25	ţ	8/11/2024
OUTCOM	ES							
Identify and	d understand	the automati	ion concepts for	industries.[K2	2]			
Designation of the Contract of	and the second s							
Forth CS:	F1070							
Develop pr	ototype for t	he real time a	application using	g PLC, with H	MI. [I			
Out Comes / Bloom's Level	Topics No.		Topics/Activ	ity		Boo Con		Deliver Method
Identify	τ	nit-1 INTR	ODUCTION	O FACTOR	Y AU	TOM	ATION	
and understand the automation concepts for industries [K2]	1.1	History as	istory and developments in industrial itomation		trial	2		Chalk
	1,2						-	and
	1.3	Control ele	ments in industr	rial automation	1			talk
	1.4	PLC introd	uction			11, K	2	/ppt
1155-115-		Si	mulation of FM	S system			1	
						- Trial distance had a		8
Analy DLC	Unit-2. PROGRAMMABLE LOGIC CONTROLLERS							
Apply PLC architecture knowledge to select PLC for specific problems. [K3]	2.1	plc		5 VV NV		T1	1	
	2.2	architecture PLC	e of PLC, sca	n cycle, type	s of	Tl	1	Chalk and
	2.3						_	talk /ppt
	2.4		The state of the s	rs			_	
	2.5	the second of the second of the second				1.1		1
	PROGE E I CONT OUTCOM Identify and Apply PLC Apply real Develop pr Out Comes Bloom's Level Identify and understand the automation concepts for industries [K2] Apply PLC architecture knowledge to select PLC for specific problems.	PROGRAMMABL E LOGIC CONTROLLERS (R20) OUTCOMES Identify and understand Apply PLC architecture Use PLC Ladder diagra Apply real time applicat Develop prototype for to Out Comes Bloom's Level Identify and understand the automation concepts for industries for industries [K2] Apply PLC architecture knowledge to select PLC for specific problems. [K3] PROGRAMMABL E LOGIC CONTROLLERS (R20) Topics Topics No. 1.1 1.1 1.2 2.1 Apply PLC architecture knowledge to select PLC for specific problems. [K3] 2.4	PROGRAMMABL E LOGIC CONTROLLERS (R20) OUTCOMES Identify and understand the automatic Apply PLC architecture knowledge to the real time application using PI Develop prototype for the real time application using PI Develop	PROGRAMMABL E LOGIC CONTROLLERS (R20) OUTCOMES Identify and understand the automation concepts for Apply PLC architecture knowledge to select PLC for Use PLC Ladder diagram for simple applications. [K Apply real time application using PLC. [K3] Develop prototype for the real time application using PC. [K3] Out Comes Bloom's Level Identify and understand the automation 1.1 History and development automation understand the automation 1.2 Vertical integration of industries for industries [K2] Apply PLC architecture knowledge to select PLC for specific problems. I Apply PLC architecture knowledge to select PLC for specific PLC for specific problems. 2.4 power supplies and isolato	PROGRAMMABL E LOGIC CONTROLLERS (R20) OUTCOMES Identify and understand the automation concepts for industries. [K3] Apply PLC architecture knowledge to select PLC for specific prob Use PLC Ladder diagram for simple applications. [K3] Apply real time application using PLC. [K3] Develop prototype for the real time application using PLC, with H Out Comes Bloom's Level Identify and understand the automation 1.1 History and developments in indus automation concepts for industries [K2] Apply PLC architecture knowledge to select PLC for specific problems. In the plc architecture knowledge to select PLC for specific PLC for specific problems. Semester Branch Periods (Week PLG ROBOTICS 6 ROBOTICS 6 ROBOTICS 6 Industries 6 VI ROBOTICS 6 Controllery ROBOTICS 6 Industries IVI ROBOTICS 6 Industries problems IVI ROBOTICS 6 Industries IVI ROBOTICS 6 Industries problems IVI ROBOTICS 6 Industries IVI PLC introduction IVI PLC introduction IVI INTRODUCTION TO FACTOR and developments in industrial automation industrial automation for industries IVI PLC introduction IVI PLC introduct	PROGRAMMABL E LOGIC CONTROLLERS (R20) OUTCOMES Identify and understand the automation concepts for industries. [K2] Apply PLC architecture knowledge to select PLC for specific problems. Use PLC Ladder diagram for simple applications. [K3] Apply real time application using PLC. [K3] Develop prototype for the real time application using PLC, with HML. [I Out Comes Bloom's Level Identify and understand the automation using PLC. [K3] Develop prototype for the real time application using PLC, with HML. [I Out Comes Bloom's Level Identify and the automation using PLC automation to the automation oncepts for industries I.1 History and developments in industrial automation oncepts for industries I.2 Vertical integration of industrial automation of industries I.3 Control elements in industrial automation of FMS system Vinit-2. PROGRAMMABLE LOGIC CONTA Simulation of FMS system Vinit-2. PROGRAMMABLE LOGIC CONTA Simulation of FMS system Vinit-2. PROGRAMMABLE LOGIC CONTA Simulation of FMS system 2.1 Basics of PLC, advantages, capabilities of plc architecture for PLC, scan cycle, types of PLC specific problems.	Course Title Semester Branch Contact Periods /Week Periods /Week Periods /Week 2 PROGRAMMABL E LOGIC CONTROLLERS (R20) OUTCOMES Identify and understand the automation concepts for industries.[K2] Apply PLC architecture knowledge to select PLC for specific problems.[K3] Use PLC Ladder diagram for simple applications.[K3] Apply real time application using PLC.[K3] Develop prototype for the real time application using PLC, with HML [K3] Out Comes / Bloom's Level Identify and understand the automation dunderstand the automation concepts for industrial automation of industrial automation industrial automation of industrial automation industrial automation industries I.1 History and developments in industrial automation industries I.2 Vertical integration of industrial automation industries I.3 Control elements in industrial automation industries I.4 PLC introduction Total Control elements in industrial automation industries I.5 Basics of PLC, advantages, capabilities of plc architecture knowledge to select PLC for specific problems. II plc automation of FMS system Total Control elements in industrial automation industrial automation industrial automation industrial automation industrial	Course Title Semester Branch Contact Periods /Week Semester Periods /Week Semester Periods /Week Semester Periods /Week Semester Semester Periods /Week Semester Semeste

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Content beyond Syllabus			basics of using plc simulator		1			
Synaous	-			Total		9		
			Unit-3. PROGRAMMING OF PL	C				
ш	1	3.1	General PLC programming	R1,T1	1			
	Use PLC Ladder diagram for simple applicatio ns. [K3]	3.2	Procedures and types of programming, programming on-off inputs/outputs simple process control programs using relay ladder logic	T1, T2	3	Chalk and talk /ppt/		
		3.3	auxiliary commands and functions of plc	T1, T2	1			
		3.4	PLC basic functions	T1, T2	1			
		20.4.5	register basics and timer of plc	T1, T2	2	/quiz		
		3.4	counter functions of plc	R1,T1	2			
Content beyond Syllabus		2.1	simulation of counter and timers in software		1			
a) iiii v				Total		11		
			Unit-4. PLC INTERMEDIATE FUNC	TIONS				
		4.1	Arithmetic functions, Comparison functions	T1, T2	1_	Chalk and talk /ppt/ /quiz		
	Apply real time applicati on using PLC. [K3]	4.2	Skip and MCR functions	T1, T2	2			
		4.3	Data move systems	T1, T2	1			
IV		4.4	PLC advanced intermediate functions utilizing digital bits, sequencer functions, matrix functions	T1, T2	3			
		4.5	PLC advanced functions	T1, T2	2	/quiz		
		4.6	alternate programming languages, analog PLC operation.	T1, T2	2			
Content beyond Syllabus		Designing systems of plc			1			
Synaous						12		
	Develop		Unit 5. HMI SYSTEMS	10				
	prototype for the real time applicati on using PLC, withHMI .[K3]	5.1 Necessity and role in industrial automation		T1, R1	1			
		5.2	Text display, Operator panels, touch panels, panel PCs	T1, R1	2	Chall		
V		5.3	Integrated displays	T1, R1	1	and		
		5.4	Interfacing PLC to HMI	T1, R1	2	talk /ppt		
Content beyond Syllabus		Multiple man-machine interfaces			1			
Ojinacus.				Total		7		
			CUMULATIVE PROPOSED PI	ERIODS		47		



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Text Bo	oks:					
S.No.	AUTHORS, BOOK TITLE, EDITION, PUBLISHER, YEAR OF PUBLICATION					
1	Frank D Petruzella, "Programmable Logic Controllers ", 5th Edition, McGraw-Hill Education, 2016.					
2	William Bolton, "Programmable Logic Controllers ", 6th Edition, McGraw-Hill Education, 2016.					
Referen	ce Books:					
S.No.	AUTHORS, BOOK TITLE, EDITION, PUBLISHER, YEAR OF PUBLICATION					
1	Dag H. Hanssen, "Programmable Logic Controllers ", 1st Edition, Wiley Publisher, 2015.					
2	Khalid Kamel, Eman Kamel, "Programmable Logic Controllers", McGraw-Hill Professional Publishing, 2013					
Web De	tails					
1	https://plc-coep.vlabs.ac.in/exp/up-down-counter/simulation/index.html					
2	https://www.plcacademy.com/					
3	https://www.youtube.com					

		Name	Signature with Date
i	Faculty	Mr. B MAHESH KRISHNA	I allbulishiby
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iii	Module Coordinator	Dr.M FRANCIS LUTHER KING	Haglinky-
iv	Programme Coordinator	Dr.M FRANCIS LUTHER KING	Fulu Ja-

Principal