




KG REDDY
College of Engineering
& Technology

**Certificate Course in Electrical and Electronics
Engineering with Specialization
“Design of Programmable Logic Controllers(PLC)”
Held On
01st April to 6th April 2018**



**Department of Electrical & Electronics Engineering,
KG Reddy College of Engineering & Technology**
Chilkur(Village), Moinabad(Mandal), Hyderabad RR Dist-501504


Course coordinator


Principal
Principal
KG Reddy College of Engineering & Technology
Chilkur (V) Moinabad (M).
R. R. Dist



SUMMARY REPORT OF PROGRAMMABLE LOGIC CONTROLLER DESIGN

About Course

The certificate course on Design of Programmable Logic Controller by Siemens is concluded its work successfully by department of electrical and electronics engineering (EEE) in KG Reddy College of Engineering and Technology (KGR CET), Hyderabad, Telangana. This course is a forum to bring together students to discuss innovative ideas and diverse topics of this course on next generation of information technologies. Department has taken a new step for students to improve the quality of study through this course and become most wide scale, extensive, spectacular event in electrical and electronics engineering. The six days course was held in two locations of the department (a) Department E-learning room for theory class and (b) Department laboratory for practical class.

In the most basic terms, a programmable logic controller (PLC) is a computer with a microprocessor but has no keyboard, mouse or monitor. It is essentially built to withstand very harsh industrial environments.

It is a distinctive form of computer device designed for use in industrial control systems. It has a robust construction and unique functional features such as sequential control, ease of programming, timers and counters, easy-to-use hardware and reliable controlling capabilities.

Scope of the Course

The logic controllers are often tasked to control and monitor a very large number of sensors and actuators. They are therefore different from other regular computer systems in their extensive I/O (input/output) arrangements. It is designed to be enormously robust, so it could withstand harsh industrial environments such as extreme temperatures, vigorous vibrations, humidity and electrical noise. In addition to being used as a special-purpose digital computer, the PLC can be used in other control-system areas and industries. This explains why PLCs are often referred to as industrial PCs.

Once programmed, the PLC will perform a sequence of events triggered by stimuli referred to as inputs. It receives these stimuli through delayed actions such as counted occurrences or time delays.

It covered significant recent developments in the field, both of a foundational and applicable character of this course. An important feature of this course is very useful in service carrier. The selected topics of this course helped to make project work. This permits also a rapid and broad dissemination of project and research work.

Objectives of the course

The objective of the course is to bring together experts from academic institute and training institute for sharing of knowledge, expertise and experience in emerging trends related to the computer science and engineering topics.

The Programmable Logic Controllers - Design Training Courses are proposed to give you all around learning.

It introduced the advances in the field of industry operation and control. The software design aspect of the circuits are introduced to students.

As a result many keynote, tutorial and practical sessions have been prepared in accordance with course scope to discuss the challenges, opportunities and problems of PLC design in various fields of Electrical and Electronics Engineering.

OUTPUT:

This course was not only shared the knowledge among students but also tied up with expert for upcoming course.

The main outputs are mentioned below:

- ❖ The expert shared his knowledge among students.
- ❖ Students learned from this course and tried to use the techniques for their project as well as research work.
- ❖ Students interact with expert to gain their additional knowledge for future research work.
- ❖ Students found new ideas, concept, knowledge on technology, different application of methodologies from different session of course.
- ❖ Department tried to do their collaborative research work on this course with university as well as industries.
- ❖ It was created different domains of research field from this course for possible topic of computer science engineering.
- ❖ It helped to make industrial project.
- ❖ It helped to student for campus recruitment.

Summary of Participants

- (a) Number of students attended this course:
- (b) Number of certificate issued:
- (c) Number of students passed this course:

Day-1
(01-04-18)

Time: 09:00 AM to 11:00 AM

Inauguration of certificate course

The first day of certificate course started with Welcoming and Opening Ceremony at the KGRCEIT conference Hall. The following dignitaries were representatives of the certificate course who were addressed and pointed out the importance on course with short welcoming speeches.

Welcome addressed by Mr. K.Syed, HOD, EEE, KGRCEIT

About the certificate course by Principal Dr. R. S. Jahagirdar, KGRCEIT.

Importance of this course by expert trainer Mr. K. Ramakrishna, Industry Expert , Hyderabad

Interaction with 2nd and 3rd year 2nd semester students

Time: 11:10 AM to 04:15 PM

These special computer devices are different from regular computers such as PCs or smartphones in that:

1. A PLC performs only a single set or sequence of tasks, with greater reliability and performance, except when it is under real-time constraints. This is in contrast to regular PCs and smartphones that are designed to execute any number of roles simultaneously within the Windows framework.
2. The PLC has a number of features that you don't find in normal computers, such as protection from the open area conditions like heat, dust and cold.
3. It is low cost compared with other microcontroller systems. When you're using a PLC in various applications, you only need to change the software component for each application. With other microcontroller systems however, you would have to change the hardware components too with different applications.

Each PLC system has three modules namely: CPU module, power supply module and one or more input/output (I/O) module.

CPU Module: This module is comprised of a central processor and its memory component. This processor performs all the needed data computations and processing by receiving inputs and producing corresponding outputs.

Power supply module: PLC's computer circuitry runs on a 5V DC output and this is supplied by the power supply module. This is essentially the module responsible for powering up the system. It receives AC power and converts it to DC power that the two other modules (CPU and input/output modules) use.

I/O Modules: The input/output modules are responsible for connecting the sensors and actuators to the PLC system to sense the different parameters such as pressure, temperature, and flow.



Photograph showing industry expert explaining different parts of PLC when connected

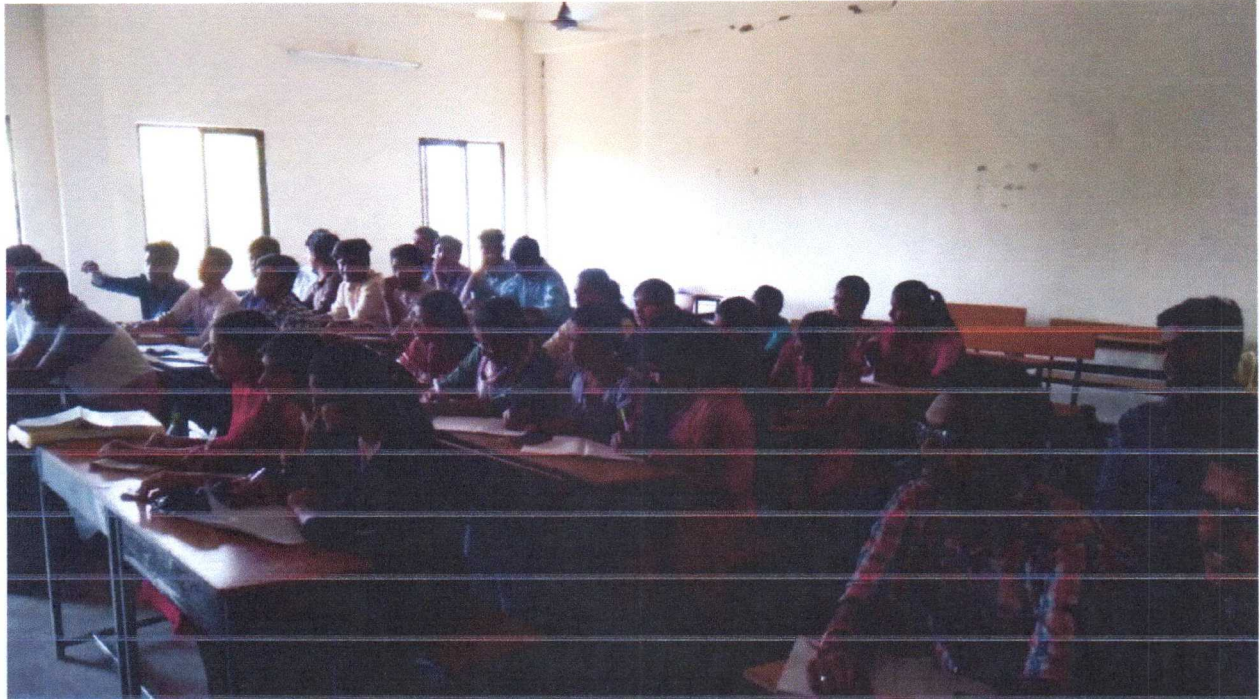
Day-2 **(02-04-18)**

PLCs are used in various applications in industries such as the steel industry, automobile industry, chemical industry and the energy sector. The scope of PLCs dramatically increases based on the development of all the various technologies where it is applied.

In the Travel Industry, PLC has been used to monitor the safety control system and to operate lifts and escalators.

Glass industry : PRCs controllers have been in use in the glass industry for decades. They are used largely to control the material ratio as well as to process flat glasses. The technology has been advancing over the years and this has created an increased demand for the PLC control mode for use in the glass industry. The production of glass is an elaborate and sophisticated process so the companies involved often use PLCs with the bus technology in its control mode.

Overall, the PLC is applied in both analogue data recording in the glass production, and in digital quality and position control.



Day-3
(03-04-18)

A distributed control system comprised of PLC in its user mode and configuration software are used in the industry's production and management processes. The PLC in particular, controls ball milling, coal kiln and shaft kiln.

Other examples of PLC programming applications that are in use in various industries today include water tank quenching systems in the aerospace sector, filling machine control system in the food industry, – industrial batch washing machine control and closed loop textile shrinkage systems.

PLC is also used in the coal-fired boiler fan change-over system in hospitals, corrugation machine control system and silo feeding as well as injection molding control systems in the plastic industry.

The programmable logic controllers at Mobile Automation includes a huge variety from various top industry manufacturers such as Allen-Bradley and Omron. All these can be put to various applications in key departments of your business to standardize the production process and increase your return on investment.



Day-4
(04-04-18)

Each PLC system has three modules namely: CPU module, power supply module and one or more input/output (I/O) module.

CPU Module: This module is comprised of a central processor and its memory component. This processor performs all the needed data computations and processing by receiving inputs and producing corresponding outputs.

Power supply module: PLC's computer circuitry runs on a 5V DC output and this is supplied by the power supply module. This is essentially the module responsible for powering up the system. It receives AC power and converts it to DC power that the two other modules (CPU and input/output modules) use.

I/O Modules: The input/output modules are responsible for connecting the sensors and actuators to the PLC system to sense the different parameters such as pressure, temperature, and flow.

After understanding the basic idea of PLC and students are taken out on practical session on PLC.

Then students took the challenge of generating PLC for traffic signals and counter

Photograph showing EEE students doing PLC Project

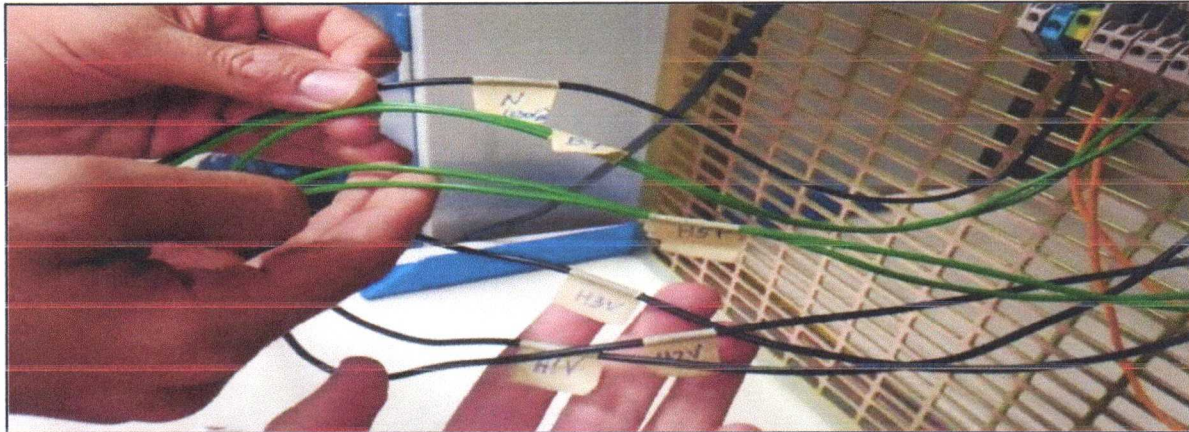


Figure: Connection of wires to control Unit

Day-5
(05-04-18)



A typical PLC scans cycle includes of the following steps:

- The operating system starts cycling and monitoring of time.



- The CPU starts reading the data from the input module and checks the status of all the inputs.
- The CPU starts executing the user or application program written in relay-ladder logic or any other PLC-programming language.
- Next, the CPU performs all the internal diagnosis and communication tasks.
- According to the program results, it writes the data into the output module so that all outputs are updated.
- This process continues as long as the PLC is in run mode.

Day-6 (06-04-18)

PLCs are well adapted to a range of automation tasks. These are typically industrial processes in manufacturing where the cost of developing and maintaining the automation system is high relative to the total cost of the automation, and where changes to the system would be expected during its operational life. PLCs contain input and output devices compatible with industrial pilot devices and controls; little electrical design is required, and the design problem centers on expressing the desired sequence of operations. PLC applications are typically highly customized systems, so the cost of a packaged PLC is low compared to the cost of a specific custom-built controller design. On the other hand, in the case of mass-produced goods, customized control systems are economical. This is due to the lower cost of the components, which can be optimally chosen instead of a "generic" solution, and where the non-recurring engineering charges are spread over thousands or millions of units

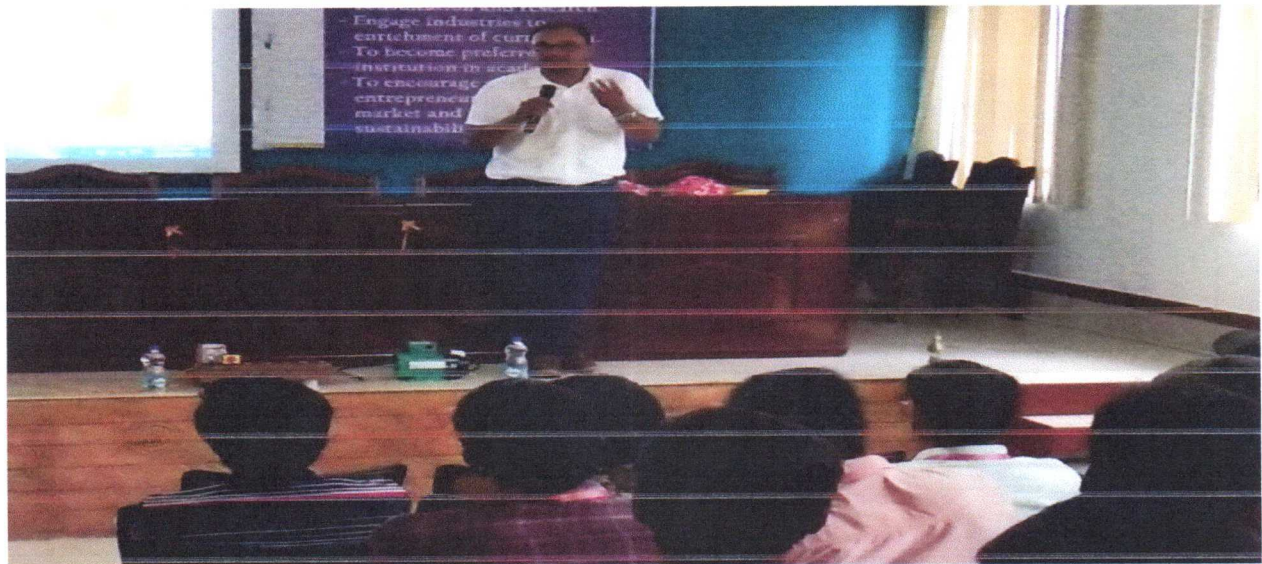


Figure: Expert delivering conclusions of the course

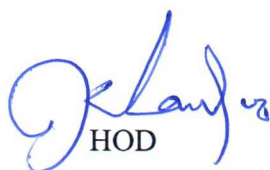
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Ref No: KGR CET/CSE/2017-18/027/1


Date: 26/02/2018

CIRCULAR

All the students of II Year & III-Year II-semester B.Tech EEE are hereby instructed to enroll for the certificate course on "PLC PROGRAMMING" which is offered by KG Reddy college of Engineering and Technology from 1/04/2018 to 06/04/2018. Interested students are instructed to contact Mr. K.Syed for completing their registration before 28/02/2018.



HOD



Principal
Principal
KG Reddy College of Engineering & Technology
Chilukur (V) Moynabad (M),
R. R. Dist.

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Chilkur (Village), Moinabad (Mandal), R. R Dist, TS-501504

Department of Electrical and Electronics Engineering

CERTIFICATION COURSE ON

“DESIGN OF PROGRAMMABLE LOGIC CONTROLLER”

SYLLABUS

The course covers following topics with the hands on experience





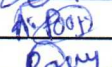

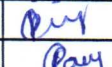
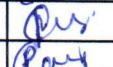
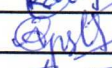

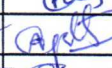
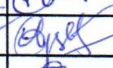
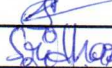
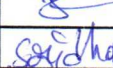

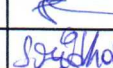


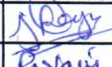
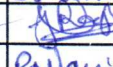
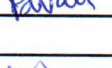
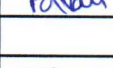
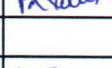
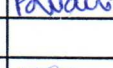




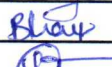
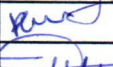

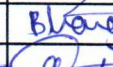








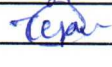
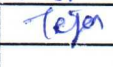
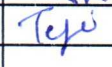
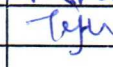
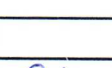
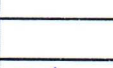
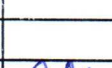
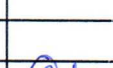

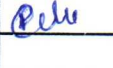


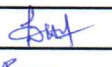
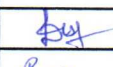
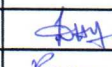
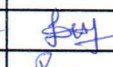




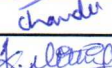
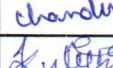
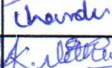
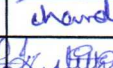
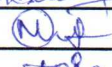
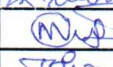


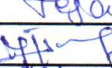

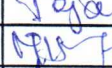





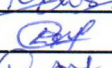


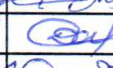
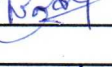
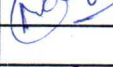
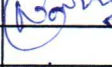
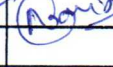









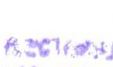





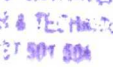




- PLC Overview
- PLC Selection
- Number Systems & Codes
- I/O Devices & Motor Controls
- Creating Relay Logic Diagrams
- PLC Programming
- Programming Logic Gate Functions
- PLC Timer Instructions
- PLC Counter Instructions
- Math Instructions
- Compare, Jump & MCR Instructions
- Subroutine Functions
- Logic & Bit Shift Instructions
- Sequencer Instructions
- Troubleshooting & Servicing
- PLC Networks in Manufacturing


COURSE CO-ORDINATOR


HOD-EEE

KG REDDY COLLEGE OF ENGINEERING & TECHNOLOGY
Chilkur (Vill) Moinabad (Mdl) R.R Dist
DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING
Certificate Program on PLC

Year / Sem: III - I

S.No	Roll Number	Name of the student	Signature of the student			
			01/04/18	02/04/18	03/04/18	04/04/18
1	16C51A0209	GUGULOTH BHAVANI				
2	16QM1A0201	ABBARABOINA AKHIL				
3	16QM1A0202	ADAMA POOJITHA				
4	16QM1A0204	AKULA RAMYASRI				
5	16QM1A0205	ANANTHARAM PRASHANTH				
6	16QM1A0206	BEESA MAHESH KUMAR				
7	16QM1A0207	BORAMPET SRIDHAR REDDY				
8	16QM1A0209	JALAGARI RAJA SHEKAR RAJU				
9	16QM1A0210	KAVALI PAVANI				
10	16QM1A0212	M L SATISH				
11	16QM1A0214	MOHAMED YUNUS M				
12	16QM1A0215	MUDANGLA RAGHAVENDRA				
13	16QM1A0216	N BHARGHAVI				
14	16QM1A0217	PASUPULA NAVEEN YADAV				
15	16QM1A0218	PODDHUTURI PRAPUN REDDY				
16	16QM1A0219	PUTTA ASHOK				
17	16QM1A0221	RISHAB DEV RAI				
18	16QM1A0222	VENKUGARI TEJASWINI				
19	16QM1A0223	VUMMENTHALA SAIPRAVEEN REDDY				
20	16UR1A0201	MANCHANPALLY GNANESHWAR GOUD				
21	17QM5A0201	ANABARLA REKHA				
22	17QM5A0202	B RAVI TEJA				
23	17QM5A0204	DASARI HARSHAVARDHAN				
24	17QM5A0205	DEVARAKONDA PAVAN SUBHASH				
25	17QM5A0206	DHAGE HEMANTH				
26	17QM5A0207	GADDE CHANDRA KANTH				
27	17QM5A0208	K NITHIN KUMAR				
28	17QM5A0210	KAITHI MOUNIKA				
29	17QM5A0211	KASTURI TEJASRI				
30	17QM5A0212	MADUPATHI JAGADESHWAR				
31	17QM5A0213	MOHAMMED AFRITH				
32	17QM5A0215	NIMMALA DINESH				
33	17QM5A0216	PALLE DATTU				
34	17QM5A0217	PULAPALLY NANDESHWAR				
35	17QM5A0218	PULIPAKA VAMSHI RAJ				
36	17QM5A0219	S SANTHOSH KUMAR				

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DEPT. OF ELECTRICAL & ELECTRONIC ENGINEERING
KG REDDY COLLEGE OF ENGINEERING & TECHNOLOGY
CHILKUR S.R. MOINABAD, R.R. DIST. 501 504

KG REDDY COLLEGE OF ENGINEERING & TECHNOLOGY
Chilkur (Vill) Moinabad (Mdl) R.R Dist
DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING
Certificate Program on PLC

Year / Sem: II - I

S.No	Roll Number	Name of the student	Signature of the student			
			01/04/18	02/04/18	03/04/18	04/04/18
1	17QM1A0201	A KARTHIK REDDY				
2	17QM1A0202	AHMED NAZAR				
3	17QM1A0203	ALLADA PRASHANTH REDDY				
4	17QM1A0204	AMAR CHANDESHWRE	<i>C. Amar</i>	<i>C. Amar</i>	<i>C. Amar</i>	<i>C. Amar</i>
5	17QM1A0205	ARRAPAPULA SRINIK	<i>Srinik</i>	<i>Srinik</i>	<i>Srinik</i>	<i>Srinik</i>
6	17QM1A0206	BANOTHU VINEETH KUMAR	<i>Vineeth</i>	<i>Vineeth</i>	<i>Vineeth</i>	<i>Vineeth</i>
7	17QM1A0207	BELLAM GOPI				
8	17QM1A0208	SK HATEEM AHMED				
9	17QM1A0209	CHINTHAKUNTLA ASWINI	<i>Aswini</i>	<i>Aswini</i>	<i>Aswini</i>	<i>Aswini</i>
10	17QM1A0210	GORLA YOUGHANDER REDDY				
11	17QM1A0211	GANAPURAM SNEHA	<i>Sneha</i>	<i>Sneha</i>	<i>Sneha</i>	<i>Sneha</i>
12	17QM1A0212	KANTAM KOTESHWARI				
13	17QM1A0213	MADI SHASHIVARDHAN REDDY				
14	17QM1A0214	SAI RITESH SINGH	<i>Ritesh</i>	<i>Ritesh</i>	<i>Ritesh</i>	<i>Ritesh</i>
15	17QM1A0215	SAMA SUSHMA	<i>Sushma</i>	<i>Sushma</i>	<i>Sushma</i>	<i>Sushma</i>
16	17QM5A0214	MUDIMADUGULA GOVARDHAN	<i>Govardhan</i>	<i>Govardhan</i>	<i>Govardhan</i>	<i>Govardhan</i>
17	18QM5A0201	ALGANI ABHILASH GOUD	<i>Abhilash</i>	<i>Abhilash</i>	<i>Abhilash</i>	<i>Abhilash</i>
18	18QM5A0202	BASA TEJASWINI	<i>Tejaswini</i>	<i>Tejaswini</i>	<i>Tejaswini</i>	<i>Tejaswini</i>
19	18QM5A0203	BONKURI SUCHARITHA	<i>Sucharitha</i>	<i>Sucharitha</i>	<i>Sucharitha</i>	<i>Sucharitha</i>
20	18QM5A0204	CHENNA DIVYA	<i>Divya</i>	<i>Divya</i>	<i>Divya</i>	<i>Divya</i>
21	18QM5A0205	CHITYALA MANIKANTA	<i>Manikanta</i>	<i>Manikanta</i>	<i>Manikanta</i>	<i>Manikanta</i>
22	18QM5A0206	GALIPELLY RAM TEJA	<i>Ram Teja</i>	<i>Ram Teja</i>	<i>Ram Teja</i>	<i>Ram Teja</i>
23	18QM5A0207	GANDRA RAKESH REDDY	<i>Rakesh</i>	<i>Rakesh</i>	<i>Rakesh</i>	<i>Rakesh</i>
24	18QM5A0208	GUNTI SAILOKESH	<i>Sailokesh</i>	<i>Sailokesh</i>	<i>Sailokesh</i>	<i>Sailokesh</i>
25	18QM5A0210	KALVAKUNTLA ABHIRAM	<i>Abhiram</i>	<i>Abhiram</i>	<i>Abhiram</i>	<i>Abhiram</i>
26	18QM5A0211	KANDIKONDA KAMALAKAR GOUD	<i>K. Kamalak</i>	<i>K. Kamalak</i>	<i>K. Kamalak</i>	<i>K. Kamalak</i>
27	18QM5A0212	KODEM SRAVANTHI	<i>Sravanthi</i>	<i>Sravanthi</i>	<i>Sravanthi</i>	<i>Sravanthi</i>
28	18QM5A0214	M KAVITHA	<i>Kavitha</i>	<i>Kavitha</i>	<i>Kavitha</i>	<i>Kavitha</i>
29	18QM5A0215	MAISA RAKESH	<i>M. Rakesh</i>	<i>M. Rakesh</i>	<i>M. Rakesh</i>	<i>M. Rakesh</i>
30	18QM5A0216	P DIVYA	<i>Divya</i>	<i>Divya</i>	<i>Divya</i>	<i>Divya</i>
31	18QM5A0217	PILLI PAVAN KUMAR	<i>Pavan</i>	<i>Pavan</i>	<i>Pavan</i>	<i>Pavan</i>
32	18QM5A0218	PUPPALA RAJESH	<i>Rajesh</i>	<i>Rajesh</i>	<i>Rajesh</i>	<i>Rajesh</i>
33	18QM5A0219	SUDHEESH PRASAD	<i>Sudheesh</i>	<i>Sudheesh</i>	<i>Sudheesh</i>	<i>Sudheesh</i>
34	18QM5A0220	SUNIL RATHOD	<i>Sunil</i>	<i>Sunil</i>	<i>Sunil</i>	<i>Sunil</i>
35	18QM5A0221	SUNKARI SAI SRIKAR	<i>Srikar</i>	<i>Srikar</i>	<i>Srikar</i>	<i>Srikar</i>
36	18QM5A0222	TADAKAMALLA NAVEEN RAJ	<i>Naveen</i>	<i>Naveen</i>	<i>Naveen</i>	<i>Naveen</i>
37	18QM5A0223	THALLAPPELLY VINAY	<i>Vinay</i>	<i>Vinay</i>	<i>Vinay</i>	<i>Vinay</i>
38	18QM5A0224	SRINIVAS.T	<i>Srinivas</i>	<i>Srinivas</i>	<i>Srinivas</i>	<i>Srinivas</i>
39	18QM5A0225	Y KARTHIK				

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KG REDDY COLLEGE OF ENGINEERING & TECHNOLOGY

Chilkur (Vill) Moinabad (Mdl) R R Dist

OBJECTIVE EXAM FOR CERTIFICATE COURSE ON DESIGN OF PLC

NAME A. POOSHTH HALL TICKET NO

1	6	Q	M	1	A	0	2	0	7
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Answer all the questions. All questions carry equal marks. Time: 30min.30 marks.

choose correct alternative:

1. The acronym PLC stands for:

- (A) Pressure Load Control
- (B) Programmable Logic Controller
- (C) Pneumatic Logic Capstan
- (D) PID Loop Controller

[B]

2. Ladder logic programming consists primarily of:

- (A) Virtual relay contacts and coils
- (B) Logic gate symbols with connecting lines
- (C) Function blocks with connecting lines
- (D) Text-based code

[C]

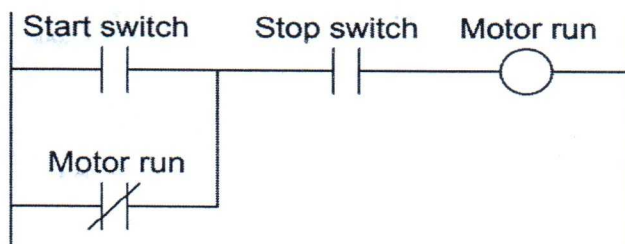
3. In a PLC, the scan time refers to the amount of time in which

- (A) the technician enters the program
- (B) timers and counters are indexed by
- (C) one "rung" of ladder logic takes to complete
- (D) the entire program takes to execute

[D]

4. Identify the problem in this motor control PLC program

[B]



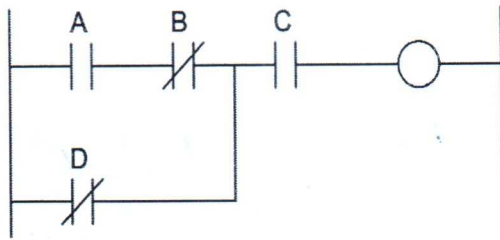
A. coil

B. motor

C. connectng switch

D. stop contact

5. Identify the Boolean logic



- A. $A.B+C.D$ B. $\underline{AB+CD}$ C. $AB+BC+CD$ D. none

6. When _____ contacts are actuated, they disrupt the power supply through them. [C]

A. normally open type B. normally closed type C. both a. and b. D none of the above

7. The type of memory which is fast and temporarily stores the data which are immediately required for use is called as _____ [D]

a. HDD b. ROM c. RAM d. SSD

8. How is the speed of operation of conventional relay system as compared to digital controllers?

a. very slow b. very fast c. same d. almost similar

9. The capability of convention relay systems for complex operations is __ that of the PLCs [A]

a. poor than b. excellent than c. as good as d. unpredictable as

10. How is the noise immunity of PLCs to electrical noises as compared to that of conventional relay controllers? [B]

a. poor b. excellent c. as good as noise d. unpredictable

11. _____ of PLCs can be done in very little time. [C]

a. Programming b. Installation c. Commissioning d. All of the above

12. PLC can be _____ in plant to change the sequence of operation. [D]

a. only programmed b. reprogrammed c. A,B d. able to give a set point

18. The PLC is used in class is _____. [B]

a. machine tools b. automated c. moulding and extrusion machines d. all of the above

13. Which of the following can be the output of PLC? [A]

A. Relay coils B. Solenoid C. Indicators D. Motors

14. Which of the following cannot be an input that is given to the PLC? [C]

a. Manual switches b. Relays c. Sensors d. None of the above

15. An OR gate in PLC uses [D]

A. normally open gate B . normally closed gate C. A or B D. none

Fill In The Blanks

1. The most important sections of PLC are input sections, output sections and Memory.
2. The Structure of PLC consists of power supply module, CPU, I/O modules and Program.
3. User program can be written in any standard PLC programming languages like statement list and Ladder logic.
4. The AND function combines the bit addresses of inputs and produces an RLO (Results of logic operation) of 0. when all the inputs are scanned for 1
5. The function of timer is to provide time delay between work operations

State True or False

Please write true or false for the following questions. True as T and false F

1. Hard wired control systems are used widely when production requirements change [T]
2. Relay controls are less expensive compared to PLC controls [T]
3. While processing a PLC program, CPU scans and executes the main program cyclically. [F]
4. The NO and NC PLC program contact is same as the hardware NO and NC contacts. The OR function combines the bit addresses of inputs and produces an RLO (Results of logic operation) of 1 when any one or more of inputs are scanned for 1. [T]
5. The NAND function combines the bit addresses of inputs and produces an RLO (Results of logic operation) of 1 when any one or more of inputs are scanned for 1 [F]



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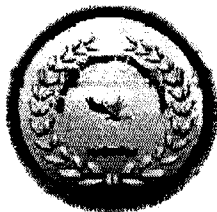
M.JAGADESH

Registration No:17QM5A0212

has successfully completed the prescribed requirements for the award of certificate course on **"DESIGN OF PROGRAMMABLE LOGIC CONTROLLERS(PLC)"** conducted by Department of Electrical and Electronics Engineering held in month of April from 01/04/18 to 06/04/19 in the academic year 2018-2019

Date: 2-3-2019

Course Coordinator



Principal



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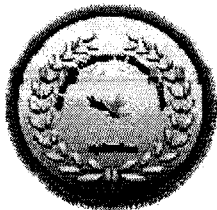
MD.AFRITH

Registration No:17QM5A0213

has successfully completed the prescribed requirements for the award of certificate course on “**DESIGN OF PROGRAMMABLE LOGIC CONTROLLERS(PLC)**” conducted by Department of Electrical and Electronics Engineering held in month of April from 01/04/18 to 06/04/19 in the academic year 2018-2019

Date: 2-3-2019

Course Coordinator



Principal