KG REDDY
College of Engineering
& Technology

Certificate Course in Electrical and Electronics Engineering with Specialization ""PLC PROGRAMMING & ITS APPLICATION" Held On 28th February to 6th March 2019

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.

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SUMMARY REPORT OF PLC PROGRAMMING & ITS APPLICATION

About Course

The certificate course on PLC programming and its applications is concluded its work successfully by department of electrical and electronics engineering (EEE) in KG ready college of Engineering and technology (KGRCET), 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 Elctrical 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 the course:

Day-1
(28-02-19)

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 KGRCET 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. M. Saidi Reddy, HOD, CSE, KGRCET
About the certificate course by Principal Dr. R. S. Jahagirdar, KGRCET.
Importance of this course by expert trainer Mohammed Akber Ansari, Industry Expert , Hyderabad
Interaction with 2nd & 3rd year 2nd semester students

Time: 11:10 AM to 04:15 PM

Industrial Automation is the technology by which a process or procedure is performed with minimum human assistance. Automation or automatic control is the use of various control systems for operating equipment such as machinery, processes in factories, boilers and heat treating ovens, switching on telephone networks, steering and stabilization of ships, aircraft and other applications and vehicles with minimal or reduced human intervention. Some processes have been completely automated. 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.

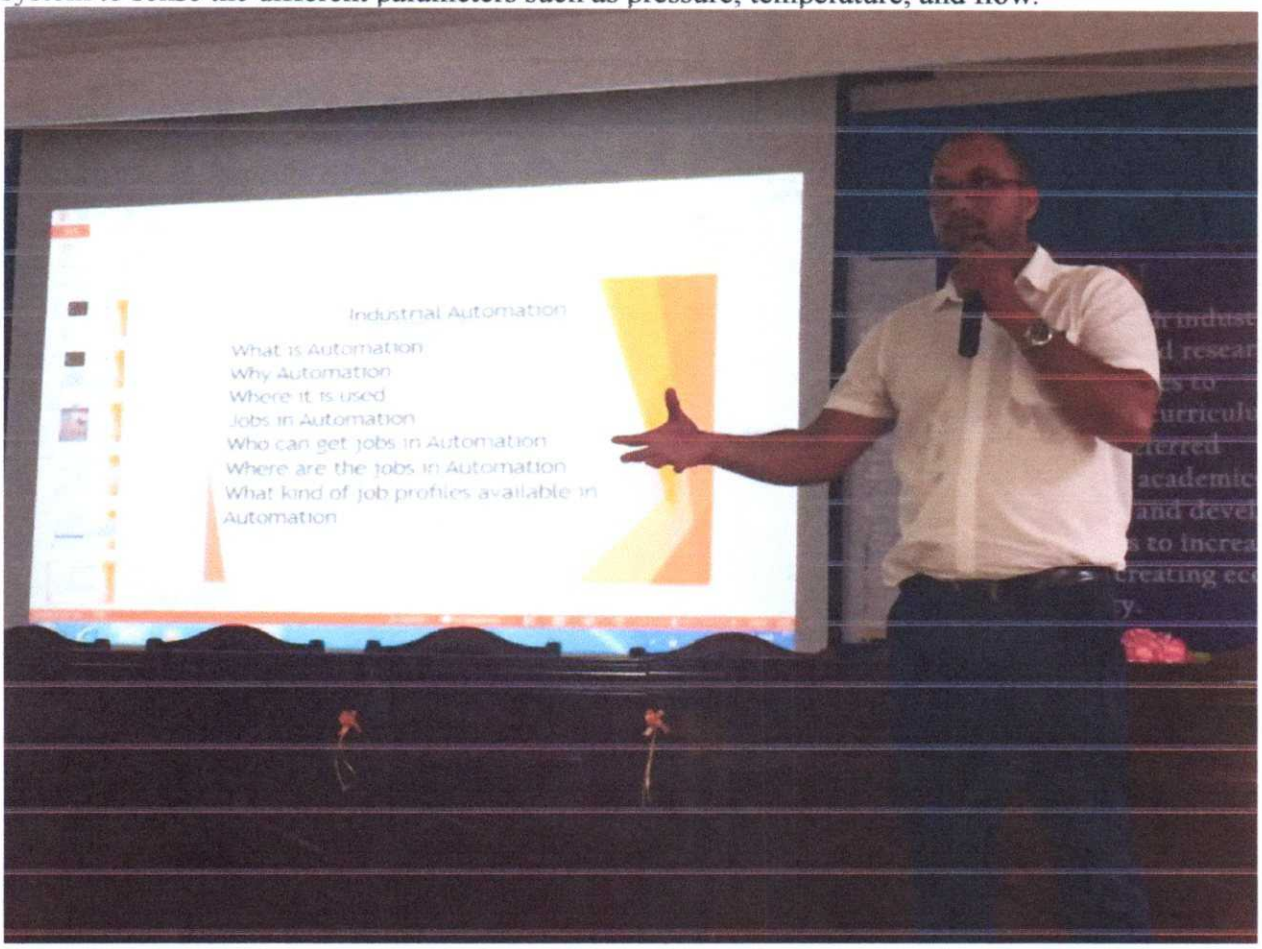
- Power supply module

  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 Mohammed Akber Ansari explaining the need of PLC

Day-2
(01-03-19)

Areas where programmable logic controllers are applied

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
(02-03-19)

A distributed control system comprised of PLC in its user mode and a 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.

BENEFITS OF PROGRAMMABLE CONTROLLERS

1. Programmable controllers are made of solid state components and hence provide high reliability.

2. They are flexible and changes in sequence of operation can easily be incorporated due to programmability. They may be modular in nature and thus expandability and easy installation is possible.

3. Use of PLC results in appreciable savings in Hardware and wiring cost.

4. They are compact and occupy less space.

5. Eliminate hardware items like Timers, counters and Auxiliary relays. The presence for timers and counters has easy accessibility.

6. PLC can control a variety of devices and eliminates the need for customized controls.

Day-4
(04-03-19)

A PLC is basically a black box with a number of inputs from, and a number of outputs to, the outside world. It can make decisions, store data, do timing cycles, do simple arithmetic, convert codes, and so on. The basic difference between this black box and a hardware logic system using IC chips or a relay controlled system, is that specific coded messages are stored in areas called program memory, which are PROM or ROM and RAM chips. It is, however, much easier to change a program when a different process is required than to rewire the control system. For example, it may take electricians a couple of weeks to require a pipe mill, whereas a programmer will spend only a fraction of this time to reprogram a PLC since no wires will have to be changed. In addition, various recipes can be stored in memory and accessed when required, making the program extremely flexible

The system operates through interaction with the processor and program memory. When the power to the system is turned on, the processor reads the first instruction stored in memory and acts on this instruction. When completed, it goes back to the memory for the next instruction, and so on until task is complete. This operation is called the fetch-execute cycle. The processor communicates with the outside world via input and output modules.

Programmable logic controllers (PLC) can be considered to have three parts:

1. Input/output Section

The I/O section contains input modules and output modules. Functionally, the input modules are equivalent to the signal converters (i.e. Analog to Digital or high power to low power). All modern PLC input modules use optical devices to accomplish electrically isolated coupling between the input circuit and the processor electronics.
Each input device is wired to a particular input terminal on the I/O section. Thus if the switch is closed, 5v dc appears on input terminal, converts this dc voltage to a digital 1 and sends it to the processor via programmable peripheral interface (PPI). Conversely, if the switch is open, no dc voltage appears on input terminal. Input section will respond to this condition by sending a digital 0 to the processor. The other input terminals behave identically.

The Processor

The processor of a PLC holds and executes the user program. In order to carry out this job, the processor must store the most up-to-date input and output conditions.

(a) Input image table:

The input conditions are stored in the input image table, which is a portion of the processor's memory. That is, every single input module in the I/O section has assigned to it a particular location within the input image table. That particular location is dedicated solely to the task of keeping track of the latest condition of its input terminal. As mentioned in earlier section, if the input terminal has 5v dc power fed to it by its input device, the location within the input image table contains a binary 1(HI); if the input terminal has no 5v dc power fed to it, the location contains a binary 0(LO).
The processor needs to know the latest input conditions because the user program instructions are contingent upon those conditions. In other words, an individual instruction may have one outcome if a particular input is HI and a different outcome if that input is LO.

(b) Output image table:

The output conditions are stored in the output image table, which is another portion of the processor's memory. The output image table bears the same relation to the output interface of the I/O section that while terminals are analog inputs. You can directly connect any analog input to the processor via these terminals. Analog signal from these terminals is first converted to digital value via programmable peripheral interface (PPI). The I/O section's output modules are functionally the same as the output amplifiers. They receive a low power digital signal from the processor and convert it into a high power signal capable of driving an industrial load. A modern PLC output module is optically isolated, and uses a triac, power transistor or relay as the series connected load controlling device. Terminal 1 to 8 are these type of O/P terminals whereas terminal D/A is Analog output terminal from processor. Each output device is wired to a particular output terminal on the I/O interface. Thus, for example, if output module 1 receives a digital 1 by applying 5v dc to output terminal 1, thereby illuminating LED is extinguished.
Besides 5v dc (TTL devices), I/O module are also for interfacing to other industrial levels, including 12v dc.
The input image table bears to the input modules. That is, every single output module has assigned to it a particular memory location is dedicated solely to the task of keeping track of the latest condition of its output module.

Of course, the output situation differs from the input situation with regard to the direction of information flow is from the output image table to the output modules, while in the input situation the information flow is from the input modules to the input image table. The locations within the input and output image tables are identified by addresses, which refers to unique address of each terminal.

(c) Central processing unit:

The subsection of the processor that actually performs the program execution will be called the central processing unit (CPU) with reference to input and output image table CPU executes the user program and continuously updates the output image table. The output image table has a dual nature; its first function is to receive immediate information from the CPU and pass if on to the output modules of the I/O section; but secondly, it also must be capable of passing output information "backward" to the CPU, when the user program instruction that the CPU is working on calls for an item of output information. The input image table does not have its dual nature. Its single mission is to acquire information from the input modules and pass that information "forward" to the CPU when the instruction that the CPU is working on calls for an item of input information.

(d) User program memory:

A particular portion of the processor's memory is used for storing the user program instructions. We will use the name user program memory to refer to this processor subsection.

Before a PLC can begin controlling an industrial system, a human user must enter the coded instructions that make up the user program. This procedure called programming the PLC.

As the user enters instructions, they are automatically stored at sequential locations within the user program memory. This sequential placement of program instructions is self-regulated by the PLC, with no discretion needed by the human user.

The total number of instructions in the user program can range from a half dozen or so, for controlling a simple machine, to several thousand, for controlling a complex machine or process.

After the programming procedure is complete, the human user manually switches the PLC out to PROGRAM mode into RUN mode, which causes the CPU to start executing the program from beginning to end repeatedly.

(e) The complete scan cycle:

As long as the PLC is left in the RUN mode, the processor executes the user program over and over again. Figure depicts the entire repetitive series of events. Beginning at the top of the circle representing the scan cycle, the first operation is the input scan. During the input scan, the current status of every input module is stored in the input image table, bringing it up to date.

Following the input scan, the processor enters its user program execution. Sometimes called "program scan". The program executes with reference to input and output image tables and updates output image table.

Throughout the user program execution, the processor continuously keeps its output image table up to date, as stated earlier. However, the output modules themselves are not kept continuously up to date. Instead, the entire output image table is transferred to the output module during the output scan following the program execution.

(f) Data Memory:

A PLC is a computer, after all. Therefore, it can perform arithmetic, numeric comparisons, counting, etc. Naturally the numbers and data can change from one scan cycle to the next. Therefore the PLC must have a section of its memory set aside for keeping track of variable data, or numbers, that are involved with the user program. This section of memory we will call data memory.

When the CPU is executing an instruction for which a certain data value must be known, that data value is brought in from data memory. When the CPU executes an instruction that provides a numerical result, that result is put out into data memory. Thus, CPU can read from or write to the data memory. Understand that this relationship is different from the relationship between the CPU and the user program memory. When the user program is executing, the CPU can only reads from the user program memory, never write to it.

(g) Operating System of PLC:

The function of the operating system is to present the user with the equivalent of an extended machine or virtual machine that is easier to program than the underlying hardware.

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Day-5
(05-03-19)

Due to this operating system, PLC is very easy to program. It can be programmed using electrical schemes with familiar relay symbols so that a plant electrician can easily access the PLC. Even though he does not know the assembly language or even if he may not have any familiarity with computers and electronics, he will be able to program the PLC.

The function of PLC Operating system is:

1. Loads the user program from programming device to program memory.
2. To read status of input devices.
3. To execute user program.
4. To form and update input image table.
5. As per the status of output image table controls the output devices.
6. To provide user-friendly functions.

This O.S. makes supervision over entire system, so O.S. programs are said to running in supervisory mode.
When the user completely enters his program in user memory, he transfers control from PROGRAM mode to RUN mode. In RUN mode the control of the whole system is transferred to operating system. Now operating system takes care of the whole system such that the whole system becomes automatic and appears as magic to users

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
(06-03-19)

This low cost PLC prototype system was designed to satisfy hunger of Automation of Indian Industry and also helps beginners as well as development engineers to get into Automation field.
System consist of following main sections:

(1) The CPU:

The CPU uses the 89c51 microcontroller, which operates at 11.0592Mhz. It has 8k RAM, which can be used as data memory, 8k RAM that can be used as program memory as well as data memory, 8k EEPROM that can be used as program memory.

(2) Input/output Section:

This part of system is on separate board connected to processor via cable. It allows the processor to communicate with the outside world. It is also called Data Acquisition System (DAS).

This part of system provides 4 digital inputs consisting of 2 dc and 2 ac, 4 digital outputs consisting of 2 dc and 2 ac each. It also provides 8 analog inputs with following ranges:

1. –5v to +5v (one channel).
2. 0v to 10v (one channel).
3. 4mA to 20mA (one channel).
4. 0v to 5v (five channel).

(3) Timer/Counter:

The system has 2 timers or 2 counters or 1 timer and 1 counter. The timer provides maximum of 255sec delay and the counter provides maximum of 255 counts.

(4) Serial Communication:

The system uses RS-232 serial data standard. Chip ICL232 is used as communication interface between RS-232 standard and TTL logic.

(5) Programming Device:

This system uses personal computer (PC) as programming device. The user can write program in user friendly language. The programming devices (PC) converts this user friendly language program into machine understandable language and transmit it to the PLC board via serial communication.

spread over thousands or millions of units

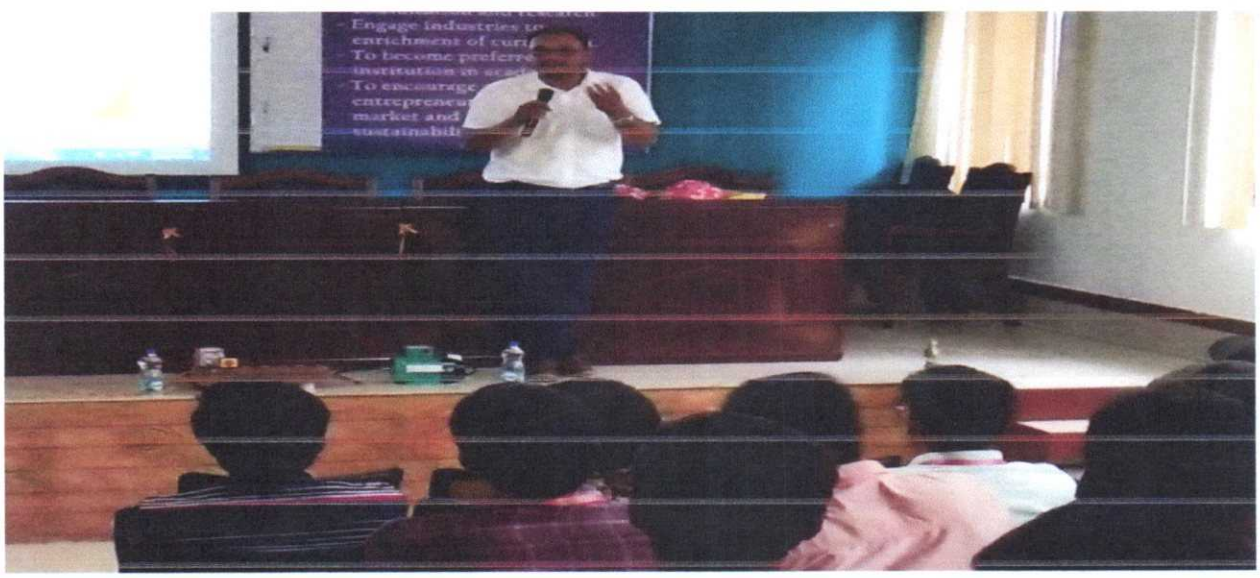

Figure: Expert delivering conclusions of the course

(6) Power Supply Unit:

This system provides +12v and -12v with maximum 2amps and +5v with maximum of 1amps.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. After the break feed back of the program taken and The program ended with the Valedictory & Certificate Distribution. Industrial automation has recently found more and more acceptance from various industries because of its huge benefits, such as, increased productivity, quality and safety at low costs.

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KG Reddy College of Engineering and Technology
(Approved by AICTE, New Delhi, Affiliated to JNTUH, Hyderabad)

Ref No: KGRCET/CSE/2018-19/069/1 Date: 25/02/2019

CIRCULAR

All the students of II Year & III-Year II-semester B.Tech EEE are here by instructed to enroll for the certificate course on "PLC PROGRAMMING&ITS APPLICATIONS" which is offered by KG Reddy college of Engineering and Technology from 28/02/2019 to 6/03/2019. Interested students are instructed to contact Mr. K.Syed for completing their registration before 27/02/2019.

HOD

Principal

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

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CERTIFICATE COURSE ON
Designing of Programmable logic controllers(PLC)

Feb 28st to 6th March, **2019**

Department of Electrical and Electronics Engineering (EEE)

S No	Topics	Time
	Day 1-SATURDAY (28/03/19)	
1	Inauguration Ceremony	10:00AM to 10:30AM
2	➢ PLC Overview ➢ PLC Selection	10:30AM to 12:30PM
	LUNCH BREAK 12:30PM TO 1:30PM	
3	➢ Industrial manufacturing process ➢ Classification ➢ Number Systems & Codes ➢ I/O Devices & Motor Controls	1:30PM to 2:45PM
	TEA BREAK 2.45PM TO 3.00 PM	
4	Types of solar PLC systems ➢ Stand alone PLC ➢ Hybrid PLC ➢ Programming in PLC ➢ Programming on PC	3:00 PM to 5:00 PM

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Designing of Programmable logic controllers(PLC)

Feb 28st to 6th March, 2019

Department of Electrical and Electronics Engineering (EEE)

S No	Topics	Time
	Day 2-MONDAY (02/03/19)	
1	➢ Creating Relay Logic Diagrams ➢ PLC Programming	10:00 AM to 12:30 PM
	LUNCH BREAK 12:30PM TO 1:30PM	
3	➢ Programming Logic Gate Functions PLC Timer Instructions ➢ BLOCK DIGRAM ➢ SIMULATION OF PLC ➢ Programming in PC	1:30 PM to 5.00 PM

S No	Topics	Time
	Day 3-Tuesday (03/04/18)	
1	➢ PLC Counter Instructions ➢ Math Instructions	10:00 AM to 12:30 PM
	LUNCH BREAK 12:30PM TO 1:30PM	
3	➢ Compare, Jump & MCR Instructions ➢ Subroutine Functions ➢ Executing programs in PC	1:30 PM to 5:00 PM

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Designing of Programmable logic controllers(PLC)
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S No	Topics	Time
	Day 4-Wednesday (04/04/18)	
1	➢ Logic & Bit Shift Instructions ➢ Sequencer Instructions	10:00 AM to 12:30 PM
	LUNCH BREAK 12:30PM TO 1:30PM	
3	➢ Troubleshooting & Servicing ➢ PLC Networks in Manufacturing	1:30 PM to 5:00 PM

S No	Topics	Time
	Day 5-Thursday (05/04/18)	
1	➢ Executing logic & Bit Shift Instructions ➢ Practical Sequencer Instructions	10:00 AM to 12:30 PM
	LUNCH BREAK 12:30PM TO 1:30PM	
3	PLC Networks in Manufacturing ➢ PROCESS AUTOMATION ➢ Practice section of programming PLC	1:30 PM to 5:00 PM

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Designing of Programmable logic controllers(PLC)

Feb 28st to 6th March, **2019**

Department of Electrical and Electronics Engineering (EEE)

S No	Topics	Time
	Day 6-friday (06/04/18)	
1	➢ Verification of programs in PLC	10:00 AM to 12:30 PM
	LUNCH BREAK 12:30PM TO 1:30PM	
3	➢ Practical projects on PLC ➢ Trouble shooting of PLC	1:30 PM to 4:00 PM
4	➢ Objective test ➢ Vote of thanks ➢ Certificate distribution	4.00 to 5.00 PM

KG Reddy College of Engineering & Technology

DEPRATMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

PLC PROGRAMMING AND ITS APPLICATIONS CERTIFICATE course Attendance sheet

BREEE YEAR: II SECTION:

			28/2	2/3/	3/3/	4/3	5/3	6/3/2019
.No	Roll No	Student						
1	17QM1A0201	A KARTHIK	Karthik	Karthik	Karthik	Karthik	Karthik	Karthik
2	17QM1A0202	A NAZAR	Ahmed	Ahmed	Ahmed	Ahmed	Ahmed	Ahmed
3	17QM1A0204	A CHANDESHWRE						
4	17QM1A0205	ASRINIKA	Srinika	Srinika	Srinika	Srinika	Srinika	Srinika
5	17QM1A0206	B. KUMAR	Kumar.B	Kumar.B	Kumar.B	Kumar.B	Kumar.B	Kumar.B
6	17QM1A0207	BELLAM GOPI	B.GOPI	B.GOPI	B.GOPI	B.GOPI	B.GOPI	B.GOPI
7	17QM1A0208	SK.AHMED	SK.Ahmed	SK Ahmed	SK Ahmed	SK.Ahmed	SK.Ahmed	SK.Ahmed
8	17QM1A0209	C. ASWINI	C.Aswini	C.Aswini	C.Aswini	C.Aswini	C.Aswini	C.Aswini
9	17QM1A0210	G. REDDY	Reddy.G	Reddy.G	Reddy.G	Reddy.G	Reddy.G	Reddy.G
10	17QM1A0211	G. SNEHA	G.Sneha	G.Sneha	G.Sneha	G.Sneha	G.Sneha	G.Sneha
11	17QM1A0212	K. KOTESHWARI	AB	AB	AB	AB	AB	AB
12	17QM1A0213	SHASHIVARDHAN	Sai	Sai	Saeh	Saeh	Saeh	Saeh
14	17QM1A0215	S. SUSHMA	Sushma	Sushma	Sushma	Sushma	Sushma	Sushma
15	17QM5A0214	M GOVARDHAN	Gaku	Gaku	Gaku	Gaku	Gaku	Gaku
16	18QM5A0201	A GOUD	A.Goud	A.Goud	A.Goud	A.Goud	A.Goud	A.Goud
17	18QM5A0202	TEJASWINI	Tejasai	Tejasai	Tejasai	Tejasai	Tejasai	Tejasai
18	18QM5A0203	SUCHARITHA	Sucharitha	Sucharitha	Sucharitha	Sucharitha	Sucharitha	Sucharitha
19	18QM5A0204	CHENNA DIVYA	C.DIVYA	C.DIVYA	C.DIVYA	C.DIVYA	C.DIVYA	C.DIVYA
20	18QM5A0205	MANIKANTA	Manikanta	Manikanta	Manikanta	Manikanta	Manikanta	Manikanta
21	18QM5A0206	RAM TEJA	Ram Teja	Ram Teja	Ram Teja	Ram Teja	Ram Teja	Ram Teja
22	18QM5A0207	RAKESH REDDY	Rakesh	Rakesh	Rakesh	Rakesh	Rakesh	Rakesh
23	18QM5A0208	SAILOKESH	Sailokesh	Sailokesh	Sailokesh	Sailokesh	Sailokesh	Sailokesh
24	18QM5A0210	ABHIRAM	AbhiRam	AbhiRam	AbhiRam	AbhiRam	AbhiRam	AbhiRam
25	18QM5A0211	KAMALAKAR	Kamalakar	Kamalakar	Kamalakar	Kamalakar	Kamalakar	Kamalakar
26	18QM5A0212	SRAVANTHI	Sravanthi	Sravanthi	Sravanthi	Sravanthi	Sravanthi	Sravanthi
27	18QM5A0214	M KAVITHA	Kavitha	Kavitha	Kavitha	Kavitha	Kavitha	Kavitha
28	18QM5A0215	RAKESH	Rakesh	Rakesh	Rakesh	Rakesh	Rakesh	Rakesh
29	18QM5A0216	P DIVYA	divya	divya	divya	divya	divya	divya
30	18QM5A0217	PAVAN	Pavan	Pavan	Pavan	Pavan	Pavan	Pavan
31	18QM5A0218	RAJESH	Rajesh	Rajesh	Rajesh	Rajesh	Rajesh	Rajesh
32	18QM5A0219	PRASAD M	Prasad	Prasad	Prasad	Prasad	Prasad	Prasad
33	18QM5A0220	S. RATHOD	S.Rathod	S.Rathod	S.Rathod	S.Rathod	S.Rathod	S.Rathod
34	18QM5A0221	S. SRIKAR	Srikar	Srikar	Srikar	Srikar	Srikar	Srikar
37	18QM5A0224	T. SRINIVAS	Srinivas	Srinivas	Srinivas	Srinivas	Srinivas	Srinivas
38	18QM5A0225	YAKARI KARTHIK KUMAR		Karthik	Karthik	Karthik	Karthik	Karthik
Signature of coordinator			T.Naveen	T.Naveen	T.Naveen	T.Naveen	T.Naveen	T.Naveen
Signature of HOD								

HEAD
DEPT. OF ELECTRICAL & ELECTRONICS ENGINEERING
K.G. REDDY COLLEGE OF ENGINEERING & TECHNOLOGY

KG Reddy College of Engineering & Technology

DEPRATMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

BRANCH: EEE **YEAR: III**

S. No	Roll No.	Student	28/2	2/3/	3/3/	4/3	5/3	6/3
1	16C51A0209	G. BHAVANI	G.Bhavani	G.Bhavani	G.Bhavani	G.Bhavani	G.Bhavani	G.Bhavani
2	16QM1A0201	A.AKHIL	A.Akhil	A.Akhil	A.Akhil	A.Akhil	A.Akhil	A.Akhil
3	16QM1A0202	A. POOJITHA	Poojitha	Poojitha	Poojitha	Poojitha	Poojitha	Poojitha
4	16QM1A0204	A. RAMYASRI	Ramyasri	Ramyasri	Ramyasri	Ramyasri	Ramyasri	Ramyasri
5	16QM1A0205	A. PRASHANTH						
6	16QM1A0206	B. KUMAR	B.Kumar	B.Kumar	B.Kumar	B.Kumar	B.Kumar	B.Kumar
7	16QM1A0207	B.SRIDHAR	Sridhar	Sridhar	Sridhar	Sridhar	Sridhar	Sridhar
8	16QM1A0209	J.SHEKAR	J.Shekar	J.Shekar	J.Shekar	J.Shekar	J.Shekar	J.Shekar
9	16QM1A0210	K.PAVANI	Pavani	Pavani	Pavani	Pavani	Pavani	Pavani
10	16QM1A0212	M L SATISH	Satish	Satish	Satish	Satish	Satish	Satish
11	16QM1A0214	YUNUS M	Yunus.M	Yunus.M	Yunus.M	Yunus.M	Yunus.M	Yunus.M
12	16QM1A0215	RAGHAVENDRA	Raghavendra	Raghavendra	Raghavendra	Raghavendra	Raghavendra	Raghavendra
13	16QM1A0216	N BHARGHAVI	Bhargavi	Bhargavi	Bhargavi	Bhargavi	Bhargavi	Bhargavi
14	16QM1A0217	P. NAVEEN	P.Naveen	P.Naveen	P.Naveen	P.Naveen	P.Naveen	P.Naveen
15	16QM1A0218	P. PRAPUN	Prapun	Prapun	Prapun	Prapun	Prapun	Prapun
18	16QM1A0222	V. TEJASWINI	Tejaswini	Tejaswini	Tejaswini	Tejaswini	Tejaswini	Tejaswini

20	16UR1A0201	M GNANESWAR						
24	17615A0210	P. SURENDAR						
25	17QM5A0201	A. REKHA						
26	17QM5A0202	B RAVI TEJA						
27	17QM5A0204	D. HARSHA						
28	17QM5A0205	D. SUBHASH						
29	17QM5A0206	DHAGE HEMANTH						
30	17QM5A0207	CHANDRA KANTH						
31	7QM5A0208	K NITHIN						
32	7QM5A0210	MOUNIKA						
33	7QM5A0211	K.TEJASRI						
35	7QM5A0213	M.AFRITH						
36	7QM5A0215	N.DINESH						
37	7QM5A0216	P. DATTU						

Signature of coordinator

Signature of HOD

KG REDDY COLLEGE OF ENGINEERING & TECHNOLOGY

Chilkur (Vill) Moinabad (Mdl) R R Dist

OBJECTIVE EXAM FOR CERTIFICATE COURSE ON DESIGN OF PLC

26/30

NAME Anand Narsa HALL TICKET NO | 1 | 8 | Q | M | 5 | A | 0 | 2 | 0 | 4 |

Answer all the questions. All questions carry equal marks. Time: 30min.30 marks.

choose correct alternative:

1. The acronym PLC stands for: [B]

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

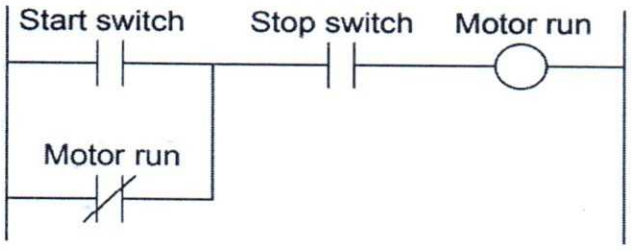
2. Ladder logic programming consists primarily of: [C]

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

3. In a PLC, the scan time refers to the amount of time in which ….. [D]

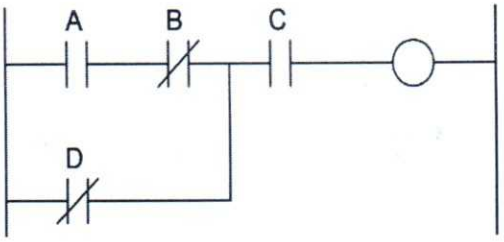
(A) the technician enters the program
(B) timers and counters are indexed by
(C) one "rung" of ladder logic takes to complete
(D) the entire program takes to execute

4. Identify the problem in this motor control PLC program [A]



A. coil B. motor C.connectng switch D. stop contact

5. Identify the Boolean logic



A.A.B+C.D B. AB+CD C.AB+BC+CD D. none

6. When _____ contacts are actuated, they disrupt the power supply through them. [B]
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_____ [C]
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? [D]
a. poor **b.** excellent **c.** as good as noise **d.** unpredictable
11._____ of PLCs can be done in very little time. [B]

a. Programming **b.** Installation **c.** Commissioning **d.** All of the above
12. PLC can be _____ in plant to change the sequence of operation. [C]
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? [D]
a. Manual switches **b.** Relays **c.** Sensors **d.** None of the above
15.An OR gate in PLC uses [B]
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 ---Programm

3.User program can be written in any standard PLC programming languages like statement list and ---Execute

4.The AND function combines the bit addresses of inputs and produces an RLO (Results oflogic operation) of 0 when all the inputs are scanned for 1

5.The function of timer is to provide ---------- 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.[T

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 oflogic 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[T]

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College of Engineering
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CERTIFICATE

D.HEMANTH

Registration No:17QM5A0206

has successfully completed the prescribed requirements for the award of certificate course on **" PLC PROGRAMMING & ITS APPLICATIONS"** conducted by Department of El ctrical and Electronics Engineering held in month of march from 22/02/19to 28/02/19in the academic year 2018-2019

Date: 2-3-2019

Course Coordinator

Principal

KG REDDY
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CERTIFICATE

G.CHANDRA KANTH

Registration No:17QM5A0207

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Date: 2-3-2019

Course Coordinator

Principal