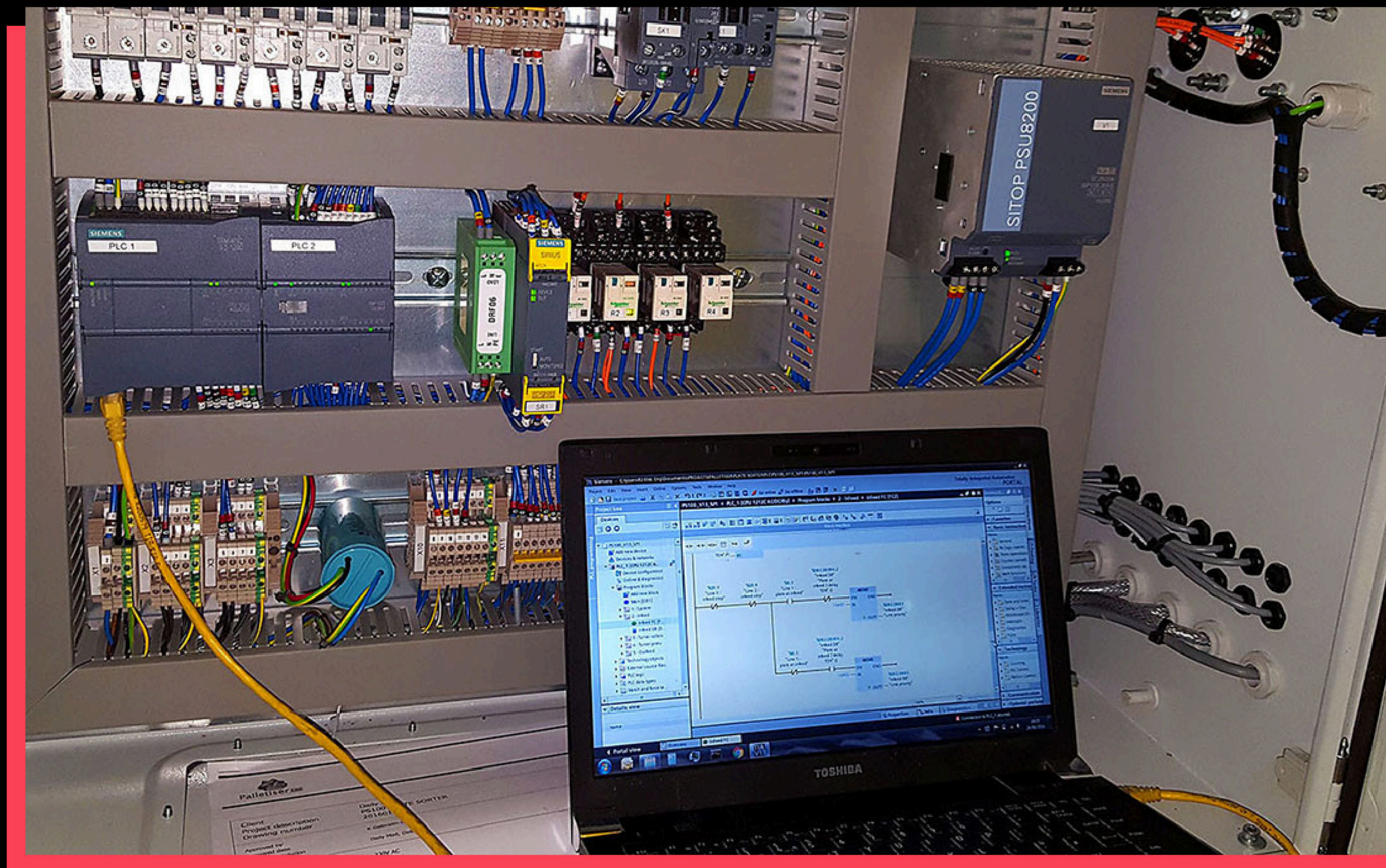
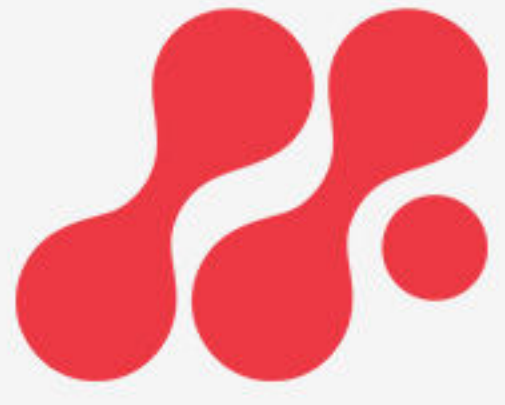


# PROGRAMMABLE LOGIC CONTROLLER I CERTIFICATE OF ACHIEVEMENT







**This certificate of Achievement programme** focuses on learning IEC 61131-3 languages using Siemens and Allen Bradley PLCs, and it will be earned by those who have completed the required modules as stipulated by the Academy.



## COURSE OBJECTIVES

Students who successfully complete the programme will have the ability to construct, integrate, maintain, debug, and manage PLC programmes.

## COURSE FLOW

This is a 4 Weekends based course where as a student you will spend 4 Weekends of intensive training learning the overall PLC programming concepts, engage in Practical Programming Exercise, Labs, Case study and Assignments

## DELIVERY METHODS

This Program Consist of Physical Classes at the Madesoft Academy Training Facility, as well as Mentorship, Workshops, Modularized lessons managed by Learning Management System with Assignments, Lab exercise, Practical case study, Downloadable study resources and Video lectures to fully engage the student.

Student will be involved in practical lab Exercise and Assignment after each key concept is taught, the lab work shall be in the form of practical with guide from instructors.

## PREREQUISITE

Applicant for this course must have a minimum of Diploma in any of the sciences or currently in an institution of Higher learning. Also, Applicant without qualification but have 1+ year working experience in the field of electrical/electronic or computer shall be considered for a place in the program.





### **COURSE OUTCOME**

The expected learning outcome for each student participating in the Programmable Logic Controller I Course are listed below.

1. Develop a PLC program using all four IEC61131-3 languages.
2. Understand and respond to a problem statement.
3. Troubleshoot PLC programs.
4. Upload and download a program to a PLC.
5. Program an Allen Bradley and Siemens PLC.
6. Use discrete and analog signals.
7. Create customized programs that are specific to your equipment and needs.
8. Understand and Integration of PLC to SCADA.

### **MODULES**

1. **Module 1** - Introduction to PLCs
2. **Module 2** - Fundamentals of IEC 61131-3 Programming Language
3. **Module 3** - Introduction to Ladder Diagrams
4. **Module 4** - Introduction to Function Block Diagrams
5. **Module 5** - Introduction to Sequential Function Charts (SFC)
6. **Module 6** - Introduction to Sequential Function Charts (SFC)



# Course Syllabus

## INTRODUCTION TO PLCS- MODULE 1

### MODULE OBJECTIVES

Gain understanding of computer digital logic, PLC hardware, addressing, ladder diagrams, Input and Output (I/O) modules, and programming terminals. Get hands-on experience by implementing and troubleshooting basic relay instructions. In this module, the focus is on Allen Bradley PLCs and programming software.

## FUNDAMENTALS OF IEC 61131-3 PROGRAMMING LANGUAGE- MODULE 2

### MODULE OBJECTIVES

Build strong knowledge on the IEC software model and industry-based standards for programming industrial systems. Student will engage and program practical industrial process examples to further enhance their logical thinking and programming skills using IEC standard programming language.





# Course Syllabus

## LADDER DIAGRAMS - MODULE 3

### MODULE OBJECTIVES

Enhance your knowledge of programmable logic controllers (PLCs) by exploring ladder logic programming techniques. Delve into the most popular programmable controller language: Ladder Diagram (LD). Discover discrete instructions and discrete operations in Ladder Diagram programming such as the conversion of Boolean expressions, permissive conditions, interlock conditions, and lockout conditions. Implement timer and counter functions such as timer On/Off delay, reset and retentive Timer On, and Count Up and Count Down.

## FUNCTION BLOCK DIAGRAMS - MODULE 4

### MODULE OBJECTIVES

Boost your knowledge of programmable logic controllers by delving into Function Block Diagrams (FBD). FBD is a graphical language that can be used for logic or control configuration. Discover a variety of vital instructions in the following groups: discrete, timer, counter, compare, add-on, and program control. Get hands-on experience writing your own programs and relate them to real-world applications and devices.





# Course Syllabus

## INTRODUCTION TO SEQUENTIAL FUNCTION CHARTS (SFC) - MODULE 5

### MODULE OBJECTIVES

This module introduces Sequential Function Charts with a focus on the elements of SFC. Expected outcomes upon successful completion of this module, the participant should be able to enhance their programming skills on an industry related mini project using Sequential Function Chart.

## INTRODUCTION TO DATA COMMUNICATIONS - MODULE 6

### MODULE OBJECTIVES

Lastly each student is expected to delve into Data Communications. Data Communications is crucial for inter-communication between multiple PLCs within the same industrial network. Participants will learn about SCADA, Modbus, and various other ethernet tools. With the skills gained in this module, you will create synergy between PLCs, computers, and remote components.



**Ready To Take  
The Next Step?**

**APPLY NOW**