

PROGRAMMABLE LOGIC CONTROL & HUMAN MACHINE INTERFACE Training Program



This Program is pure professional Program. This program completely based on the control system logics and its designing, development and deployment. We are covering the three Major PLCs, and also having the complete state of art real time basis LABS. More we also having the complete software for these systems and you may able to cover up all system software configurations. The Program all cover the HMI (Human Management Interface System, by this area you can able to cope all the industrial work in one hand. After this training program you may able to work efficiently on PLC and its components and also capable to resolve the real-time problem in the PLC.

This Program is ideally suited to following individuals who are:

- **Fresh University Graduates and like to get the knowledge of Programmable Logic Control With HMI.**
- **Already working class who are willing to update and learn the new methodologies of PLC and HMI.**
- **Who want to be good and reputable jobs in the market and are like to enhance their skills in PLC and HMI.**

Program is offered by: 3D Educators – Trainers & Consultants

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HEAD OFFICE

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CAMPUS II

Suite # 305 Business Center Main Shahrah-e-Faisal, Adjacent PSO Pump Nursery Karachi – 0322-2083032

Program Details

Inauguration

The Training Program will be inaugurated by a senior member of 3DEducators

Program Structure

Number of classes in a week	Two Class Per Week
Duration of each class	2-Hour
Fee:	Total Rs.8000/- Only

Other Learning Activities:

Classroom Assignments	2
Presentations by Trainees	1

About the Program Designer & Instructor

The "PLC & HMI" Program has been designed and will be conducted by Certified Consultant and having the vast experience of training and consulting. They have worked with various large Government, National, and multinational organizations in local and abroad.

The Trainers who are conducting this program are have on the position of the following:

- ✓ Plant Managers
- ✓ Operation Plant Project Manager
- ✓ Plant Engineers

They trainers are foreign qualified and having the degrees of MSc Applied Physics, M.S and certified trainers.

As Consultant & Senior Trainers the team of trainers from Engineering side we **3D Educators – Trainers & Consultants** would not compromise on the faculty.

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Program Syllabus

COURSE OUTLINE:

PLC BASED INDUSTRIAL CONTROL SYSTEMS

WEEK#1

- Introduction
- Hierarchy of New Automation system
- Process parameters Vs Plant status
- Relay logic & its replacement
- Merits & de-merits of PLC
- PLC Hardware & Interfacing Techniques
 - Internal Architecture
 - Attachment modules (Digital, Analog & Conditioning)
 - Relays are in still use, why?
 - Electrical wiring diagram
 - Sinking / Sourcing modules
 - A case study, Practice problems & Assignments
- PLC operation
 - Operation sequence, PLC status, Memory types
 - Hardware & Software configuration
 - Communication setup
 - A case study, Practice problems & Assignments

WEEK # 2

- Logical sensors and Actuators
 - JIS wiring symbols
 - Interfacing with the PLC
 - Practice problems & Assignments
- Development of Relay based industrial control application
 - Practice problems & Assignments

- Basic Instruction set of PLC

- | | |
|-------------|-----------------|
| ○ Set/Reset | ○ Timers |
| ○ PLS/PLF | ○ Counters etc. |
| ○ Latches | |

- Replacement of relay based application with ladder logic

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- Practice problems & Assignments
- Development of industrial control application using ladder logic
 - Programming & its simulation
 - Practice problems & Assignments

WEEK#3

- Data Handling & manipulation of Analog I/O's.
- Advance Ladder Logic Functions
 - Data Handling
 - Move Function
 - Mathematical Function
 - Logical Function
 - Comparison of Values Boolean Function etc.
- Development of Industrial control Application using Advance function
 - Practice problems & Assignments
- Interfacing with
 - Temperature sensor
 - Variable Frequency Drive

WEEK#4

- Introduction to Human Machine Interface (HMI)
- Interfacing of MITSUBISHI PLC with MX-Sheet
 - Features of MX-Sheet
 - Operating environment & system configuration
- Cell Setting
 - Data Logging
 - Data Monitoring
 - Data Writing
 - Alarm History
 - Comments Setting
- Automatic Communication startup setting
- Development of industrial application using MX-Sheet
- Practice problems & Assignments

WEEK#5

Introduction to Networking

- Basics & OSI model
- Network Devices (Repeaters, Switches, HUB & Bridges)
- Network media & topologies

WEEK#6

Industrial Communication Networks

- Profibus
- Asi
- Foundation Field Bus
- MODbus etc.

WEEK#7
SCADA

- Concept
- Design consideration of SCADA system
- Telemetry network
- Data Communication Equipment
- Master Station
- Remote station

DCS

- Concept & Architecture
- Comparison between HMI based PLC control system & DCS

WEEK#8
Project

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