



राष्ट्रीयइलेक्ट्रॉनिकीएवंसूचनाप्रौद्योगिकीसंस्थान,कालीकट
National Institute of Electronics & Information Technology, Calicut



सत्यमेव जयते

Ministry of Electronics and
Information Technology
Government of India

Online Course Prospectus

ISO 9001-2015 Certified

Industrial Automation with PLC & SCADA

Starting Date: 20th May 2025
(4 weeks, 1 Hour Daily)

Course Description

This online course introduces Programmable Logic Controllers (PLC), Field level Instrumentation and SCADA/HMI Systems used for Industrial Automation. The participants will get appropriate knowledge and exposure to configuration of Industrial Controllers and development of application programs using IEC-61131-3 PLC languages. Also covers Interfacing with SCADA/HMI systems used for remote monitoring & control of industrial process units and machines. The Course is planned with instructor led live sessions of lectures and demonstrations.

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Online Course Prospectus

Course Name: Industrial Automation with PLC & SCADA

Course Code: IAD101

Duration: 4 weeks / 35 Hours

Monday – Friday, Daily 1 Hour online Class (20 Hrs)+ Home Assignment (15 Hrs)

Online class Timing: 4:00 PM to 5:00 PM

Course Fee: Rs. 4,500/- (Including GST)

Starting Date: 20th May 2025

Coordinator: Shri. Arumugam J, 9080515215 / 9074681261, cig@calicut.nielit.in

Who can attend? / Qualification:

- a. Students pursuing Engineering, BE/BTech / Diploma/MSc/ITI with Electrical/ EEE/ Electronics/ Electronics and communication/ Instrumentation and Control/ Instrumentation / Applied Electronics/ Chemical Engg/ Mechatronics/ Mechanical / Computer Science background and other branches who would like to develop competency in area of Industrial Automation systems
- b. Professionals working in Industry
- c. Research scholars, Teaching professionals & faculties

Course Content:

S.No.	Module Title	Duration* (4 weeks, Monday - Friday)		
		Theory 4:00 to 5:00PM	Home assignments	Total
1	Industrial Field Instrumentation & Controllers	5	3	8
2	Programmable Logic Controllers (PLC)	9	7	16
3	SCADA/HMI Systems	6	5	11
Total Duration (Hours)		20	15	35

* Duration indicate the average time candidates should spent on each topic.

1. Industrial Field Instrumentation & Controllers: (5 Hours)

- Industrial Automation System structure, functional levels and instrumentation signal levels
- Industrial field instruments-Selection for measuring common process variables

- Industrial Control Valves, Signal conditioners, and intelligent transmitters
- Industrial Control loops with PLC
- Introduction to Data Acquisition (DAQ) Systems

2. Programmable Logic Controllers (PLC): (9 Hours)

- Industrial Controllers - PLC basics and architectures
- PLC - IEC 61131-3 Programming Languages & Visualization / HMI
(ABB CodeSys v2.3 software and instruction sets)
- Structured Programming (Functions[FC] & Function blocks[FB])
- PLC Hardware - CPU and Discrete Input/ Output Cards
- Analog Input/ Output Cards and control loops

3. SCADA /HMI: (6 Hours)

(Supervisory Control and Data Acquisition / Human Machine Interface)

- Introduction to SCADA
- GE i-Fix 6.0 or above SCADA Software
- SCADA - Network Communications & Communication with RTUs, Analog/Digital Communications on Plant Floors
- Communication standards / OPC Server (OLE for Process Control)/PLC (RTU) and SCADA Interface Configuration concepts

4. Home assignments & Exercises – 15 Hours

- Complete the given assignments and submit through email.

*In case students are not able to attend online live classes, the recorded lectures of all major classes are available in our Learning Management System (LMS). Students can access LMS by entering their **user name and password** and they can do offline reference and learn at their own pace and timings, during the course period. After attending the recorded lectures students can submit their assignments and interact through email/ LMS /WhatsApp link.*

Prerequisite (optional):

Basic knowledge of electronics and computers

Download and install CoDeSys V2.3 free version

Download and install GE i-Fix 6.0 or above (Demo version)

Course Fee and important dates:

Course Fee	Rs. 4,500/- (Including GST)
Last date for registration & payment	20 th May 2025
Sharing of online Link / passwords & other details	20 th May 2025 @ 2:00 PM

Faculty Profile:

All faculty members involved in the course are having post graduate degrees in engineering with several years of experience in the industrial Automation field.

Course Coordinator:

Shri. Arumugam J

Scientist-D

9080515215 / 9074681261, 0495-2287266 (O)

e-mail: cig@calicut.nielit.in

Certificate:

e-Certificate will be issued to the participants through registered email after completion of classes and evaluation through ONLINE assessment.

60% attendance (either attending recorded lecture videos or live online classes through our LMS portal) and feedback submission are mandatory for awarding the certificate.

For courses with assessment, 'successfully completed certificate' will be awarded subject to the candidate passing the test with minimum 50% marks, minimum 60% attendance (either attending recorded lecture videos or live online classes through our LMS portal) and feedback submission.

Terms and Conditions:

- 1. In case any registered candidate could not attend the online session due to technical issue at their side there will not be any refund of the course fee and the sessions will not be repeated*
- 2. In case the online course is cancelled /postponed due to some technical issue at NIELIT side and new date is not convenient to the candidate, our liability is limited to the refund of the course fee and NIELIT shall not be responsible for any consequential damages.*
- 3. 60% attendance and feedback submission are mandatory for awarding 'participation' certificate. For courses with assessment, 'successfully completed certificate' will be awarded subject to the candidate passing the test with minimum 50% marks, minimum 60% attendance and feedback submission.*

For more details about our institution and facilities visit us

Website: <https://www.calicut.nielit.in/>

Twitter: https://twitter.com/CAL_NIELIT

Facebook: <https://www.facebook.com/CAL.NIELIT>

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*An Autonomous Scientific Society of
Ministry of Electronics & Information Technology,
Govt. of India*



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