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

Advanced SCADA-PLC & Industrial IoT

Starting Date: 03rd June 2025
(4 weeks, 1 Hour Daily)

Course Description

This online course gives coverage of PLC / SCADA / IIoT for Industrial Automation. Most Industrial Control Systems (ICS) fall into either a continuous process control system typically managed by PLC (Programmable Logic Controller) and SCADA (Supervisory Control and Data Acquisition) Systems, or discrete process control systems, which use a PLC or some other batch process control device. SCADA systems display the process under control and provide access to control functions through Human Machine Interfaces (HMI). The focus of the Industrial Internet of Things (IIoT) is on connecting industrial assets, such as process units, turbines, engines/ generators, to the cloud and to each other in meaningful ways. Both SCADA & IIoT platforms are used to increase overall productivity by integrating smart maintenance, reduce wastage, increase in efficiency, and a decrease in downtime.

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Online Course Prospectus

Course Name: Advanced SCADA-PLC & Industrial IoT

Course Code: IAD102

Duration: 4 weeks / 35 Hours

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

Online class Timing: 5:00 PM to 6:00 PM

Course Fee: Rs. 6,000/- *(Including GST)*

Starting Date: 03rd June 2025

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

Who can attend? / Qualification:

a. Students pursuing Engineering, BE/BTech / MSc /Diploma 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. NIELIT-IAD101 Online course *(Industrial Automation with PLC & SCADA)* completed candidates
c. Professionals working in Industry
d. Research scholars, Teaching professionals & Faculty

Course Content:

S.No.	Module Title	Duration* (4 weeks ,Monday - Friday)		
		Theory 5:00 to 6:00PM	Home assignments	Total
1	PLC/RTU Programming	7	6	12
2	Advanced SCADA Systems	7	5	13
3	Industrial IoT (IIoT) & Cloud Interface	6	4	10
Total Duration (Hours)		20	15	35

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

1. ***PLC/RTU Programming: (7 Hours)***
   - PLC (SIEMEN- S7-300/1200 controllers) with STEP7/TIA Professional programming Software and S7-PLCSIM
   - Programming with IEC 61131-3 Languages
   - Introduction to Industrial Networking, Industrial Ethernet and Profibus-DP
   - Profinet (SIEMENS IM151-1 High Feature and Siemens Touch Panel)

2. ***Advanced SCADA Systems (WinCC/ GE-iFix): (7 Hours)***
   - Introduction to SCADA and SCADA components (WinCC/iFix)
   - Network Communications protocols, Communication with PLC-RTUs (Siemens)
   - SCADA - Database Connectivity / Historical data collection
   - OPC (OLE for Process Control) Configuration
   - Connectivity using OPC UA: Information exchange with different layers of automation

3. ***Industrial IoT & Cloud Interface (6 Hours)***
   - Introduction to Industrial Internet of Things
     - Understanding IT and OT convergence: Evolution of IIoT
     - IIoT Architectures - Device, Network and Cloud Networks, communication technologies and protocols
   - Industrial cloud platforms
     - Cloud components and services & How to use Node-RED node
     - Device Management, Databases, Visualization, Reporting, Notification/Alarm management, Security management, Cloud resource monitoring and management
     - Siemens IoT2040 platform (industrial gateway) and associated hardware
     - Interface with industrial cloud platforms *(Free cloud services)*
     - Industrial IoT security and Standards

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 the following Trail /Demo version software

STEP7/ TIA /WinCC /GE i-Fix 6.0 or above and Node-RED (IIoT software)

Course Fee and important dates:

Course Fee	Rs. 6,000/- *(Including GST)*
Last date for registration & payment	03rd June 2025
Sharing of online Link / passwords & other details	03rd June 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

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

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