

COURSE PROSPECTUS

Name of the Group: *Control & Instrumentation*

Name of the Course: *Advanced Diploma-PLC/SCADA/DCS Engineer*

Course Code: *PC500*

Starting Date: *25th November 2019*

Duration: *16 Weeks (420 Hours)*

Course Coordinator: *Arumugam. J, 9080515215, pc500@calicut.nielit.in*

Preamble:

Stiff competition, higher quality standards and growing concerns of safety & environmental damage have pushed the Industrial sector to adapt state-of-the-art Automation Techniques for effective utilization of resources and optimized performance of the process plants. Recent trend of merging control systems associated with both factory and process automation demands knowledge from diverse fields. Automation applications span plant automation, discrete and batch process control, embedded machine control and manufacturing production line automation. The industrial automation applications also include automation of time critical systems that demand precise real-time readings and control.

Objective of the Course: This course is aimed at equipping an Engineer /Diploma holder / M.Sc holder (in specific streams) with appropriate knowledge and skills required in configuring, programming and operating Industrial automation systems with the use of Industrial Field Instruments, basic NI-LabVIEW, PLCs, SCADA/ HMI and DCS.

Outcome of the Course: PLC/SCADA/DCS Engineers to meet the requirements of configuring, programming, installing and operating of industrial automation systems

Course Structure:

<i>PC-500 : Advanced Diploma - PLC/SCADA/DCS Engineer (16 weeks)</i>		
<i>Code No.</i>	<i>Modules</i>	<i>Duration</i>
<i>PC-501</i>	<i>Industrial Field Instrumentation, PLC and PID Controllers & NI-LabVIEW</i>	<i>12 Weeks</i>
<i>PC-502</i>	<i>SCADA / HMI System Development</i>	<i>2 Weeks</i>
<i>PC-503</i>	<i>Distributed Control System (DCS)</i>	<i>2 Weeks</i>

Other Contents

a. Course Fees:

General Candidates: Course fee is Rs. 39,000/- + GST at actuals

SC/ST Candidates:

Tuition Fees are waived for SC/ST students admitted under SCSP/TSP. However they are required to remit an amount of **Rs. 4,700/- as Advance caution/security deposit**. This amount will be considered as caution/security deposit and will be refunded after successful completion of the course. If the student fails to complete the course successfully this amount along with any other caution/security deposits by the student will be forfeited.

Modular wise Course Fee: “Not Applicable for this course”

b. Registration Fee:

An amount of Rs.1000/- (including GST) (nonrefundable) should be paid at the time of registering for the course.

This fee shall be considered as part of course fee, if the student joins the course. If a student register and pay for more than one course and join for any one course, all such amount will be adjusted against the course fee payable.

If the student does not join for the registered course / any of the registered courses, fee paid shall be forfeited.

For SC/ST candidates, the registration fee is Rs.500/- and will be considered as part of caution/security deposit and will be refunded after successful completion of the course. If the candidate does not join or fails to complete the course the amount will be forfeited

However above the registration fee shall be refunded on few special cases as given below

- Course postponed and new date is not convenient for the student
- Course cancelled in advance, well before the admission date

c. Course Fee Installment Structure:

Students can pay the full fees of Rs. 46,410/- (Rs. 39,000/- + 18% GST+1%KFC) in advance or as installments as given below

Fees	*Amount for General/OBC Candidates	Amount for SC/ST Candidates. (considered as caution/security deposit)	Due Date (on or before)
Registration Fee	Rs.1,000/-	Rs.500/-	During Registration
**Advance Fee	Rs.10,000/-	Rs.4,200/-	22-Nov-2019
1 st Installment	Rs.35,410/-	Nil	25-Nov-2019
Total Fee	Rs.46,410/-	Rs.4,700/-(refundable after successful completion of course)	-

*Above fees is inclusive *GST @actuals (GST 18% + 1% KFC)* and revision if any will be applicable at the time of payment.

** Advance fee - After publication of first selection list, the students in the first selection list have to pay the Advance Deposit within the due date to take the provisional admission. Students in the additional selection list should pay both Advance and First installment fee together on or before counseling day

d. **Eligibility:**

- BE/B.Tech degree or Diploma passed in the following discipline.
Electrical/ Electronics/ Electronics & Communication/ Instrumentation/
Industrial electronics/ Chemical Engineering/ Applied Electronics and
Instrumentation/Control & Instrumentation/Mechatronics/ Computer Science.
- M.Sc in Electronics/ Instrumentation/ Industrial electronics.

e. **Number of Seats :** 40

f. **Selection of candidates :** Selection of candidates will be based on the marks obtained in their qualifying degree examination,

g. **Test/Interview:** Not applicable

h. **Counseling/Admission :** 25th November 2019 @ NIELIT Calicut, 10:00 AM

i. **Important Dates:**

Last date for submitting application: 14th November 2019

Selection list through mail / website: 16th November 2019

Counseling/Admission: 25th November 2019

j. **Course Timings:** The labs and classes are from 9:15 AM to 12:45 PM and 2:00 PM to 3:45 PM, Monday to Friday.

k. **Placement:**

Usually students contact companies through our placement cell /directly by sending resumes in response to job advertisements and get placed.

The placement assistance provided is the following:

- We will be forwarding the collected database/resumes of students to companies, who approach us for their manpower requirements in the area of Industrial Automation.
- We can provide recommendation letters to specific companies of your interest mentioning your performance (percentage of marks/ grades) in the course.

l. **Lab Facilities:**

Industrial process controllers & Field instruments

PLCs (Allen Bradley, SIEMENS & ABB), SOFTPLC

Intellution iFix SCADA, NI LabVIEW SCADA module & SCADA Hardware
 Distributed Control Systems (DCS) - ABB Freelance 800F
 FOUNDATION Fieldbus, Profibus, DH 485, HART based Devices
 NI LabVIEW Professional Development System
 NI LabVIEW GPIB and Foundation Fieldbus Interface
 NI LabVIEW IMAQ Vision System and FPGA Module,
 Image inspection system
 Data acquisition systems with PCI, Fieldpoint I/O and NI Compact RIO
 Programmable Automation Controller (PAC)
 Smart Instruments with HART/ Foundation Fieldbus interfaces
 Training Plants set up with real sized industrial instruments and controlled
 through PLC/PAC/LabVIEW/SCADA/DCS
 Industrial Robots (Scorbot ER – VII, Mitsubishi RV – M1)
 AB power flex 40 and ABB ACS550 AC drives
 ABB DCS800 DC drive, Labvolt AC and DC drive trainers

m. Course Contents :

PC-501: Industrial Field Instrumentation, PLC & PID Controllers, NI-LabVIEW

- *Industrial Sensors / Transducer*
- *Measuring Temperature with Thermocouple & RTD*
- *Measurement using Bridge circuit*
- *Flow, Pressure, Force & Strain measurement using Strain gage*
- *Transmitters*
- *Control Valve*
- *Programmable Logic Controllers Basics*
 - *Hardware/Software introduction & Instruction sets*
- *Programming of PLC using IEC 61131-3 Languages (LD, FBD etc..)*
- *Detailed functions of Digital and Analog I/O modules.*
- *Branded PLCs interface with plant Digital IOs & Analog Sensors/Actuators*
 - *AllenBradly*
 - *SLC-500 with RS-Logix 500, Emulator & LogixPro Simulator*
 - *Compact Logix with RS-Logix 5000*
 - *ABB – AC 500 Controllers with 3S CoDeSys Software*
 - *Siemens CPU 300/400 Controllers with SIMATIC STEP 7 Software*
- *Fundamental process control techniques,*
- *Implementing PID algorithm using above mentioned Controllers*
- *Using smart module and control stepper motor.*
- *Comparison of different brands of PLCs*
- *Introduction to Measurement and Automation Software LabVIEW*
- *Graphical programming for data acquisition & Control*
- Signal processing, analysis & presentation using LabVIEW.*

PC-502: SCADA / HMI System Development

- *Introduction to Industrial Networking and RS 232-422-423-485 standards*
- *Industrial field buses*
 - *MODBUS – Serial /TCP-IP*
 - *PROFIBUS-DP*
 - *HART*
- *Introduction to SCADA and SCADA / HMI Components*
- *GE-iFIX SCADA Software*
- *HMI Development, Data Processing, Control Algorithm Programming*
- *Data Acquisition PLCs/RTUs, Database Connectivity and Report generating.*
- *OPC (OLE for Process Control) Configuration with RTUs (PLC)*
- *NI LabVIEW DSC (Data logging and Supervisory Control module)*

PC-503: Distributed Control System (DCS)

- *Introduction to DCS and Compare with SCADA system*
- *Introduction to ABB 800F DCS with Control Builder IT software*
- *Hardware Configuration of ABB 800F (PM 802F) (process station – PS).*
- *Developing a project and control the plant through field bus (ProfibusDP, Foundation Fieldbus).*
- *Monitoring & controlling the plant using DigiVI-visualization software (operator station- OS)*

[Click here for General Terms and Conditions – Applicable to all courses](#)