

## **National Institute of Electronics and Information Technology (DOEACC Centre), Calicut**

### **Course Prospectus**

Name of the Group:	<b>Control &amp; Instrumentation</b>
Name of the Course:	<b>Certificate in PLC/SCADA/DCS Engineer</b>
Course Code:	<b>PC-500</b>
Starting Date:	<b>20<sup>th</sup> March 2012</b>
Duration:	<b>12 Weeks (240 Hours)</b>

### **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 include automation of time critical systems that demand precise real time readings and control. Automation engineers are needed to meet these requirements of setting up appropriate automation systems.

### **Objective of the Course:**

This course is aimed at equipping a Diploma holder/ Engineer/ B.Sc/M.Sc holder ( in specific streams) with appropriate knowledge and skills in Industrial automation systems with the use of DCS, PLCs, Industrial Field Instruments, Industrial PCs, SCADA/ HMI and related Software.

### **Outcome of the Course:**

Automation engineers to meet the requirements of setting up appropriate industrial automation systems.

### **Course structure:**

<b>PC-500 : PLC/SCADA/DCS Engineers ( 12 weeks program )</b>		
<b>Code No.</b>	<b>Modules</b>	<b>Duration</b>
<i>PC-501</i>	<i>PLC &amp; PID Controllers</i>	<i>6 Weeks</i>
<i>PC-502</i>	<i>SCADA / HMI System Development</i>	<i>3 Weeks</i>
<i>PC-503</i>	<i>Distributed Control System (DCS)</i>	<i>3 Weeks</i>
Total		<b>12 Weeks</b>

## **Course Fees:**

Total course Fee is **Rs. 28,500/- + Service Tax @ actual.**

Tuition Fees/Examination fees are waived for SC/ST students.

Total fee payable for SC/ST students Rs. 1,200/- + Service Tax @ actual.

***The total course fee has to be paid on the date of counseling.***

**Eligibility:** Diploma/B.Sc/M.Sc/BE/B.Tech in the following discipline.

*Electrical/ Electronics/ Instrumentation/ Industrial electronics/ Chemical Engineering/ Applied Electronics and Instrumentation/ Instrumentation & Control/ Electronics & Communication/ Mechatronics / Computer Science.*

- Diploma/B.Sc candidates must produce **Provisional / Degree** certificate &
- M.Sc /BE/B.Tech Students must produce **Course Completion/ Provisional /Degree** certificate at the time of admission.

## **How to apply:**

Students can apply for the course by either filling up the online application form or by downloading the application form, from our website. Filled in application forms along with a Demand Draft towards advance deposit of Rs.1000/- *drawn in favor of* Director, DOEACC Centre, Calicut, *Payable at* State Bank of India, NIT Branch, Chathamangalam should be sent to the **Training Officer, NIELIT Calicut, P. B. No. 5, NIT Campus Post, CALICUT – 673 601, Kerala. The Name of the Course Applied for should be super scribed on the top of the cover in which the application form is forwarded.**

The advance deposit is non refundable in case the student is selected and not joining for the course.

The advance deposit shall be returned to the students who are not selected or have completed the training at our Centre, and the fee shall not be adjusted towards the course fees.

**Requirements for hostel accommodation** shall be considered only if the same is mentioned in the application. Hostel room allotment shall be based on the order of course fee received.

**Procedure for Online application:** Students can apply online by filling up the online application form. The students are first required to obtain the DD for Rs.1000/- towards advance deposit. The students are required to fill the details with regards to the DD Number, Date and amount. The students are requested to note down their registration number allotted after pressing the "Submit" button and forward the demand draft mentioning their name and their online registration number. Online registrations not containing the advance fee details will not be considered for registration.

**Procedure for applying using the Application form:** The students can download the application form from our web site and fill the particulars and forward the same to the Training Officer along with the requisite fee as mentioned above.

Filled in application forms and Demand Draft should be sent to the **Training Officer, NIELIT Calicut, P. B. No. 5, NIT Campus Post, CALICUT – 673 601, Kerala. The Name of the Course Applied for should be super scribed on the top of the cover in which the application form is forwarded.**

### **Distribution of seats:**

20 seats are available for this PC-500 course

SC/ ST/ Persons with Disabilities are eligible for seat reservation and relaxation in minimum eligibility marks.

### **Selection of candidates:**

Selection of candidates who have the requisite qualifying degree will be based on the percentage of marks in their qualifying degree subject to eligibility and availability of seats. Selection of candidates who have completed the course but expecting the results shall be based on the aggregate percentage of marks mentioned in their final mark list and on the availability of seats. In case the aggregate percentage of marks is not given in the final mark list, the sum of marks from the first to last for all the semesters/ years shall be considered as the aggregate marks.

The selection lists are prepared based on the details given by the applicant at the time of submitting the application.

### **The admission to the course shall be based on the following criteria:**

The applicants should have the requisite eligibility criteria as mentioned under the heading "**Eligibility**". Selection list of students will be prepared and published in our website as follows.

Selection list will be prepared based on the applications received on or before **16<sup>th</sup> March 2012**. The additional selection list will be prepared, if there are vacancy of seats, based on the applications received on or before 19<sup>th</sup> March 2012.

### **Selection list:**

The selection list of applicants will be finalized and published in our website on **16<sup>th</sup> March 2012 after noon**. After that seats will be available only against any vacancy that arises and will be considered at the time of counseling.

The students have to verify their selection to the program from our website. **No separate call letters will be sending** to the students for admission.

The selected students in the selection list have to take provisional admission **on or before 19<sup>th</sup> March 2012** by paying the fees (as mentioned under heading "PAYMENT OF FEES"). Their admission shall be confirmed only after verifying their original certificates on the counseling date.

Before payment of the fees the applicants may ensure themselves that they meet all the admission criteria. In case applicants need any clarification they can contact us over Phone/ E-mail or come over to our centre directly before payment of fees.

### **Payment of Fees:**

<b><u>Mode of Payments</u></b>	
<b>1</b>	<p><b><u>Demand Draft:</u></b></p> <p>Demand Draft to be drawn in favor of  <b>Director, NIELIT Calicut,            Payable at State Bank of India, Calicut NIT Branch (2207).</b></p>
<b>2</b>	<p><b><u>Using Pay in slip:</u></b></p> <p><a href="#">Using the pay in slip available in our web site</a>, through any branch of SBI (where this format is accepted). The scanned copy/ Photostat of the counterfoil should reach here on or before the last date, by e-mail/ fax/ post. Original of the counterfoil should be produced at the time of counseling.</p>

**3** **Direct payment into our account\*\*:**

The fees can be paid directly into our account from any bank where core banking facility is available. The details required for direct payment are as given below.

- *Current Account No:* **31732177476**
- *Bank Name:* **SBI, NIT Chathamangalam**
- *Bank Code:* **2207**
- *IFS Code:* **SBIN0002207**
- *MICR Code:* **673002012**

The depositor should obtain the UTR Number/Journal No from the branch while depositing cash directly into our account. Depositor should also obtain the counterfoil duly filled up and signed by the staff with seal of the bank through which the amount was deposited. The following details should reach here before the last date.

1. Name of the Depositor
2. Name of the Student
3. Date of Payment
4. Amount Deposited
5. Name of Bank/branch through which amount deposited
6. Purpose – Course ID – Advance Fee/Hostel Rent/Installment Fee etc.
7. Proof of Deposit (Scanned / Photostat copy of counterfoil/ acknowledgement )
8. UTR Number

*Original of the item no.7 (counterfoil/ acknowledgement) should be produced at the time of counseling.*

**\*\* The centre will not be responsible for any mistakes done by either the bank concerned or by the depositor while remitting the amount into our account.**

**Counseling / Admission:**

**19/03/2012 (Monday) 10:00 AM @ NIELIT, Calicut.**

## **Admission Procedure:**

Students who have been selected for test/interview/counseling/admission are required to report to the Centre on the prescribed day by 9:30 hrs along with the following:

1. Attested Copies of Proof of Age, Qualifications, etc
2. Original Certificate of the above
3. Two copies of photograph and one stamp size photograph for identity card.
4. SC/ST Certificate (if applicable)
5. Income Certificate (if applicable)

The students on reaching the Centre are required to meet the Front Office Councilor (FOC). The FOC then directs the student to the Course Coordinator. The student gets the enrollment form verified by the Course Coordinator and then meets the FOC who shall direct the student to the Accounts for payment of fees. A student is thus admitted.

## **Important Dates (if applicable) :**

Last date for receiving completed application forms	The selection list will be prepared based on the applications received on or before <b>16<sup>th</sup> March 2012</b>  Applications received after 16 <sup>th</sup> March 2011 will be considered for admission on the date of counseling based on the vacancy.
Publication of selection list in our website	<b>16/03/2012</b> Afternoon
Counseling /Admission Date	<b>19/03/2012</b>
Course commencement Date	<b>20/03/2012</b>
Payment of fees for applicants in selection list	<b>On or before 19/03/2012</b>

## **Discontinuing the course:**

No fees under any circumstances shall be refunded in the event of a student discontinuing the course.

## **Office timings:**

The office timings are from 9.00 am to 5.30 pm with half an hour Lunch break at 1.00 pm. Saturday and Sunday are holidays.

## **Course timings:**

The Labs and Classes are from 9:30 AM to 12:30 PM and 2:00 PM to 3:00 PM, Monday to Friday.

## **Location & How to Reach:**

NIELIT Calicut is located very near to NIT (REC) campus and is about 22Kms from the Calicut (Kozhikode) city. A number of buses [To NIT via Kunnamangalam] are available from "Palayam Bus Stand or KSRTC Bus Stand". Our stop is called "Panthrand"(12<sup>th</sup> mile) & is one stop before NIT. The bus fare is Rs.13/- from Calicut City to NIELIT and is on the right side.

The Calicut (Kozhikode) is well connected by Rail, Road and Air from different parts of the country. The climatic conditions in Calicut are perhaps one of the best in India throughout the year. The maximum and minimum temperatures range between 35 and 20°s. The cool breeze further adds the comfort.

## **FACILITIES**

### **Lab Facilities:**

- Industrial process controllers& Field instruments
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- 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,CAN, HART based Devices
- Wireless Sensor Kit, Bluetooth and Wi-Fi devices
- Image inspection system
- LabVIEW Express,GPIB & IMAQ Vision System
- Data acquisition systems with PCI and Ethernet Fieldpoint I/O
- Programmable Automation Controller (PAC)
- Smart Instrument Design using SoC/ FPGA/ DSP/ Microcontroller based Development Systems
- Training Plants set up with real sized industrial instruments and controlled through PLC and PC
- Industrial Robots (Scorbot ER – VII, Mitsubishi RV – M1)
- AB power flex 40 and ABB ACS550 AC drives
- ABB DCS800 DC drive

### **Faculty:**

The Centre has a team of enthusiastic and competent engineers with postgraduate qualifications

**Hostel facilities:**

Hostel accommodation is available for boys and girls on daily or monthly chargeable basis. The hostel fee varies from **650/- to 1050/- (for boys) and 650/- to 750/- (for girls) per month** depending on the location of accommodation. However, students are required to pay the hostel fees for the duration of the course for which they are seeking admission at the time of joining the course.

**Canteen facilities:**

The Centre has a canteen functioning at the main campus and food at reasonable rates is available for breakfast, lunch, and dinner.

**Course content:****PC-501: PLC & PID Controllers**

- Programmable Logic Controllers & PLC interfacing Techniques
- Programming of PLC using Ladder diagrams, Function Block diagram
- Troubleshooting and maintenance of PLC systems
- Implementation of control techniques using PLC
- PLC programming with Allen Bradley SLC500 series, RS Logix 500, Emulate500 Software
- SIEMENS SIMATIC S7-300 controllers with Step-7 programming S/W
- ABB AC500 PLC System, PM 581-ETH CPU
- ABB Software PS501-PROG Control Builder
- Programming with IEC 1131-3 Languages
- System design with PLC, Comparison of different brands of PLCs
- Fundamental process control techniques,
- PLC to PLC & PLC to PC communication, Profibus, DH-485

**PC-502 : SCADA / HMI System Development**

- Introduction to Industrial Networking
- Analog and Digital Communications on Plant Floors
- RS232-422-485 standards
- Introduction to SCADA
- SCADA / HMI Components
- Intellution's iFIX SCADA Software
- National Instrument's LabVIEW DSC (Distributed & Supervisory Control) Software
- HMI Development, Data Processing, Control Algorithm Programming
- Modem connectivity & SCADA protocols
- Data Acquisition PLCs/RTUs, Database Connectivity
- SCADA development for Small Scale Pilot Plants (Case Study)
- OPC (OLE for Process Control) Configuration
- Comparison of different SCADA packages

**PC-503 :Distributed Control System (DCS)**

- Introduction to ABB 800F DCS
- Project Management
- Configuring the Hardware Structure
- AC 800F Process Station

**Course Enquiries:**

Students can enquire about the various courses either on telephone or by personal contact between 9:15 AM to 5:15 PM (Lunch time 1 to 1:30 PM)

**Telephone Numbers:**

Office	0495 - 2287266 / 2287268
Director's Office	0495 - 2287123
Training Officer	0495 - 2287266

**PC-500 Course Coordinator**                      **0495 - 2287266**

Office Fax    0495 - 2287168

e-mail:     [trng@doeacccalicut.ac.in](mailto:trng@doeacccalicut.ac.in)

Website:     [www.doeacccalicut.ac.in](http://www.doeacccalicut.ac.in)