PLC, SCADA, DCS & Industrial Automation

LEARNING BY DOING

ISO 9001:2008 CERTIFIED

IATRC
INDUSTRIAL AUTOMATION
TRAINING & RESEARCH CENTRE

INDUSTRY PARTNERS

techno system
automation & motion control solution

automation system
built technology

✔ Channel Partners

ABB
Power and productivity
for a better world™

DELTA

LG

SIEMENS
Ingenuity for life

Honeywell

Rockwell Automation
AB Allen-Bradley

MESSAGE TO COURSE PARTICIPANTS

Factory automation increases productivity provided you have trained manpower to handle it. We successfully conducting 100% practical hands on training covering all necessary topics to all most all AICTE- WBUT affiliated engineering colleges & technical universities across country as well as to major industries as actively participated. A good volume of working professionals frequently participated short term training from across country.

Our training facility, a more than 2000 sft area is always ready t & well equipped with state of the art hardware & supporting softwares packages of all frontline brands in repute used by all major engg. Sectors like power, cement, steel, leather, ceramic, food & beverages, system integrators'so on.

The introduction classes are well backed up with sufficient laboratory assignments in 1:1 basis including individual troubleshooting sessions for each & every topic travelled with the active participation by a team of most experienced and result proven industry professionals as faculty engineers having rich exposures in variety of process operations mostly found in all process industry for not less than 5-8 years.

After successful completion of such training one student is completely capable of and confident as productive by day 1 as acting engineer in any industrial environment in future.

As a value added service we have a very strong & informative placement cell working round the clock by keeping close touch with our tied up industry partner M/S TECHNO SYSTEM, KOLKATA (an ABB authorized system integrator and direct channel partner) and M/S AUTOMATION SYSTEM, KOLKATA (a DELTA - TAIWAN authorized system integrator cum direct channel partner) to place our trainee engineer as their service & maintenance engineer in direct payroll basis or in their client companies.

Please feel free to contact our Training Executive for any additional information for course details and for planning your training schedule and job prospects etc.

Secretary

INDUSTRIAL AUTOMATION TRAINING & RESEARCH CENTER - IATRC
WELCOMES STUDENTS OF ENGINEERING

Companies worldwide are hunting for skills & **IATRC** imparts you skills to to be armed with latest technology on industrial Automation & Process control Instrumentation. There exists vast difference between academic curriculum & what language industries speak & IATRC bridges that gap to make students be Upgraded with technology industry presently adopted to run their show. There is no end to learning & the best way to learn & experience practically & systematically.

The training center is well equipped with hardware and software packages of various manufacturers. The theory classes are well backed up, with hands – on assignments. Industrial Automation & Process control is a silent revolution which is cross fertilization of many disciplines & is implemented in most industries.

CAREER PROSPECTS:
A. PROJECT ENGINEER
B. PLC PROGRAMMER
C. AUTOMATION ENGINEER
D. MARKETING ENGINEER
E. FREELANCE PLC / SCADA EXPERT

We are in strict confidence that our intention to develop your students and make them industry worthy always.

IATRC TRAINING & PLACEMENT CELL

TRAINING SCHEDULE: 3 MONTHS FULL TIME PRACTICAL TRAINING ON INDUSTRIAL AUTOMATION

01	COURSE TYPE	INDUSTRIAL AUTOMATION : Brand: SIEMENS / ALLEN BRADLEY / ABB / DELTA
02	COURSE DURATION	90 Days / 144 HRS.
03	COURSE FEE	RS.20,400.00
04	COURSE OBJECTIVE	The primary objective of this courseware is to teach the student towards the basic knowledge of a PLC / SCADA / Drive functionality & make the attendee well awared and gain capability about creating, dowloading, troubleshooting any particular programme sequence successfully
05	GAINS FROM TRAINING	Upon completion of this course:
		1. Become familiar with the TOPICS such as PLC – SCADA & DRIVE & HMI functionality,Programme build up, Establishing communication between PC-PLC interface, Uploading – downloading programme / logic, concept gathering of PLC & other control components / accessories wiring.
		2. Understand the fundamental concepts and features of PLC enclosures having mounted all items like as PLC-DRIVE – HMI-PUSH BUTTONS, LEDs' etc.
		3. Able to build up a required logic from a given logic sequence and successfully test with the panel
		4. Develop a level of comfort and confidence with the said usage of Brand / product through hands – on experience
		5. Participation in Live project as a PLC Programmer
06	BATCH	The said training usually given as 1:1 basis; all students registered in any single day will automatically form a batch and not exceeding

		05 nos.; thus always batch means 05 nos.
07	ELIGIBILITY	The willing participant should have a degree / diploma / ITI from EE/EIE/ECE primarily. Engineering students still undergoing in their semster wise studies also are eligible
08	METHOD OF TRAINING	Theoratical: Practical lab session which means as 10 : 90 maintained with optimum sessions as Audio: Visual
09	EVALUATION OF TRAINEE	Practical Asiignments for every single student
10	EXAM SCHEDULE	After completion of the schedule training curriculum and student declared as fit for test
11	PREREQUISITE FOR JOINEE	Personal Laptop is a mandetory with particular brand of PLC programming software installed. The said version software will be provided and installed by institute If no such software version pre installed in trainee's computer.
12	REQUIRED MARKS & ATTENDANCE OF TRAINEE	A minimum 80 % attendance is necessary for every training participant to cover most of the course syllabi. 50% score as pass mark is required to be awarded prescribed certification
13	COURSE CONTENT	Detail given below
14	TOTAL TRAINING DAYS/HRS.	26 DAYS / 144 HRS. (whichever achieved first)

3 months training Course content on Ind. Automation

SESSION 1: TIME 03 HRS.

- ✓ What is Automation?

- ✓ History Of PLC System And Industrial Control System.

- ✓ Idea of Electrical Control System.

- ✓ Introduction Of Industrial Controller Or PLC And Various Components like as HMI VFD etc..

SESSION 2: TIME 03 HRS.

- ✓ Basic Application of PLC in industry, benefits of PLC over Relay Logic System.

- ✓ Advantage of PLC based Industrial Automation System

- ✓ Basic Block diagram Of PLC System and its various Components with Details

- ✓ PLC Scan Cycle, PLC Input Module ,Output Module Idea and Wiring Concept ,

- ✓ Working Principle of PLC System, Memory Addressing Idea Etc.

SESSION 3: TIME 03 HRS. TIMER & COUNTER

- ✓ Introduction to PLC software and its distinct working Principal

- ✓ Communication Of PLC Hardware through PLC Software

- ✓ PLC Basic programming Technique, Ladder Logic etc .

- ✓ PLC Hardware Checking Procedure and Input Module / Output Module Checking Technique
.

SESSION 4:TIME 03 HRS.

- ✓ Hands on Practical Training on PLC Hardware and Input / Output Module checking.

SESSION 5: TIME 03 HRS.

- ✓ Basic Idea on PLC Software Component

- ✓ Idea on NO / NC Contact, Software Idea of Timer, Counter, Comparator etc

- ✓ Concept of Logical, Arithmetical operation in PLC Software

- ✓ Move, Shift, Load, Transfer, Compare, Convert Integer Instruction in PLC Software.

SESSION 6: TIME 03 HRS.

- ✓ Hands On Practice On Industrial Controller Software

- ✓ Testing procedure of Training Industrial Software , Error Checking

- ✓ Hands on Practice of Different Instruction in PLC Software

SESSION 7: TIME 03 HRS.

- ✓ Programme Development on PLC Software for HVAC Project.

- ✓ Compile the PLC Programme, Establishment the Communication with PC and PLC and Download the Programme on PLC System

- ✓ Run the Programme in PLC and Checking the Programming Sequence In PLC System.

PLC, SCADA, DCS & Industrial Automation

SESSION 8:TIME 03 HRS.

- ✓ DC Motor Basic and Working Principal

- ✓ Application area of DC Motor and DC Drives

- ✓ Speed Control Technology of DC Motor and Drives.

- ✓ Basic Idea on Power Electronics Working Principal of Thyristor, IGBT etc.

SESSION 9: TIME 03 HRS.

- ✓ AC motor basics and working Principal of AC Motor.

- ✓ AC Motor Testing Procedure, Meggaring Procedure.

- ✓ Introduction on AC Drives and Its components.

- ✓ Thyristor & IGBT Checking Procedure

- ✓ Benefits of AC drive over conventional starters (DOL & Star/delta) .

SESSION 10: TIME 03 HRS.

- ✓ SESS AC Drives Speed Control technique by controlling the Frequency .

- ✓ Torque Control by Variable Voltage, Variable Frequency method .

- ✓ Selection Procedure and Application and Benefit of using AC Drive.

- ✓ General Philosophy and Working Principle of AC Drives.

- ✓ Idea on AC Drives Speed Controller, Current Controller tuning .

INDUSTRIAL AUTOMATION SYSTEM

SESSION 11:TIME 03 HRS.

- ✓ Drive Parameterization and programming Technique.

- ✓ Testing of Drive Programming& Parameterization with Live Demo.

- ✓ Drive Module Healthiness Checking

- ✓ Hands on Programming the Drives , Interfacing the PLC and the Variable Drives .

- ✓ By Hand Drive Programming and Project Practical

SESSION 12: TIME 03 HRS.

- ✓ Idea of Supervisory Control System or SCADA and HMI System or Human Machine Interface System.

- ✓ Programme Development technique on SCADA .

- ✓ Concept of Tag , Industrial Graphics , Trends , Alarms , Reporting on SCADA

- ✓ Hands on Practical in HMI Unit through SCADA Software .

SESSION 13:TIME 03 HRS.

- ✓ Different Speed Setting Procedure on Variable Speed Drive .

- ✓ Hardware Communication Establishment in between Drives & PLC .

- ✓ Control Wiring in between Drives & PLC

- ✓ Various Speed Set Point Setting of Drives through PLC .

- ✓ Drives & PLC Combination using HMI Software

IATRC - KOLKATA

SESSION 14: TIME 03 HRS.

- ✓ Hands On Programming on Different Programming, Practical Industrial Project Training (Automatic Power Plant Boiler drum Level Control Project, PLC based Conveyor Belt Project etc).

SESSSION 15: TIME 03 HRS.

Question Answer Session, Reviews of entire Course, Clarification of Queries, Doubts if any Brief Summary over the Conducted Project.

**Examination , Lecture on Needs of Industrial Automation and its Future
Prospect by Leading Industrial MNC Experts from DELTA/ SIEMENS / ABB / Honeywell etc .**

NOTE: For 3 months & 4 months Trainee the following extra sessions will be added as extra

PLC ADVANCE PROGRAMMING

10 CLASSES = 30 HRS

1. TIMER & COUNTER 2.LOGICAL OPERATIONS , COMPARATOR   3.MATHEMATICAL CALCULATIONS 4.SCALING

SCADA /WINCC

4 CLASSES = 12 HRS

1.INTRODUCTION   2.DIGITAL   3.ANALOG 4.ALARM, 5. TREND

PROJECT: 2 NOS.

1. Automatic CAR PARKING System. 6 HRS

(a) ELECTRICAL DRIVE SYSTEM (BOTH DC DRIVE & VFD) 10 30 HRS

(b) OVERVIEW & APPLICATION OF DCS SYSTEM 2 8 HRS

(c) ELECTRICAL AUTOCAD & PANEL DESIGNING

10 CLASSES = 30 HRS

AUTOCAD ELECTRICAL TRAINING COURSE SCHEDULE

INTRODUCTION AND DESCRIPTION OF BASIC COMMAND

IN AUTOCAD—> Lines, construction, lines, multiline, polylines, rectangle, arc, circle, ellipse, polygon, hatching, text, zoom, pan, snap, grid, Osnap, Otrack

AUTOCAD BASIC COMMAND—> CONTINUED.

MODIFY COMMANDS -> ERASE, TRIM, MOVE,COPY,MIRROR, OFFSET, FILLET, CHAMFER, ARRAY,EXTEND, STRETCH,ROTATE,BRAKE,SCALE,EXPLORE,PANEL ENGINEERING —> GA/ SLD/ PCD —>PANEL, BUS, BAR (AL/CU), SELECTION OF PANEL, ITEMS —> BUS BAR/ PVC, FRP, SFU/MCCS, CONTACTOR,, O/L RELAY, 2 NO + 2 NC CONTACTS, ADD ON BLM., CONCEPT OF ELECTRICAL DRAWING OF PCD/CCD OF , DOL/RDOL ETC IN AUTOCAD., PREPARATION OF PANEL GA, SIDE VIEW, PLAN,, FOUNDATION DRAWING, BOM., PROJECT BASED ON DRAWING / DOCUMENTS / BOM, OF MCC PANEL WITHOUT PLC., DRAWING OF MCC PANEL WITH PLC,, LOCAL/REMOTE SELECTION, COMMAND,ETC

For 4 months only:

ADDITIONAL 20 CLASSES = 60 HRS TO BE ADDED WITH THE 3 MONTHS COURSE CONTENTS

- ADVANCED ELECTRICAL AUTOCAD & PANEL DESIGNING (FOR 4 MONTHS COURSE ONLY) .

- FINAL PROJECT ON INDUSTRIAL PROCESS (FOR 4 MONTHS COURSE ONLY) .

- INDUSTRY VISIT & INDUSTRIAL PROJECT (FOR 4 MONTHS COURSE ONLY) .

- ADVANCE ELECTRONICS & INSTRUMENTATION (FOR 4 MONTHS COURSE ONLY) .

- ADVANCE ELECTRONICS CALLIBRATION OF DIFFERENT INSTRUMENTS, HANDS ON

- PRACTICAL ON MICROPROCESSOR, MICROCONTROLLER.

- ADVANCE CLASS BY SENIOR INDUSTRIAL PROFESSIONALS FROM SIEMENS, ABB,

100% JOB ASSURED FOR EVERY PARTICIPANT AFTER SUCCESSFULL COMPLETION

SUPERVISORY CONTROL & DATA AQUISITION (SCADA)

ROCKWELL / SIMATIC WINCC (SIEMENS) / ABB / DELTA

TOTAL PRACTICAL LAB ASSIGNMENT: 05 + 05 (BOTH RSVIEW32 & WINCC)

AC DRIVE

AC DRIVE WITH DELTA / ABB –

PROCESS CONTROL ANALOG APPLICATION USING PROCESS INSTRUMENTS
TOTAL LAB ASSIGNMENTS = 05

REQ. ELIGIBILITY: B.E. / B.TECH. / M.E. / M.TECH. / DIPLOMA IN ELECTRICAL, ELECTRONICS / TELECOMM / INSTRUMENTATION / ITI IN ELECTRICAL / ELECTRONICS / INSTRUMENTATION TECHNICIAN TRADE FRESH OR EXPERIENCED.PERSON

PERSON WORKING IN INDUSTRY BUT HAVING NO SUCH DEG. OR DIP. IN ANY ABOVE FIELD BUT QUITE ACCUSTOMED OF HANDLING CONTROL OR RELAY PANEL FOR A SIZABLE TENURE, MAY APPLY FOR SUCH TRAINING WHERE A FORMAL INTERVIEW IS REQUIRED BEFORE ADMISSION APPROVED.

FOR 3 & 4 MONTHS TRAINING COURSE:

PAYMENT MODE: IF WILLING CANDIDATE IS TAKING OPTION FOR EMI SYSTEM:

 1ST INSTALLMENT OF RS. 10,400.00 MUST BE PAID VIA DEMAND DRAFT OF ANY BANK IN INDIA OR IN CASH. THE BALANCE AMOUNT MUST BE CLEARED ON OR BEFORE COMPLETION OF 30 DAYS EXACTLY.

DISCOUNT ON COURSE FEE: ANY APPLICANT MAY GET 10% CASH DISCOUNT AS MAXIMUM ON COURSE FEE IF PAY COURSE FEE IN ONE SHOT. GROUP DISCOUNT OF 10% ON COUSE FEE CAN BE AVAIL IF STUDENTS IN GROUP (HERE GROUP MEANS MINIMUM 3 NOS. IN ONE GROUP) TAKES ADMISSION ON THE SAME DAY.

Industrial Automation

- PLC
- DCS
- SCADA
- DRIVES
- INSTRUMENTATION
- COMMUNICATION
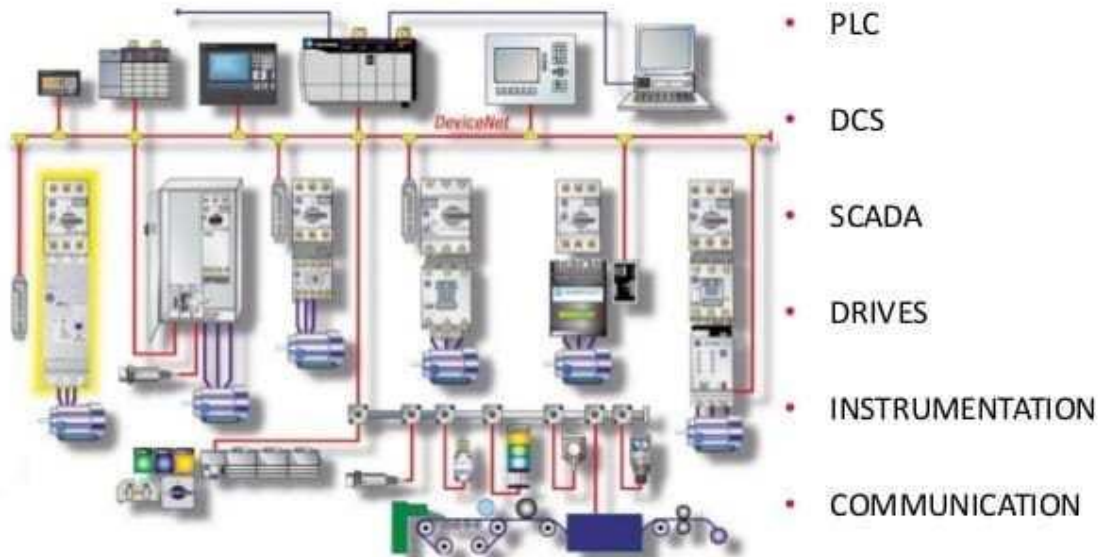
LATE FINE: RS. 20.00 PER DAY CHARGEABLE IF PAYMENT NOT MADE ON THE SCHEDULE DATE.

**DAILY CLASS HOUR:** 10 A.M. TO 1 P.M. AND 1.30 P.M. TO 4.30 P.M. FOR ALL COURSE EXCLUDING VOCATIONAL TRAINING FOR COLLEGE STUDENTS

DEMAND DRAFT**:** SHOULD BE RAISED FROM ANY BANK IN FAVOUR OF **"AUTOMATION SYSTEM"** PAYABLE AT KOLKATA

STUDENT ACCOMODATION (FOR MALE CANDIDATE) : ACCOMODATION DURING TRAINING FOR OUTSATION CANDIDATES WILL BE ARRANGED (**AS LODGING ONLY**) ONLY IN AGAINST OF RS.1250.00 (RUPEES ONE THOUSAND TWO HUNDRED FIFTY ONLY) FOODING CHARGES PAYABLE AS ACTUAL.

STUDENT ACCOMODATION (FOR FEMALE CANDIDATE): WE DO NOT HAVE ANY ACCOMODATION FOR FEMALE CANDIDATE AT THIS MOMENT BUT CAN BE ARRANGED SUBJECT TO AVAILABILITY AS P.G. ACCOMODATION IN NEARBY GIRLS HOSTEL. TO AVAIL SUCH FACILITY A CANDIDATE SHOULD CONTACT WELL IN ADVANCE AND AFTER CONFIRMATION OF JOINING SUCH COURSE ONLY THEN CHARGES OFSUCH ACCOMODATION CAN BE FIXED. SEPARATE FOODING CHARGES SHOULD BE PAID AS EXTRA.

INDUSTRIAL AUTOMATION
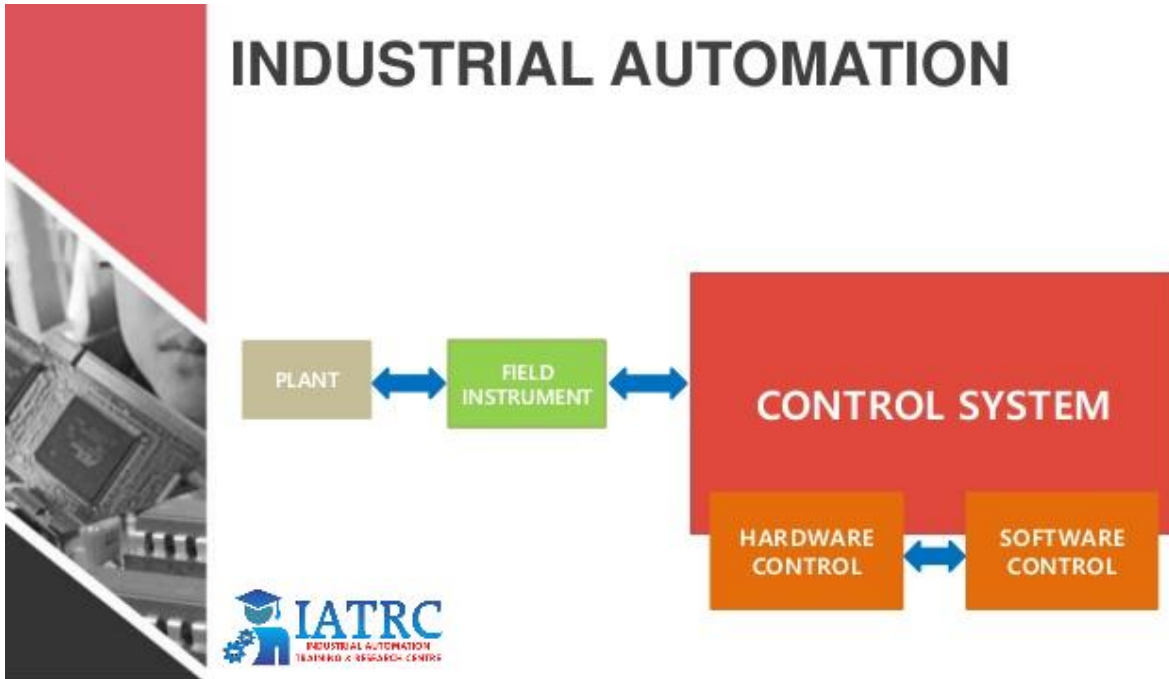
SHORT TERM CERTIFICATE COURSE ON PLC / SCADA/ DRIVES/ CAD
(Syllabus for the above course will be the same as 3 months)

This course has been designed for both engineers and working professionals who may have theoretical ideas but having lack of hands on practical exposure in the field of industrial automation & control.

1. PLC programming & Troubleshooting on Allen Bradley (MICROLOGIX 1400 Family)

2. PLC programming & Troubleshooting on Siemens S7 SIMATIC S 7 313 CPU'

3. PLC programming & Troubleshooting on DELTA PLC / ABB PLC

4. SCADA with RSVIEW 32 / WINCC / or simillar in ABB & DELTA using any one or above.
5. SIMATIC WINCC with S 7 313 CPU

6. CAD DESIGNING : AutoCAD Electrical /AutoCAD Mechanical /

LEARNING BY DOING

01	COURSE TYPE	AUTOCAD 2D -3D
02	COURSE DURATION	45 Days / 144 HRS.
03	COURSE FEE	RS.7,900.00
04	COURSE OBJECTIVE	The primary objective of this courseware is to teach the student the basic commands necessary for producing professional 2D Schematic & Panel drawings.
05	GAINS FROM TRAINING	Upon completion of this course: 1. Become familiar with the AutoCAD Electrical userface 2. Understand the fundamental conceptsand features of AutoCAD Electrical 3. Present drawings in a detailed and visually impressive manner 4. Develop a level of comfort and confidence with AutoCAD Electrical through hands – on experience 5. Participation in Live project as a CAD designer
06	BATCH	The said training usually given as 1:1 basis; all students registered in any single day will automatically form a batch and not exceeding

		05 nos.; thus always batch means 05 nos.
07	ELIGIBILITY	The willing participant should have a degree / diploma / ITI from EE/EIE/ECE primarily. Engineering students still undergoing in their semster wise studies also are eligible
08	METHOD OF TRAINING	Theoratical: Practical lab session which means as 10 : 90 maintained with optimum sessions as Audio: Visual
09	EVALUATION OF TRAINEE	Practical Asiignments for every single student
10	EXAM SCHEDULE	After completion of the schedule training curriculum and student declared as fit for test
11	PREREQUISITE FOR JOINEE	Personal Laptop is a mandetory with minimum AutoCAD Electrical Educational version 2016 installed. The said version software will be provided and installed by institute If no such software version pre installed in trainee's computer.
12	REQUIRED MARKS & ATTENDANCE OF TRAINEE	A minimum 80 % attendance is necessary for every training participant to cover most of the course syllabi. 50% score as pass mark is required to be awarded prescribed certification
13	COURSE CONTENT	Detail given below
14	TOTAL TRAINING DAYS/HRS.	30 DAYS / 144 HRS. (whichever achieved first)

Course content for training on AutoCAD Electrical :

Training Guide Contents

Chapter 1: Introduction to AutoCAD Electrical : Schedule Time allotted: 36 hrs.

▪ What is AutoCAD Electrical?

▪ Drawing Files

▪ Electrical Components and Wires

▪ Design Methodologies

Chapter 2: Project Files

▪ Project Manager Interface

▪ Accessing Project Files

▪ Opening a Drawing

▪ Creating a Drawing

▪ Add a Drawing to a Project File

Chapter 2: Project Files: Schedule Time allotted: 36 hrs.

▪ Project Manager Interface

▪ Accessing Project Files

▪ Opening a Drawing

▪ Creating a Drawing

▪ Add a Drawing to a Project File

▪ Managing Drawings in Projects

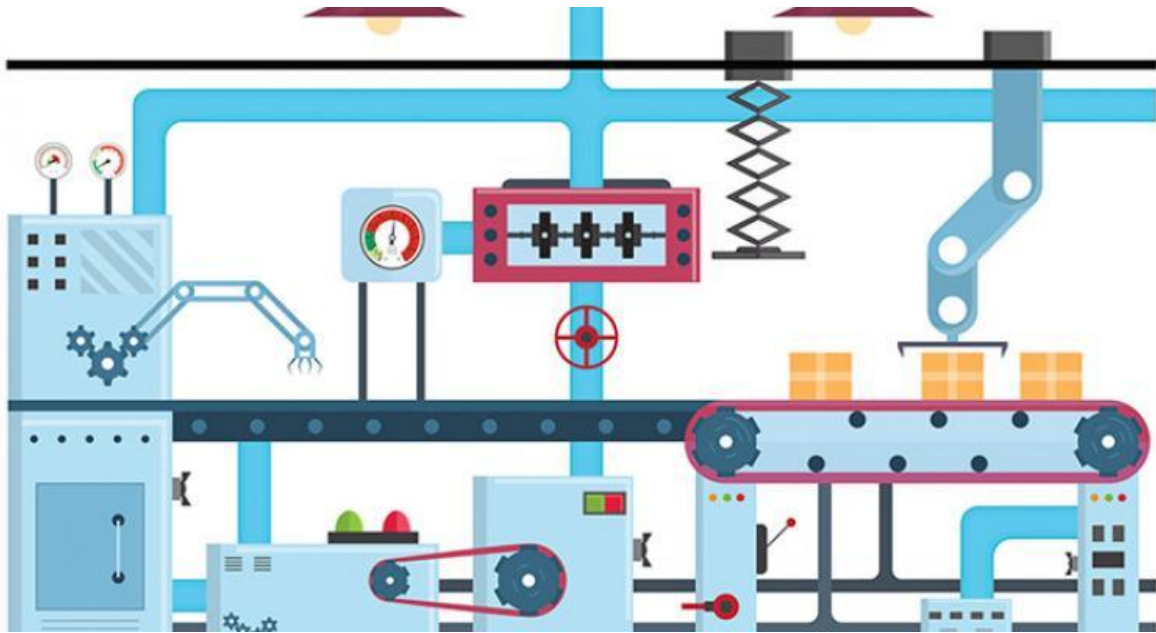▪ Project Manager Drawing List▪ Project Manager Drawing List

Chapter 3: Schematics I - Single Wires/Components: Schedule time allotted: 36 hrs.

▪ Referencing

▪ Ladders

▪ Insert Wires

▪ Edit Wires

▪ Add Rungs

▪ Wire Setup

▪ Wire Numbers

▪ Source & Destination Signal Arrows

▪ Insert Component

▪ Parent/Child Components

Chapter 4: Schematics II - Multiwire and Circuits: schedule time allotted: 36 hrs.

▪ Dashed Link Lines

▪ 3-Phase Ladders

▪ Multiple Wire Bus

▪ 3-Phase Components

▪ 3-Phase Wire Numbering

▪ Cable Markers

▪ Fan In/Out

- Insert Saved Circuits

- Save Circuits to Icon Menu

- WBlock Circuits

- Copy Circuit

- Move Circuit

- Circuit Clipboard

- Circuit Builder

SHORT TERM TRAINING ON PLC AND SCADA
[PLC: DELTA/ ABB / ROCKWELL / SIEMENS]

01	COURSE TYPE	Programmable Logic Controller (PLC) Brand: SIEMENS / ALLEN BRADLEY / ABB / DELTA
02	COURSE DURATION	30 Days / 144 HRS.
03	COURSE FEE	RS.7,900.00
04	COURSE OBJECTIVE	The primary objective of this courseware is to teach the student the basic knowledge of a PLC functionality & make the attendee well awared and gain capability about creating, dowloading, troubleshooting any particular programme sequence successfully
05	GAINS FROM TRAINING	Upon completion of this course: 1. Become familiar with the PLC functionality,Programme build up, Establishing PC-PLC interface /communication, Uploading – downloading programme / logic, concept gathering of PLC & other control components / accessories wiring. 2. Understand the fundamental concepts and features of PLC enclosures 3. Able to build up a required logic from a given logic sequence

		4. Develop a level of comfort and confidence with the said usage of Brand / product through hands – on experience
		5. Participation in Live project as a PLC Programmer
06	BATCH	The said training usually given as 1:1 basis; all students registered in any single day will automatically form a batch and not exceeding 05 nos.; thus always batch means 05 nos.
07	ELIGIBILITY	The willing participant should have a degree / diploma / ITI from EE/EIE/ECE primarily. Engineering students still undergoing in their semster wise studies also are eligible
08	METHOD OF TRAINING	Theoratical: Practical lab session which means as 10 : 90 maintained with optimum sessions as Audio: Visual
09	EVALUATION OF TRAINEE	Practical Asiignments for every single student
10	EXAM SCHEDULE	After completion of the schedule training curriculum and student declared as fit for test
11	PREREQUISITE FOR JOINEE	Personal Laptop is a mandetory with particular brand of PLC programming software installed. The said version software will be provided and installed by institute If no such software version pre installed in trainee's computer.
12	REQUIRED MARKS & ATTENDANCE OF TRAINEE	A minimum 80 % attendance is necessary for every training participant to cover most of the course syllabi. 50% score as pass mark is required to be awarded prescribed certification
13	COURSE CONTENT	Detail given below
14	TOTAL TRAINING DAYS/HRS.	30 DAYS / 144 HRS. (whichever achieved first)

Course content for training on PLC : Training Guide Contents

SESSION 1: TIME 03 HRS.

- ✓ What is Automation?

- ✓ History Of PLC System And Industrial Control System.

- ✓ Idea of Electrical Control System.

- ✓ Introduction Of Industrial Controller Or PLC And Various Components Of PLC.

SESSION 2: TIME 03 HRS.

- ✓ Basic Application of PLC in industry, benefits of PLC over Relay Logic System .

- ✓ Advantage of PLC based Industrial Automation System

- ✓ Basic Block diagram Of PLC System and its various Components with Details

- ✓ PLC Scan Cycle, PLC Input Module ,Output Module Idea and Wiring Concept ,

- ✓ Working Principle of PLC System, Memory Addressing Idea Etc.

SESSION 3: TIME 03 HRS.

- ✓ Introduction to PLC software and its distinct working Principal

- ✓ Communication Of PLC Hardware through PLC Software

- ✓ PLC Basic programming Technique, Ladder Logic etc .

- ✓ PLC Hardware Checking Procedure and Input Module / Output Module

- ✓ Checking Technique.

SESSION 4:TIME 03 HRS.

- ✓ Hands On Practical Training on PLC Hardware and Input / Output Module checking.
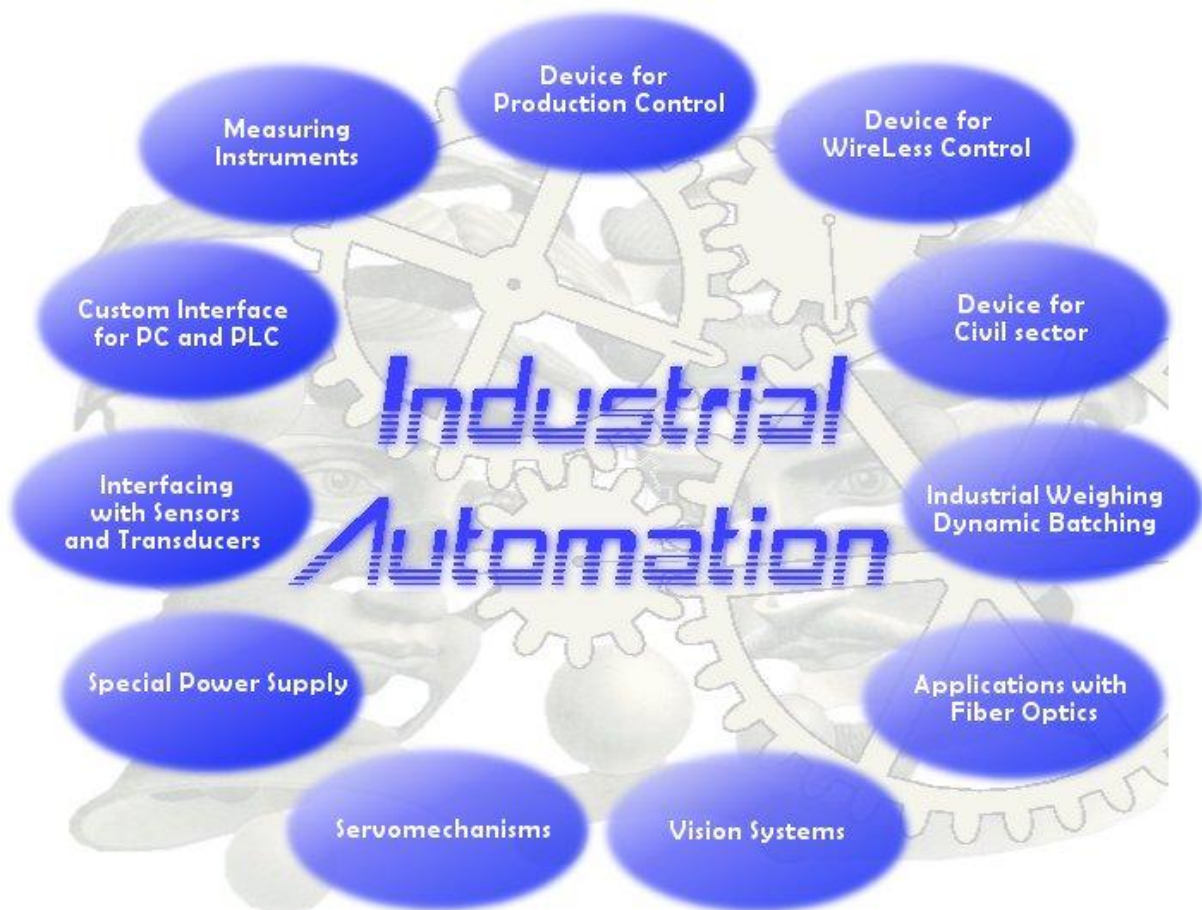
SESSION 5: TIME 03 HRS.

- ✓ Basic Idea on PLC Software Component

- ✓ Idea on NO / NC Contact, Software Idea of Timer, Counter, Comparator etc

- ✓ Concept of Logical, Arithmetical operation in PLC Software

- ✓ Move, Shift, Load, Transfer, Compare, Convert Integer Instruction in PLC Software.

SESSION 6: TIME 03 HRS.

- ✓ Hands On Practice On Industrial Controller Software

- ✓ Testing procedure of Training Industrial Software , Error Checking

- ✓ Hands on Practice of Different Instruction in PLC Software

SESSION 7: TIME 03 HRS.

- ✓ Programme Development on PLC Software for HVAC Project.

- ✓ Compile the PLC Programme, Establishment the Communication with PC and PLC and Download the Programme on PLC System

- ✓ Run the Programme in PLC and Checking the Programming Sequence In PLC System.

SESSION 8:TIME 03 HRS.

- ✓ DC Motor Basic and Working Principal

- ✓ Application area of DC Motor and DC Drives

- ✓ Speed Control Technology of DC Motor and Drives.

- ✓ Basic Idea on Power Electronics Working Principal of Thyristor, IGBT etc.

SESSION 9: TIME 03 HRS.

- ✓ AC motor basics and working Principal of AC Motor.

- ✓ AC Motor Testing Procedure, Meggaring Procedure.

- ✓ Introduction on AC Drives and Its components.

- ✓ Thyristor & IGBT Checking Procedure

- ✓ Benefits of AC drive over conventional starters (DOL & Star/delta) .

SESSION 10: TIME 03 HRS.

- ✓ SESS AC Drives Speed Control technique by controlling the Frequency .

- ✓ Torque Control by Variable Voltage, Variable Frequency method .

- ✓ Selection Procedure and Application and Benefit of using AC Drive.

- ✓ General Philosophy and Working Principle of AC Drives.

- ✓ Idea on AC Drives Speed Controller, Current Controller tuning .

SESSION 11:TIME 03 HRS.
- ✓ Drive Parameterization and programming Technique.

- ✓ Testing of Drive Programming& Parameterization with Live Demo.

- ✓ Drive Module Healthiness Checking

- ✓ Hands on Programming the Drives , Interfacing the PLC and the Variable Drives .

- ✓ By Hand Drive Programming and Project Practical

SESSION 12: TIME 03 HRS.

- ✓ Idea of Supervisory Control System or SCADA and HMI System or Human Machine Interface System.

- ✓ Programme Development technique on SCADA .

- ✓ Concept of Tag , Industrial Graphics , Trends , Alarms , Reporting on SCADA

- ✓ Hands on Practical in HMI Unit through SCADA Software .

SESSION 13:TIME 03 HRS.

- ✓ Different Speed Setting Procedure on Variable Speed Drive .

- ✓ Hardware Communication Establishment in between Drives & PLC .

- ✓ Control Wiring in between Drives & PLC

- ✓ Various Speed Set Point Setting of Drives through PLC .

✓ Drives & PLC Combination using HMI Software

SESSION 14: TIME 03 HRS.

✓ Hands On Programming on Different Programming, Practical Industrial Project Training (Automatic Power Plant Boiler drum Level Control Project, PLC based Conveyor Belt Project etc).

SESSSION 15: TIME 03 HRS.

Question Answer Session, Reviews of entire Course, Clarification of Queries, Doubts if any Brief Summary over the Conducted Project.

NOTE: FOR VOCATIONAL STUDENTS A PROJECT WILL BE AUTOMATICALLY COMES AFTER COMPLETION OF LEARNING SESSION

NOTE: -

1. THE START OF THE SAID TRG. MAY BE ALTERED ACCORDING TO WBUT SEMESTER EXAM CALENDAR NOTIFIED.
2. SEPARATE BATCH WILL BE CREATED FOR SAME COLLEGE PARTICIPANTS
3. A BATCH CONSISTING 16 STUDENTS MAXIMUM
4. GROUP DISC. CAN BE ALLOWED TO EACH STUDENT IN SUBJECT TO ENROLLMENT IN HIGHER NOS

SHORT TERM COURSE ON BASIC ELECTRONICS (SERVICE & MNTNC. OF UPS,INVERTER & STABILIZER)

01	COURSE TYPE	Basic Electronics (Servicing-Maintenance of UPS, INVERTER & STABILIZER)
02	COURSE DURATION	1 MONTH(22 DAYS / 66 HRS.
03	COURSE FEE	RS.7,900.00 (INCLSV. REGN. FEE)
04	COURSE OBJECTIVE	The primary objective of this courseware is to teach the student the basic knowledge of various type of electronic circuits functionality & make the attendee well awared and gain capability about typical platform of a UPS,INVERTER & STABILIZER unit of a renowned make like ABB & DELTA , general troubleshooting method of any particular unit malfuntioning to service it successfully. Installation & Commissioning of a UPS,Inverter or a Stabilizer interfacing at client site.
05	GAINS FROM TRAINING	Upon completion of this course: 1. Become familiar with the functionality,communication build up, Establishing with required unit interface /communication, concept gathering of unit installed & other control components / accessories wiring. 2. Understand the fundamental concepts and features of any UPS,Inverter or stabilizer unit 3. Able to build up a required logic from a given logic sequence 4. Develop a level of comfort and confidence with the said usage

		of Brand / product through hands – on experience 5.Participation in Live project as a service cum maintenance engineer / technician
06	BATCH	The said training usually given as 1:1 basis; all students registered in any single day will automatically form a batch and not exceeding 05 nos.; thus always batch means 05 nos.
07	ELIGIBILITY	The willing participant should have a degree / diploma / ITI from EE/EIE/ECE/EEE primarily. Engineering students still undergoing in their semster wise studies also are eligible
08	METHOD OF TRAINING	Theoratical: Practical lab session which means as 10 : 90 maintained with optimum sessions as Audio: Visual
09	EVALUATION OF TRAINEE	Practical Asiignments for every single student
10	EXAM SCHEDULE	After completion of the schedule training curriculum and student declared as fit for test
11	PREREQUISITE FOR JOINEE	Personal Laptop is not a mandetory but preferable to take requisite tasks & theretical papers for go through such as product manuals & user guide for any product he has to handle during any training session.
12	REQUIRED MARKS & ATTENDANCE OF TRAINEE	A minimum 80 % attendance is necessary for every training participant to cover most of the course syllabi. 50% score as pass mark is required to be awarded prescribed certification
13	COURSE CONTENT	Detail given below
14	TOTAL TRAINING DAYS/HRS.	26 DAYS / 66 HRS. (whichever achieved first) / On site hourly activities willl comes as extra.

Course content for training on Basic Electronics :

Training Guide Contents

Lesson Plan:

Topics Days wise furnished:-

1. Introduction to Electronics - Day 1: 3 hrs

2. AC to DC converter – circuit diagram– Practical - Day 2 3 hr

3.555 Timer circuit diagram – Practical Day 3 3 hrs

4 Measurement devices– Practical Day 4 3 hrs

5 Desoldering practice - Practical Day 5 3 hrs

6 Soldering practice AC to DC converter – Practical Day 6 3 hrs

7 Soldering practice 555 Timer – Practical Day 7 3 hrs

8 Soldering practice SMD components – Practical Day 8 3 hrs

9 Selection of right inverter and Battery capacity Day 9 3 hrs

10 Inverter basics Day 10 3 hrs 11 Inverter functioning Day 11 3 hrs

12 Inverter Demo – Practical Day 12 3 hrs

13 Repairing of Inverter – Practical Day 13 3 hrs

14 Battery types and density meter demo – Practical Day 14 3 hrs

15 Auto Transformer basics Day 15 3 hrs

16 Stabilizer basics Day 16 3 Hrs

17 Servo stabilizer functioning Day 3 hrs. - Servo stabilizer Demo – Practical Day - On site visit with Senior Service Engineer for hands on at client's site.

18 3 hrs or more as on site visit with Senior Service Engineer as per programme set by the training authority.

19 Types of UPS Day 19th 3 hrs - On site visit with senior Service Engineer as per programme set by the Training Authority.

20 UPS functioning Day 20th 3 hrs - On site visit with senior Service Engineer as per programme set by the Training Authority.

21 UPS kit Demo – Practical Day 21st - On site visit with senior Service Engineer as per programme set by the Training Authority.

21 3 hrs. Or more - On site visit with senior Service Engineer as per programme set by the Training Authority.

22nd Day : On site visit with Senior Service Engineer for job to be done as hands on practical session.

26 Internal Exam: Theory:60 Mark , Practical :40 Mark Day 26 3 hrs

No. of Theory Hours including Internal Exam: 30 No. of Practical Hours with hands on Practice: 36 (Practical exam evaluation will be done as per particular trainee's performance done during on site job done successfully.
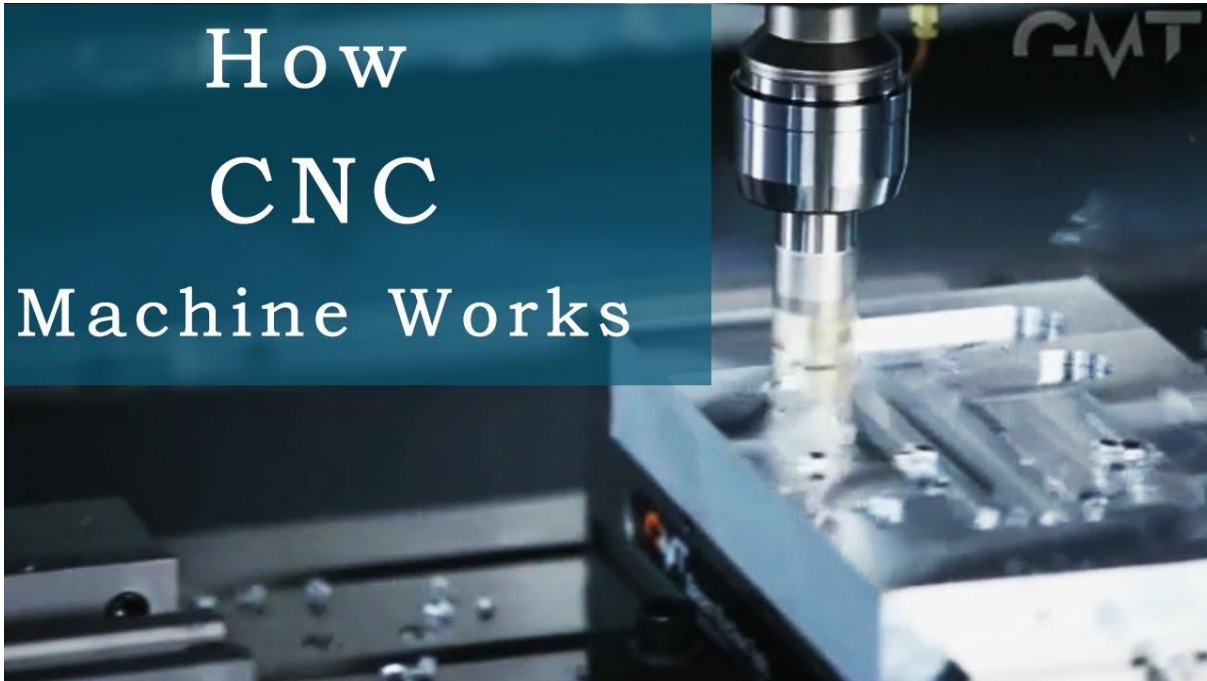
SHORT TERM TRAINING ON CNC PROGRAMMING & OPERATION - TURNING

01	COURSE TYPE	CNC Programming & Operation - Turning
02	COURSE DURATION	30 Days / 90HRS.
03	COURSE FEE	RS.7,900/- (Inclusive Regn. Fee)
04	COURSE OBJECTIVE	The primary objective of this courseware is to teach the student towards the basic knowledge of a CNC functionality & make the attendee well awared and gain capability about creating, dowloading, troubleshooting any particular programme sequence successfully
05	GAINS FROM TRAINING	Upon completion of this course: 1. Become familiar with the TOPICS on CNC functionality,Programme build up, Establishing communication between PC-PLC – CNC UNIT interface, Uploading – downloading programme / logic, concept gathering of PLC & other control components / accessories wiring concept.

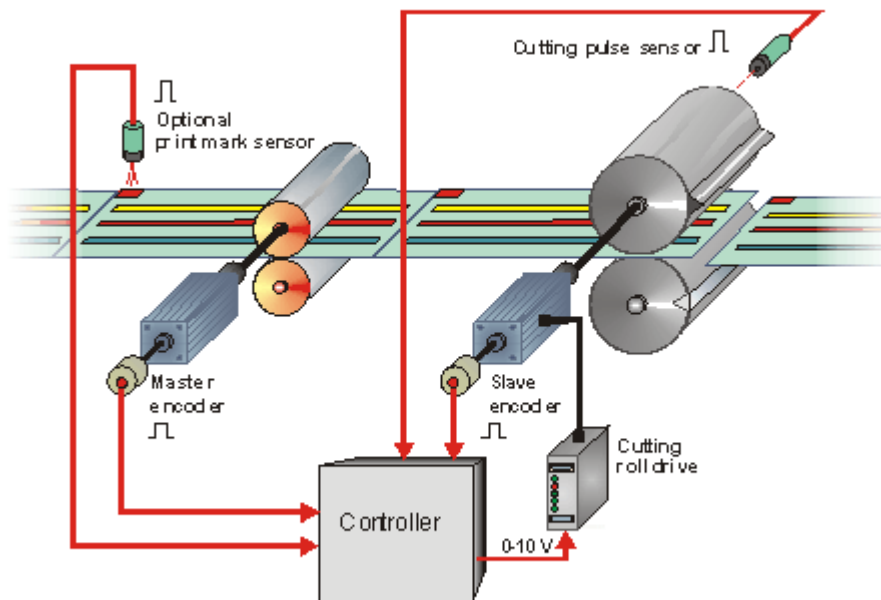|		
		2. Understand the fundamental concepts and features of CNC functions and creating necessary programming & troubleshooting etc.
		3. Able to build up a required logic from a given logic sequence and successfully test with the panel
		4. Develop a level of comfort and confidence with the said usage of Brand / product through hands – on experience
		5. Participation in Live project as a CNC Programmer
06	BATCH	The said training usually given as 1:1 basis; all students registered in any single day will automatically form a batch and not exceeding 05 nos.; thus always batch means 05 nos.
07	ELIGIBILITY	The willing participant should have a degree / diploma in IT/MECHANICAL or SSC + 2 years Industrial experience. Primarily. Engineering students still undergoing in their semster wise studies also are eligible. Basic Computer Knowledge for any training participant is a mandatory criteria.
08	METHOD OF TRAINING	Theoratical: Practical lab session which means as 10 : 90 maintained with optimum sessions as Audio: Visual
09	EVALUATION OF TRAINEE	Practical Asiignments for every single student
10	EXAM SCHEDULE	After completion of the schedule training curriculum and student declared as fit for test
11	PREREQUISITE FOR JOINEE	Personal Laptop is a mandetory with particular brand of CNC programming software installed. The required version of software will be provided and installed by training authority If no such software version found pre installed in trainee's computer.
12	REQUIRED MARKS & ATTENDANCE OF TRAINEE	A minimum 80 % attendance is necessary for every training participant to cover most of the course syllabi. 50% score as pass mark is required to be awarded prescribed certification
13	COURSE CONTENT	Detail given below
14	TOTAL TRAINING DAYS/HRS.	30 Days / 90 HRS. (whichever achieved first)

Day wise Training schedule: Course Content

MODULE	COURSE CONTENT	DAYS SEQUENCE	NO. OF HRS.
01	Introduction of CNC Lathe Machine, about controller,coordinate system of machine, about cutting tools,operations, main parts of the machine	Day 1	03 Hrs.
02	Method of Progrmming (Absolute and Relative), Tool Paths with Dimensional Coordinates	Day 2	03 Hrs.
03	Main Functions and Adresses, G-Codes, MCodes, Operating Modes	Day 3	03 Hrs.
04	Programming Structure, Sub Programmes	Day 4	03 Hrs.
05	About Referance Return, Zero Offsets, Geometric Offsets, Wear Offsets	Day 5	03 Hrs.
06	Programming On Facing Cycles,Threadig Cycles With(G90,G94,G92)	Day 6	03 Hrs.
07	Taper Turning (G90,G94), Internal Turning Operations	Day 7	03 Hrs.
08	About Tool Nose Radius Compansatation and its Codes of G40, G41, G42 and using models of Profile Operation	Day 8	03 Hrs.
09	Multiple Repeatative Cycles (G70,G71,G72,G73,G74,G75,G76)	Day 9	03 Hrs.
10	Direct Drawing Dimensions Programming,Calculational Part Of Complex Drawings	Day 10	03 Hrs.
PRACTICAL CLASSES			

11	Introduction about Control Panel, Machine Axis, Homing / Referance, Programme, Entering Practice	Day 11	03 Hrs.
12	Taking Offset on Machine	Day 12	03 Hrs.
13	Facing and Step Turning, Grooving, Threading Operations on Machine	Day 13	03 Hrs.
14	Profile Operations, Changing of Tools with Automatic tool changer	Day 14	03 Hrs.
15	Programmes Execution with T N R C	Day 15	03 Hrs.
16	Operations With Subprogrammes	Day 16	03 Hrs.
17	Internal Operations like Boring, Grooving, Threading, Profiles	Day 17	03 Hrs.
18	Multi Plerepeatative Cycles (G70,G71,G72,G73,G74,G75,G76)	Day 18	03 Hrs.
19	Editing Commands like Copy, Move, Merge, Change, back Ground Editing, Graphics Etc	Day 19	03 Hrs.
20	**FINAL TEST**	Day 20	03 Hrs.
HANDS ON PRACTICE			
21	Practice On CNC Machine Above Operations	Day 21	03 Hrs.
22	Practice On CNC Machine Above Operations	Day 22	03 Hrs.
23	Practice On CNC Machine Above Operations	Day 23	03 Hrs.
24	Practice On CNC Machine Above Operations	Day 24	03 Hrs.
25	Practice On CNC Machine Above Operations	Day 25	03 Hrs.
26	Practice On CNC Machine Above Operations	Day 26	03 Hrs.
27	Practice On CNC Machine Above Operations	Day 27	03 Hrs.
28	Practice On CNC Machine Above Operations	Day 28	03 Hrs.

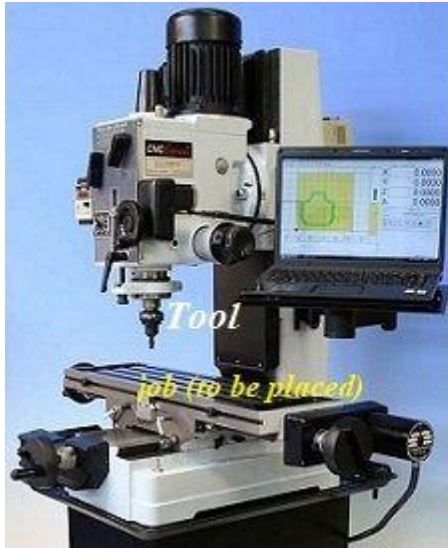| 29	Practice On CNC Machine Above Operations	Day 29	03 Hrs.
30	Practice On CNC Machine Above Operations	Day 30	03 Hrs.

Exam: Evaluation will done as per Lab performance during hands on practical session

SHORT TERM TRAINING ON CNC PROGRAMMING & OPERATION - MILLING

01	COURSE TYPE	CNC Programming & Operation - Milling
02	COURSE DURATION	30 Days / 90HRS.
03	COURSE FEE	RS.7,900/- (Inclusive Regn. Fee)
04	COURSE OBJECTIVE	The primary objective of this courseware is to teach the student towards the basic knowledge of a CNC functionality & make the attendee well awared and gain capability about creating, dowloading, troubleshooting any particular programme sequence successfully
05	GAINS FROM TRAINING	Upon completion of this course: 1. Become familiar with the TOPICS on CNC functionality,Programme build up, Establishing communication between PC-PLC – CNC UNIT interface, Uploading – downloading programme / logic, concept gathering of PLC & other control

components / accessories wiring concept.

2. Understand the fundamental concepts and features of CNC functions and creating necessary programming & troubleshooting etc.

3. Able to build up a required logic from a given logic sequence and successfully test with the panel

4. Develop a level of comfort and confidence with the said usage of Brand / product through hands – on experience

5. Participation in Live project as a CNC Programmer

06	BATCH	The said training usually given as 1:1 basis; all students registered in any single day will automatically form a batch and not exceeding 05 nos.; thus always batch means 05 nos.
07	ELIGIBILITY	The willing participant should have a degree / diploma in IT/MECHANICAL or SSC + 2 years Industrial experience. Primarily. Engineering students still undergoing in their semster wise studies also are eligible. Basic Computer Knowledge for any training participant is a mandatory criteria.
08	METHOD OF TRAINING	Theoratical: Practical lab session which means as 10 : 90 maintained with optimum sessions as Audio: Visual
09	EVALUATION OF TRAINEE	Practical Asiignments for every single student
10	EXAM SCHEDULE	After completion of the schedule training curriculum and student declared as fit for test
11	PREREQUISITE FOR JOINEE	Personal Laptop is a mandetory with particular brand of CNC programming software installed. The required version of software will be provided and installed by training authority If no such software version found pre installed in trainee's computer.
12	REQUIRED MARKS & ATTENDANCE OF TRAINEE	A minimum 80 % attendance is necessary for every training participant to cover most of the course syllabi. 50% score as pass mark is required to be awarded prescribed certification
13	COURSE CONTENT	Detail given below
14	TOTAL TRAINING DAYS/HRS.	30 Days / 90 HRS. (whichever achieved first)

CNC milling

IATRC
INDUSTRIAL AUTOMATION
TRAINING & RESEARCH CENTRE

Day wise Training schedule: Course Content

MODULE	COURSE CONTENT	DAYS SEQUENCE	NO. OF HRS.
01	Introduction of CNC Milling Machine, about controller,coordinate system of machine, about cutting tools,operations, main parts of the machine	Day 1	03 Hrs.
02	Method of Progrmming (Absolute and Relative), Tool Paths with Dimensional Coordinates	Day 2	03 Hrs.
03	Main Functions and Adresses, G-Codes, MCodes, Operating Modes	Day 3	03 Hrs.
04	Programming Structure, Centre Line programming & commands	Day 4	03 Hrs.
05	About Referance Return, Zero Offsets, Geometric Offsets, Tool length compensations	Day 5	03 Hrs.
06	Programming on Solids Cutting like Face Milling, Pocket Milling, Grooving Etc	Day 6	03 Hrs.
07	Subprogrammes	Day 7	03 Hrs.
08	About Cutter Radius Compansatation and its Codes of G40, G41, G42 and using models of Profile Operation, CIRCULAR POCKETS ETC	Day 8	03 Hrs.
09	Canned Cycles-Drilling, Boring, Tapping	Day 09	03 Hrs.
10	Polar Coordinate and Mirror Programming	Day 10	03 Hrs.

PRACTICAL CLASSES

11	Introduction about Control Panel, Machine Axis, Homing/ Reference,Programming Entering Practice	Day 11	03 Hrs.
12	Taking Edge And Centre Offset On Machine	Day 12	03 Hrs.
13	Plain, Profile Milling Operation On Machine	Day 13	03 Hrs.
14	Drilling Cycles with G81, G82, G83, G73 Codes and Tapping Cycles, Fixing and changing Of Tools with Automatic tool changer	Day 14	03 Hrs.
15	Programmes Execution With Cutter radius Compansatation Like Profile , Pockets Operations Etc	Day 15	03 Hrs.
16	Face Milling, Pocket Milling, Profiles Operations With Subprogrammes	Day 16	03 Hrs.
17	Boring Operations with G85,G86,G76,G87 Codes	Day 17	03 Hrs.
18	Mirror Operation And Left Out Codes, Commands D	Day 18	03 Hrs.
19	Editing Commands Like Copy, Move, Merge, Change, Back Ground Editing, Graphics Etc	Day 19	03 Hrs.
20	**FINAL TEST**	Day 20	03 Hrs.

HANDS ON PRACTICE

21	Practice On CNC Machine Above Operations	Day 21	03 Hrs.
22	Practice On CNC Machine Above Operations	Day 22	03 Hrs.
23	Practice On CNC Machine Above Operations	Day 23	03 Hrs.
24	Practice On CNC Machine Above Operations	Day 24	03 Hrs.
25	Practice On CNC Machine Above Operations	Day 25	03 Hrs.

26	Practice On CNC Machine Above Operations	Day 26	03 Hrs.
27	Practice On CNC Machine Above Operations	Day 27	03 Hrs.
28	Practice On CNC Machine Above Operations	Day 28	03 Hrs.
29	Practice On CNC Machine Above Operations	Day 29	03 Hrs.
30	Practice On CNC Machine Above Operations	Day 30	03 Hrs.

Exam: Evaluation will done as per Lab performance during hands on practical session

FEW GLIMPSES OF OUR LAB FACILITY

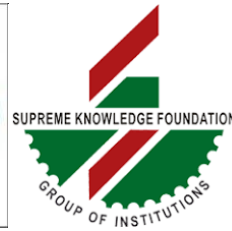# STUDENTS FROM COLLEGES JOINED OUR TRAINING PROGRAMME FOR 2014-18

As a student of IATRC, you will be respected for the knowledge and competitive spirit that you carry with you for the rest of your professional career. We are proud to inform our visitors that, we have groomed our trainee as per industry's viewpoint regarding manpower deployment. We always exposed our training participants in real life situation to explore their utmost capabilities to cope with the pressure hour and repair their lackness if any with their best and full. So whenever or wherever they ask to deliver their skill, they can produce. The below shown data will show the achievement of our students to get their placement in these companies in repute.

YOU MAY FIND OUR STUDENTS IN FOLLOWING COMPANIES:

ADITYA BIRLA GROUP

AMARON
LASTS LONG. REALLY LONG.

AREVA

Apollo Gleneagles HOSPITALS KOLKATA
TOUCHING LIVES

bml

DELTA CEMENT
YOUR BEST CHOICE

SIEMENS

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Electra IMPEX
GHANA LIMITED

ELECTROSTEEL CASTINGS LTD.

entraco
GAS & POWER

THE GREAT EASTERN SHIPPING CO. LTD

इंडियनऑयल
IndianOil

JINDAL STEEL & POWER

JMDR
Signals and Systems
Where safety, customer focus and efficiency means business.
JMD Railtech Pty Ltd
Established in 2005

maithan alloys ltd

NextGen
technologies incorporated

ESL

POWERTRONIX
Uninterruptible Power Supply

Rockwell Automation
AB Allen-Bradley

triVector

UTL

vision automation

Vision Comptel

WESMAN

Mail to placement cell: roy@technosystem.co.in/call officer: 8961359640
Mail your CV to: roy@technosystem.co.in