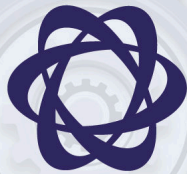ISO 9001 : 2015

NCVT

hrm@ncvtworldwide.com
www.ncvtworldwide.com

NCVT Hr. Consultant
Technical Skill-Enhancement Program

Process / Machine Automation
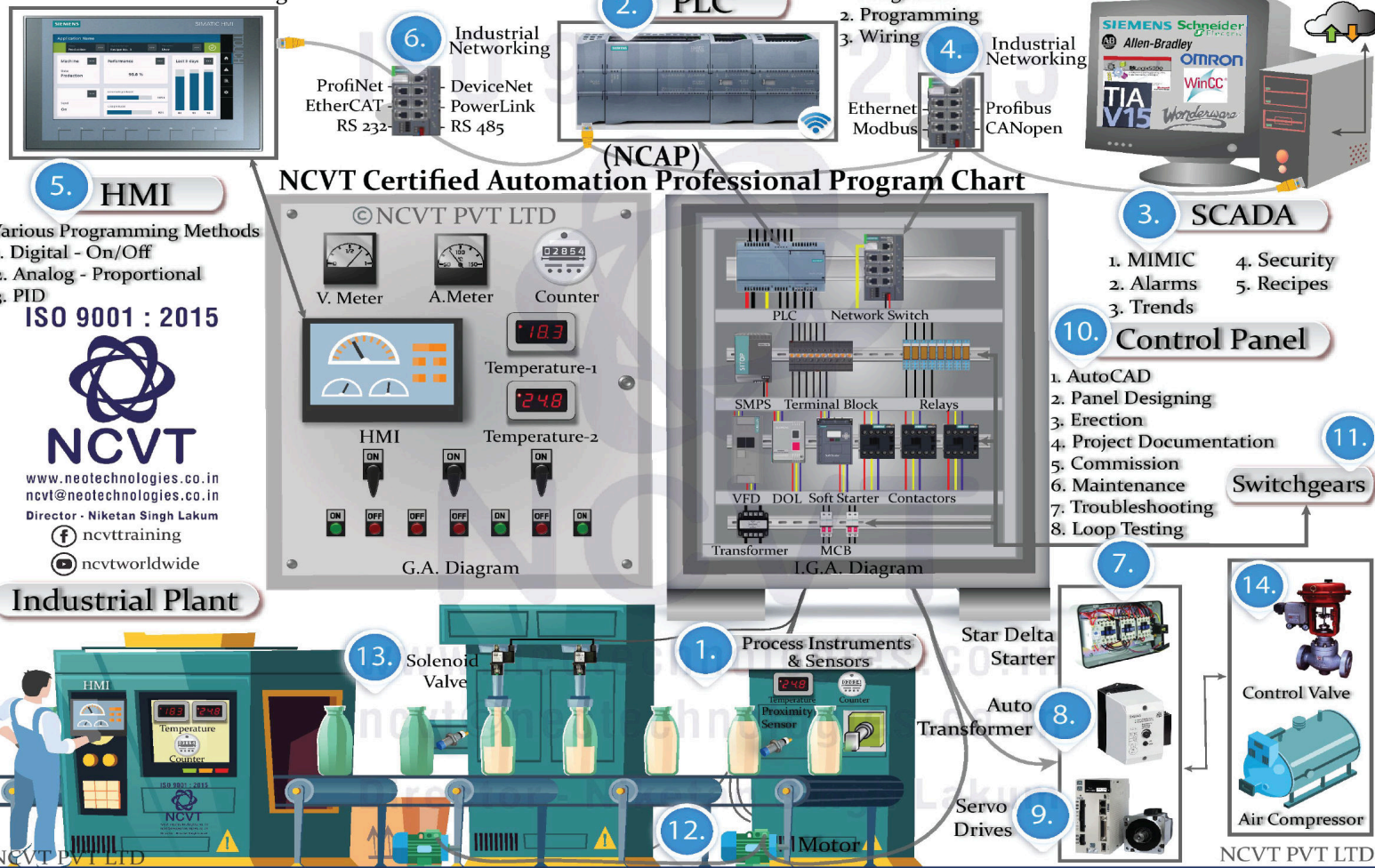
What is Industrial Automation?

Controlling, Managing , Supervising Industrial Process, Task , Machine via use of Electronic ,Power Electronic , Instruments & Devices with Computerized, Networked Systems process of building such arrangement call doing art of Automation. Automatic Control of Process, Machine, Task ensures Sensing, Taking Decisions via Programs and Pushing field devices to be act in accordance , those arrangements are called Industrial Automation Systems.

Why Automation? What is the future?

Manufacturing Competition, Bulk Demands, Cost Cutting, Precise & Quality Products pushes everything to be come under one Roof. Either its Supervision or testing or controlling or anything associates within raw material to final product delivery involves Hardware, software and combination of evolving systems. Today getting a Job in industry without Knowledge of Industrial Automation isn't possible. Future is this hybrid Technology which involves and evolves over Instrumentation, Electronics, Power Electronics, Light / heavy Electrical, Embedded Computer & network Engineering.

Architecture / Program Chart

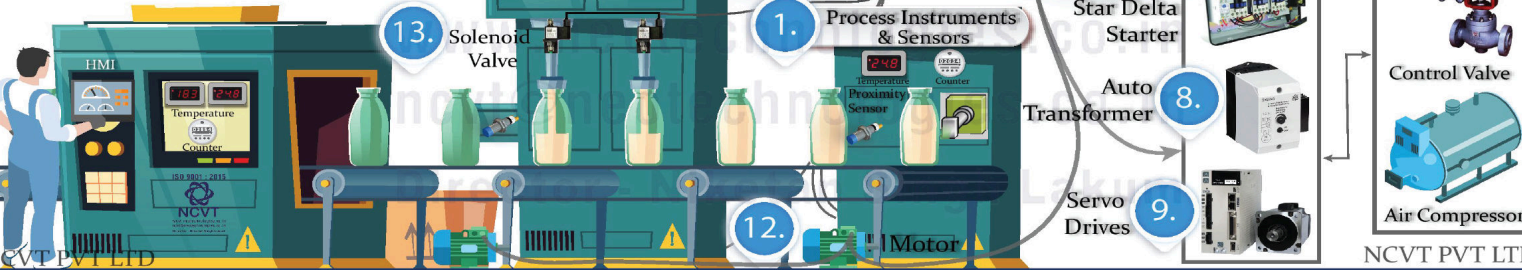Neo Creative Vision Technologies Private Limited

NCVT PVT LTD

2. PLC

1. Integration
2. Programming
3. Wiring

6. Industrial Networking

ProfiNet - DeviceNet
EtherCAT - PowerLink
RS 232 - RS 485

4. Industrial Networking

Ethernet - Profibus
Modbus - CANopen

(NCAP)

SIEMENS Schneider Allen-Bradley OMRON WinCC TIA V15 Wonderware

NCVT Certified Automation Professional Program Chart

©NCVT PVT LTD

5. HMI

Various Programming Methods
1. Digital – On/Off
2. Analog - Proportional
3. PID

ISO 9001 : 2015

NCVT

www.neotechnologies.co.in
ncvt@neotechnologies.co.in

Director - Niketan Singh Lakum
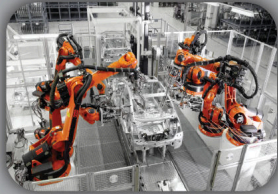
ncvttraining
ncvtworldwide

Industrial Plant

V. Meter   A.Meter   Counter
HMI   Temperature-1   Temperature-2
ON ON ON
OFF OFF OFF ON OFF ON

G.A. Diagram

PLC   Network Switch
SMPS   Terminal Block   Relays
VFD DOL Soft Starter Contactors
Transformer   MCB

I.G.A. Diagram

3. SCADA

1. MIMIC   4. Security
2. Alarms   5. Recipes
3. Trends

10. Control Panel

1. AutoCAD
2. Panel Designing
3. Erection
4. Project Documentation
5. Commission
6. Maintenance
7. Troubleshooting
8. Loop Testing

11. Switchgears

1. Process Instruments & Sensors

13. Solenoid Valve

Temperature Proximity Sensor   Counter

Star Delta Starter

Auto Transformer

Servo Drives

Motor

14. Control Valve

Air Compressor

NCVT PVT LTD

www.neotechnologies.co.in
NCVT Industrial Services

www.ncvtworldwide.com
NCVT Hr. Consultant

www.ncvttraining.com
NCVT Skill Development

Automation Applications

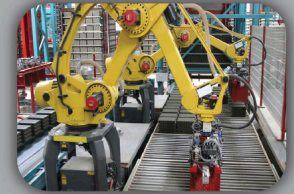Pharmaceuticals

Automobile

Textile

Process

Mchine

Sensors

Instruments

Switch Gears

Field Devices

SCADA

PLC - Programmable Logic Controller

PLR - Programmable Logic Relay

HMI - Human Machine Interface

Network - Industrial Network Protocols

Electric / Control Panels

AC Drives

DC Drives

Servo Drive+Encoders+Motors

Soft Starters

CAD - Computer Aided Design

DCS - Distributed Control Systems

www.neotechnologies.co.in
NCVT Industrial Services

www.ncvtworldwide.com
NCVT Hr. Consultant

www.ncvttraining.com
NCVT Skill Development

Neo Creative Vision Technologies Private Limited (NCVT)

Positions V/S Expected Skills

Design Engineer	Involves Designing Knowledge for specific industry, Hardware & Software Development
Application Engineer	Specific Machine / Process Industrial Hardware & Software, Development
Project Engineer	Integration, Erection, Commissioning, Site testing, Panels,
Service Engineer	Troubleshooting, Wiring Panels, Testing, Communication, Program Editing
Maintenance Engineer	Production Machine ad P & I Servicing, Aintainig, Running
Programming Engineer	Computerized Scriping, Setting, Communication, Site testing
Jr. Engineer	Site Visit, Learning off Site Task, Folloing Positioned Engineer
Sales Engineer - Technical	Knowledge for Product, Specifications, Price, Customer negotiation
Marketing Engineer - Technical	Campaigning, Meeting, Setting up Sales, Product promotion

Industries & Allied productions

Pharmaceuticals	Auto Mobiles	Textiles
Power Plants	Transmission	Oil & GasRefinery
Glass & Ceramic	Machinery Manufacturing	Paper & Pulp
Iron & Steel Furnaces	Water Treatments	LPG Bottling
Cranes & Constructions	Chemicals & Fertilizers	DG Sets
Packing	Rubber & Tires	Plastic & Polymers
Cement	Dairy	Electronics Assembling

Program Ware

Vocational Training Programs need Live Theory, hardware & software practices on site and with components. NCVT Help you to understand different associated Manuals, its weightage and scope.

Software CDs, Manuals, syllabus, Index, Transcripts, Books, related information and catalogs are provided

Methodology

NCVT Programs are Completely Profession and Position based Programs, attracts mature and individual approach to clear it successfully. We implement programs on individual basis or customized Workshop with similar knowledge clients

NCVT is Engineering Company, "WE ARE NOT THE INSTITUTE", Our Commitment is Client Based and methodology covers orientation to Architecture and Hardware, Software Practices to final Running & testing with Clear guidelines of INDEX, Transcript & Authorized Presentations.
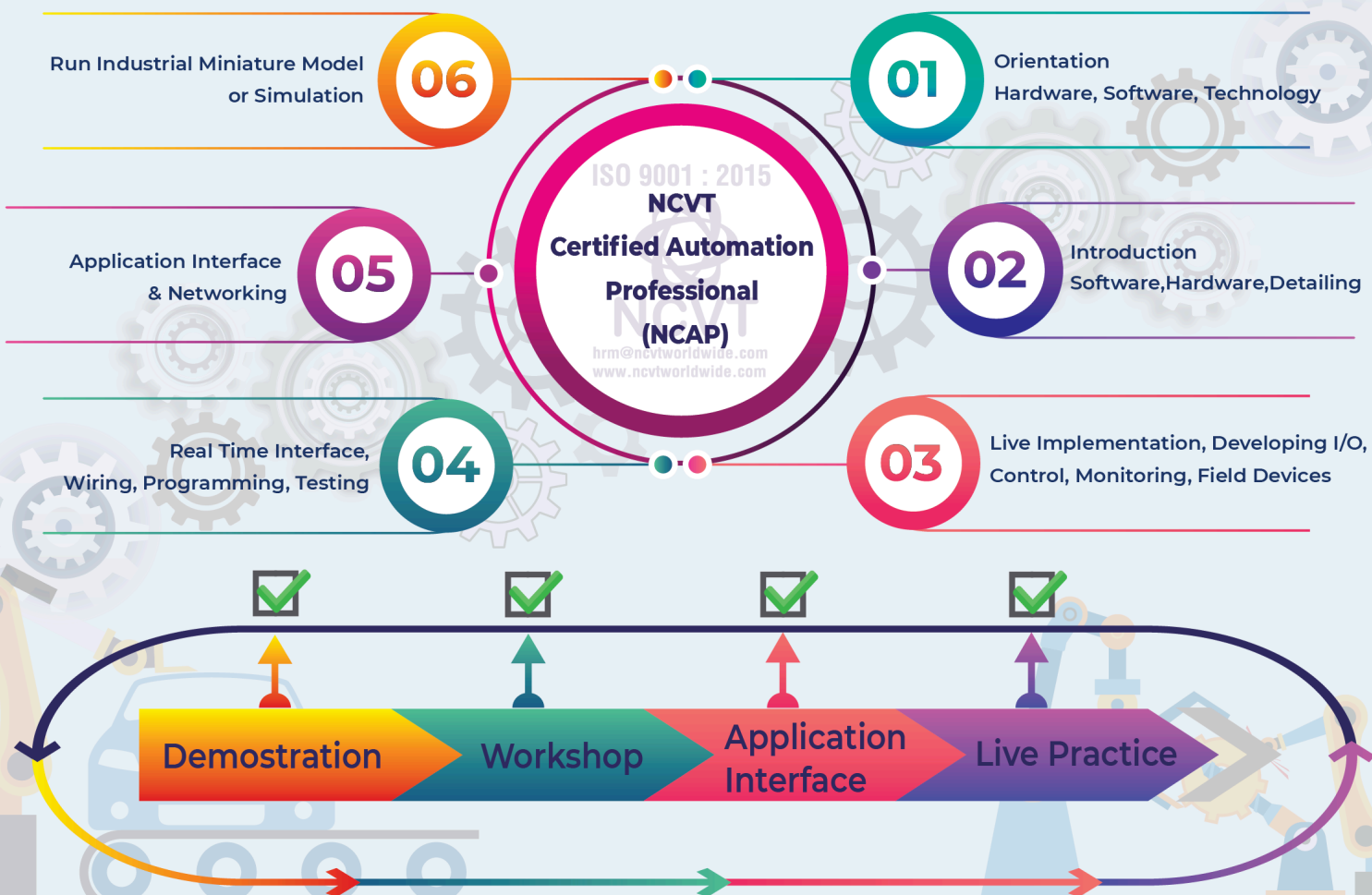
NCVT Workshop

- Introduction to The Technology & Industry
- The Architecture of the Automation Application
- Component Level Practice in Hardware & Software
- Live & Practical at Real Build / Frame
- Shaping Skill Towards Industry

ISO 9001 : 2015
hrm@ncvtworldwide.com
www.ncvtworldwide.com

www.neotechnologies.co.in
NCVT Industrial Services

www.ncvtworldwide.com
NCVT Hr. Consultant

www.ncvttraining.com
NCVT Skill Development

NCAP - Certified Automation Professional
Covers all Hardware & Software Within Architecture

SCADA	Supervisory Control & Data Acquisitions	Software
PLC	Programmable Logic Controller	Electronics Hardware
HMI	Human Machine Interface	Electronics Hardware
AC Drive	AC Motor Controller / Variable Speed Drive / Inverter	Power Electronics Hardware
DC Drive	Digital DC Motors Variable Speed Torque Drive	Power Electronics Hardware
Servo Drive	Servo Motor Controller Variable Speed Torque Drive	Power Electronics Hardware
Panel	Electric / Control Panels	Electrical Assembly
CAD	E Plan / Auto Cad - Computer Aided Design	Software
Network	Industrial Network Protocols	Software Set ups
DCS	Distributed Control Systems	Electronics Hardware
Indicators	Panel Instruments for Supervision & Control	Instrument Electronics
Switchgear	Electrical Contactors, Relay, Devices	Electrical Hardware

Schneider Electric　Allen-Bradley　SIEMENS　MITSUBISHI ELECTRIC
Honeywell　EMERSON　ABB　OMRON　DELTA Smarter. Greener. Together.
Panasonic　Kirloskar　YOKOGAWA　C&S COMPANIES　GE　FANUC

Technical Skill Development Program

06 Run Industrial Miniature Model or Simulation

01 Orientation Hardware, Software, Technology

05 Application Interface & Networking

02 Introduction Software, Hardware, Detailing

04 Real Time Interface, Wiring, Programming, Testing

03 Live Implementation, Developing I/O, Control, Monitoring, Field Devices

ISO 9001 : 2015
NCVT
Certified Automation
Professional
(NCAP)
hrm@ncvtworldwide.com
www.ncvtworldwide.com

Demostration　Workshop　Application Interface　Live Practice

NCVT Certified Automation Professional

PLC - Programmable Logic Controllers

- Introduction to PLC, Family & Applications
- PLC Fundamentals & Components
- Sink, Source, Types of Input, Output Flags
- Programming software addressing concepts
- Detailed Analog Programming Instructions
- Up Load, Down Load Monitoring of programs
- Forcing, Monitoring, Modifying I/Os
- Standard Procedure for writing LD, IL, STL, FBD, SFC
- Troubleshooting & Fault Diagnosis of PLC
- Documentation of Project Design
- OPC Drive & Communication to various SCADA
- ASCII Programming interface to Printer, Bar Code

SCADA – Supervisory Control & Data Acquisition

- Introduction to SCADA software
- Creating a new Project / Application in SCADA
- ODBC connectivity to MIMIC, Graphic Creation
- OPC Connectivity to various PLC, Animation Editing
- DDE configuration to Microsoft EXCEL
- Real & Historical time Trending, Events & Alarms
- Scripting in Visual basic, SQL, Oracle, RDBMS
- Commission of networked Nodes
- Fault Finding Troubleshooting of application
- Security layers to application
- Installation / uninstallation / OS Basics
- Communication Basics

Switch Gears / Industrial Drives

- Introduction to AC / DC / Servo Drives & Motors
- Motor & Drive Operation, Fundamentals, Limitations
- Selection of Motors & Drives
- Parameter Programming / Settings
- Control Panel Wiring with Drive Design
- Remote & Local Operation
- Communication with PLC, HMI, SCADA, DCS
- Different Operating Modes, RUN, STOP, JOG
- Mode Selection Design, Advantages, Load Calculation
- Case Study of Industrial Applications

HMI / MMI – Human Machine Interfaces

- HMI Programming and Application Development
- Software configuration & Parameter setting
- Creating and Editing Animation and MIMIC
- ODBC connectivity and RDBMS attachment
- Up loading Downloading application project
- Events / Alarms / Security / Connectivity DDE
- Communication with PLC / DRIVE / DCS
- Fault Finding Troubleshooting
- Key Pad / Touch / Mono/ Color/ Alpha Numeric Learning
- SCADA V/s HMI & Merits & Demerits

Instrumentation / Sensors

- Sensors / Transmitters in Process Industry
- Temperature, Voltage, Kw, Transducers
- Type working principles of RTD TC etc.
- Flow, Level, Principles selection criteria
- Control Valves, AFC, DFC
- Process Control Fundamentals
- Erection commission installation calibration
- HART protocol details & communication
- Maintenance, preventive maintenance fault diagnosis and troubleshooting in application

Panel Designing & Designing Software

- Fundamentals of Electric & Control Drawing wiring
- Introduction to IP – Ingress Protection NEMA
- GA arrangement Diagram with P & I
- Wiring & preparation of Power & Control Circuits
- General Arrangement of components wiring
- Switchgear & Heavy Electric Practices
- Troubleshooting in Electric & control live panels
- Selection of types of enclosure as per ambient
- MCC / PCC / APFC / AMF / Control – PLC + Drive
- End to End Termination, Cabling, Junction Box Wiring

DCS – Distributed Control Systems

- Introduction to Application and DCS system
- Architecture Evolution of DCS Technology
- Hardware Architecture of DCS CPU Power Supply INPUT OUTPUT Modules BUS BARS Network
- Hot Redundancy & Comparison of PLC Vs DCS
- Introduction to Operating & Engineering console
- Practical revelation on leading DCS systems
- Fault Finding, Troubleshooting, wiring, Networking

Industrial Networks

- PC to Hardware – RS 232 Standalone
- PLC + HMI + PLC - Multi Node
- PLC + HMI + Drive
- SCADA PC + HMI + PLC + Drive
- Multi Drives
- Master – Slave Master – Slave
- Server Client
- Foundation Fieldbus / Profibus DP / Ethernet

Work Shop in Technical Skill Development in Process/ Machine Automation Techniques

NCVT Hr. Consultant @ www.ncvtworldwide.com

www.neotechnologies.co.in
NCVT Industrial Services

www.ncvtworldwide.com
NCVT Hr. Consultant

www.ncvttraining.com
NCVT Skill Development