

## INTRODUCTION

Industrial and Machine Automation has become an integral part of all modern and digital manufacturing processes and is constantly getting upgraded along with the latest technological developments. This ensures the increased productivity with improved product quality and reliability at a lower cost. As we are aware, in recent days, every piece of equipment and machines are built with a higher level of intelligence to work in automated mode to draw the significant benefits. Optimization of cost, quality, reliability, safety, and delivery of any product is one of the key challenge in any product manufacturing.

The above Hands-on training program will cover the working principle and application of industrial and machine automation and most ideal for Fresh Engineering Graduates / Diploma holders / Engineering students / fresh hires from the industry from Electrical, Electronics, Mechatronics, Mechanical, and allied disciplines to work effectively from the day one. Increased use of automation in the manufacturing industry, could possible to enhance the need of engineers with adequate skills in Automation from design to execution.

Keeping this in view, Indian Machine Tool Manufacturers' Association (IMTMA) is organizing an exclusive 6 weeks **Hands-on training program on Industrial and Machine Automation for digital manufacturing** at IMTMA Technology Centre, BIEC Bangalore for fresh engineers who wish to make their career in ever-evolving Industrial Automation.

## FOCUS AREAS

- **CAD - Eplan & AutoCAD Electrical - hands-on training**
- Theoretical aspects of Mechanical engineering basics & key elements used in machines
- **Fundamentals and types of Motors for industrial applications; Motor controls and Actuators**
- Introduction to Industrial Machines and automation
- **Industrial Sensors - types and applications; Integration with other elements**
- Hands-on training on Basics of PLC Hardware/ Software and PLC Ladder diagram Programming - Siemens and Mitsubishi
- **Hands-on practice in Design and implementing Hydraulics and Pneumatics**
- Hands-on training on simulation of Electro-Pneumatic applications using Fluid SIM Software
- **HMI application and programming & basics of Variable Frequency Drive -VFD**
- Servo Motors and Servo Drives – Applications for Motion control
- **Hands-on training on CNC technology and programming**
- Overview of Programming, Operation, and Interfacing of Robots
- **Overview of Industry 4.0 with multiple Festo Modular Production System Units**
- Hands-on training on Simulation of automation circuit through CIROS software
- **Industry visit (optional due to COVID scenario)**

- LIVE PROJECTS:**
- **Level-1:- Machine automation using Relay Logic**
  - **Level-2:- Machine automation using CNC and PLC**
  - **Level-3:- Industrial Automation using PLC**

## KEY TAKE AWAYS

- **Hands-on experience on control system design for machine automation**
- Selection of component and design documentation like BOM, Circuit, Ladder diagram, etc
- **Knowledge on drive parameterization**
- Machine interfacing and commissioning
- **Learn PLC Hardware, PLC Programming, and Interfacing Industrial Automation elements**
- Learn Virtual commissioning and Digital twin
- **Have an overview of Industry 4.0 implementation in manufacturing**
- Design and execute automation projects involving hydraulics, pneumatics, sensors controlled through PLC
- **Certification on successful completion of the course**

## Training Methodology

- **Classroom sessions by professionals from industry shop floor**
- Practical on Hydraulic & pneumatic elements as per illustration circuits
- **Programming Practice on PLC - Ladder logic / Relay logic / I/O interface**
- Application of Industrial sensors as per illustration circuits
- **Programming and interfacing HMI / GOT**
- Interfacing Servo motor / servo drive / Motion control
- **Industrial automation projects:- Design - Program - Interface**
- Assessment

## Facilities

- PLC Programming & simulation training kits
- PLC software & Hardware
- HMI & Graphic Operation Terminal (GOT)
- Hydraulic elements & Hydraulic training kit
- Pneumatic elements & Pneumatic training kit
- Motor controlled Variable frequency drive training kit
- Motion control Servo motor/ servo drive training kit
- Industrial sensors training kit
- 6 axis Robots for welding and machine tending applications
- Modular Production Systems with Industry 4.0 features
- CNC Machines and other accessories
- CAD/CAM/CAE for Design thro Manufacturing

## PARTICIPATION FEE

<b>Rs. 45000/-</b> +18% GST <b>IMTMA Members/ Micro Companies/ IMTMA Non Members/ Others</b>	<b>Rs. 30000/-</b> +18% GST <b>Individuals</b>	<b>USD 1200/-</b> <b>Overseas Participants</b>
<b>Group Concession : 5% for 3 to 5 and 10% for 6 and more delegates being nominated from the same company</b>		

## Participant Profile

- *Engineers/supervisors from manufacturing industries responsible for automation and quality improvement*
- *New recruits/trainees in manufacturing industries working in automation function*
- *New recruits/trainees in industries undertaking industrial automation and system integration projects*
- *Fresh Electrical/ Electronics/ Mechatronics/Mechanical Engineers after completion of their Degree / Diploma*
- *Pre final year engineering students from Mechanical/ Electrical/ Electronics/ Mechatronics disciplines*

<b>For Registration Contact</b> <b>Digvijay Nath Pandey</b> <b>Programme Coordinator</b> 7349067391 <a href="mailto:digvijay@imtma.in">digvijay@imtma.in</a> <b>Rathan</b> 9743180085 <a href="mailto:rathan@imtma.in">rathan@imtma.in</a>	<b>Contact Address</b> <b>INDIAN MACHINE TOOL MANUFACTURERS' ASSOCIATION</b> @ BIEC, 10th Mile, Tumkur Road, Madavara Post, Bangalore - 562 123 Tel : 080-66246600 Fax : 080-6624-6658
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**REGISTRATION** : Prior registration for participation is necessary. Number of participants is limited and will be accepted on 'First Come First Serve' basis. A Certificate of participation will be issued to participants.

**Important Information** : Participation fee includes, course material, working lunch and tea / coffee. Interested companies are requested to register online by clicking on 'REGISTER' button and by filling up the nomination authority and participant's details in specified form.