

## INTRODUCTION

Industrial Automation has become integral part of all modern manufacturing processes and is constantly upgraded keeping up with latest technological developments to ensure increased productivity with improved product quality. Increased use of automation also means requirement of engineers with adequate training in all aspects of industrial Automation and best manufacturing practices is highly crucial.

Keeping this in view, Indian Machine Tool Manufacturers' Association (IMTMA) is organizing an exclusive 5 weeks Hands-on training program **"Foundation Course in Industrial Automation and Robotics"** at **IMTMA technology Centre , BIEC Bangalore** for engineering graduates who want to make their career in ever-evolving Industrial Automation and also to enhance their employability.

This practical oriented Hands-on training program will cover the working principle and application of industrial automation elements & is ideal for Fresh engineering Graduates / Diploma holders / Engineering students (6-8 semester) from Mechatronics, Mechanical, Electrical, Electronics and allied disciplines.

## FOCUS AREAS

- Basics of electrical and electronic circuits
- Selection and application of various Hydraulic and Pneumatic components
- Sensors - types and applications; Integration with other elements
- Basics of PLC Hardware/ Software and PLC Programming
- **Hands - on practice in Design and implementing Hydraulic and Pneumatic circuits with PLC Control and sensors**
- Simulation of Electrical and Electro-Pneumatic applications using Fluid SIM Software
- HMI application and HMI programming
- **Hands - on practice for Interfacing of HMI to control Automation elements**
- Types of Motors for industrial applications; Motor controls
- Motor speed control using Variable Frequency Drive
- **Hands - on practice in using Industrial Motors, Motor controls, Variable Frequency Drives**
- Servo Motors and Servo Drives - Applications for Motion control
- **Hands - on practice in using Servo control, Servo Drives for single axis and multiple axes motion control**
- Programming, Operation and Interfacing of Robots
- Introduction to Industry 4.0 with multiple Festo Modular Production System Units
- Simulation of automation circuit through CIROS software

## KEY TAKE AWAYS

After undergoing the programme, the participants will be able to

- Design and execute automation projects involving hydraulics, pneumatics, sensors controlled through PLC
- Understand about selection and usage of different Hydraulic and Pneumatic elements for Industrial Automation applications
- Learn PLC Hardware, PLC Programming and Interfacing Industrial Automation elements
- Have an overview of Industry 4.0 implementation in manufacturing

## Training Methodology

- Class room sessions with industry professionals
- Practical use of 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
- Hands on Practice in Motor controls, Variable Frequency Drives, etc.
- Programming and interfacing HMI / GOT
- Hands on Practice in interfacing Servo motor / servo drive / Motion control
- Hands on practicals in Industrial automation - sample projects / Design - Program - Interface
- **Industry visits**
- Assessment and certification

## 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. 36000/-</b> <small>+18% GST</small> IMTMA Members / Micro Companies	<b>Rs. 36000/-</b> <small>+18% GST</small> IMTMA Non Members/ Others	<b>Rs. 28000/-</b> <small>+18% GST</small> Educational Institutions / Students / Individuals	<b>Rs. -/-</b> <small>+18% GST</small> 5 % IMTMA Members / Micro Companies	<b>Rs. -/-</b> <small>+18% GST</small> 5 % IMTMA Non Members/ Others	<b>Rs. -/-</b> <small>+18% GST</small> 10 % IMTMA Members / Micro Companies	<b>Rs. -/-</b> <small>+18% GST</small> 10 % IMTMA Non Members/ Others
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## 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 Mechanical/ Electrical/ Electronics/ Mechatronics Engineers after completion of their Degree / Diploma
- Pre final year engineering students from Mechanical/ Electrical/ Electronics/ Mechatronics disciplines

**For Registration Contact**  
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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.