Last date for registration 10 July 2023

Early Bird Offer : Avail 10% concession by registering and paying online on or before 02 July 2023

INTRODUCTION

Industry 4.0 / Smart Manufacturing is fast becoming an inevitable evolutionary step for "future compatibility" in Indian Manufacturing industries. Indian Industry is presently struggling to figure out how to begin "Digitalization" drive economically and how to retrofit it into existing manufacturing system blended with advanced and legacy machines. To illustrate, develop confidence and show the way forward, IMTMA has now developed an I4.0 enabled facility comprising of CNC Machines, legacy machines, metrology equipment, autonomous material handling systems and Automation, where smart manufacturing aspects can be practically demonstrated.

To extend the benefits of experience and competency in Industry 4.0 or Smart Manufacturing, Indian Machine Tool Manufacturers' Association (IMTMA) is organising an intensive 4-weeks course on **Master class in Implementing Industry 4.0 in Manufacturing with hands-on approach.** The course enables the participant for implementation of these technologies in any manufacturing domain.

FOCUS AREAS

Machine tool and manufacturing processes

- Essentials of Machining Operations; Turning, Milling, Drilling, Grinding, etc.,
- Dimensional Metrology; Hands-on practice in Measuring Instruments
- Hands-on Practice in CNC machine Operations and Programming
- Work holding Fixtures – Types and Elements; Quick changing / zero-point clamping System
- Limits, Fits and Tolerances; GD&T
- Essential aspects of OEE, SPC, TPM
- Overview of Casting, Injection moulding, sheet metal operations, Additive Manufacturing, etc.

CNC Control system Architecture

- Electrical basics
- Hands-on practice on PLC Programming and HMI
- CNC control system architecture
- Servo motors and Servo drives
- Smart sensors – Types, Selection and application
- Robot Automation – Types, Application, Programming and Interfacing

Industry 4.0/Smart Manufacturing:

- Overview of Industry4.0 – what, why and How?
- Introduction to PYTHON Programming
- IIoT and Cloud communication gateways; Edge Computing; Cloud Computing
- Data Acquisition; Data Analytics and Integration
- Understanding of RFID/ Bar code reader for traceability
- Cyber Security
- AR, VR & MR
- Artificial Intelligence and Machine Learning

Implementation I4.0 – Live Project

- Project – Implementation of I4.0 at production shop for OEE, Energy Monitoring, Part traceability, SPC, Predictive Maintenance, AR/VR and autonomous material/tool movement, Intelligent Fixturing
- Feasibility study
- Blueprint development
- Selection of hardware and software
- Identification of sensors, QR codes, locations, PLC & HMI
- Retrofitting on legacy machines
- Energy Monitoring & Energy Analytics
- Data capturing through FOCAS / OPCUA
- OEE monitoring
- Industry Visit

KEY TAKE AWAYS

- Understand the production processes in manufacturing.
- Understanding of CNC control system and its compatibility for I4.0
- Understand PLC and HMI for I4.0 interfacing.
- Smart sensors, Gateways, and cloud storage
- How to track the data from the machines to prepare the report
- How the legacy machines can be digitalized
- Data acquisition from the machine for calculation of OEE and Energy efficiency
- Latest Technologies like AI, ML, AR, VR and MR
- System Integration
- Configure reports and dashboards.

Facilities

- Industry 4.0 enabled Digital Factory with CNC machines, Metrology Equipment including CMM, CAD/ CAM/ CAE and accessories
- Industrial Electricals
- Industrial Sensors Training Kit
- PLC Programming & simulation training kits
- HMI & Graphic Operation Terminal (GOT)
- Motor controlled Variable frequency drive training kit
- Motion control Servo motor/ servo drive training kit
- I4.0 Compatible Hydraulic training kit
- I4.0 compatible Interchangeable Quick Clamping systems
- 0 compatible 6 axis Welding and Machine Tending Robots
- 3D printing machine for polymers
- I4.0 compatible Laser marking machine
- Modular Production Systems with Industry 4.0 features
- Classroom with computer workstations in-network with the CNC machines through LAN for seamless data transfer, productivity monitoring and control

PARTICIPATION FEE

Rs. 60000/-	Rs. 40000/-	USD 2200/-
+18% GST	+18% GST	Overseas Participants
IMTMA Members/ Micro Companies/ IMTMA Non Members/ Others	Individuals	

Group Concession : 10% for 3 to 5 and 20% for 6 and more delegates being nominated from the same company

For Registration Contact

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