



HARNESS THE POWER  
OF KNOWLEDGE

## **Metrology and Fundamentals of Industrial Sensors**

**TRAIN**



## Introduction

Metrology, the science of measurement, plays a crucial role in ensuring the accuracy, reliability, and traceability of measurements in various industries

Industrial sensors, the backbone of modern industrial automation, provide real-time data for process monitoring, control, and optimization

This comprehensive 5-day training program, delivered by Global Business Minds, will equip participants with in-depth knowledge and practical skills in metrology and the fundamentals of industrial sensors

## Day 1: Fundamentals of Metrology

- Overview of metrology, its importance, and its applications in various industries
- Understanding the principles of measurement, including measurement units, standards, and calibration procedures
- Familiarization with the concept of measurement uncertainty and its impact on measurement results
- Exploration of various metrology techniques, such as direct comparison, substitution, and optical methods

## Day 2: Metrology in Industrial Automation

- Understanding the role of metrology in ensuring the accuracy and reliability of industrial automation systems
- Familiarization with metrology standards and regulations applicable to industrial sensors
- Exploration of metrology practices for various types of industrial sensors, such as temperature sensors, pressure sensors, flow sensors, and position sensors
- Discussion of advanced metrology techniques for industrial applications

## Day 3: Industrial Sensor Fundamentals

- Overview of industrial sensors, their classification, and their applications in various industries
- Understanding the principles of operation of various types of industrial sensors, including physical, chemical, and biological sensors
- Familiarization with sensor characteristics, such as sensitivity, selectivity, and response time
- Exploration of sensor selection criteria based on specific application requirements

## Day 4: Industrial Sensor Installation, Calibration, and Maintenance

- Understanding the principles of industrial sensor installation, including mounting, wiring, and signal conditioning
- Familiarization with sensor calibration procedures and techniques
- Exploration of sensor maintenance practices to ensure optimal performance and longevity
- Discussion of sensor troubleshooting techniques for common sensor problems

## Day 5: Advanced Topics in Industrial Sensors and Metrology

- Exploring emerging trends and advancements in industrial sensor technology and metrology
- Addressing metrology challenges in specific industries, such as oil and gas, manufacturing, and healthcare
- Staying up-to-date with the latest metrology standards, regulations, and best practices
- Discussing the integration of industrial sensors and metrology into Industry 4

0 and smart manufacturing systems

## Target Audience

This training program is designed for engineers, technicians, and professionals involved in the design, implementation, operation, and maintenance of industrial automation systems, including:

- Instrumentation engineers
- Control engineers
- Process engineers
- Plant engineers
- Maintenance technicians

## Learning Outcomes

Upon completion of this training program, participants will be able to:

- Demonstrate in-depth knowledge of metrology principles and their application in industrial automation
- Understand the fundamentals of industrial sensors, their operation, and their selection
- Implement metrology practices for various types of industrial sensors
- Install, calibrate, and maintain industrial sensors effectively
- Troubleshoot common sensor problems and apply advanced metrology techniques
- Stay up-to-date with the latest advancements in industrial sensor technology and metrology
- Address metrology challenges in various industries and integrate sensors and metrology into smart manufacturing systems

Certificate Delivered by Global Business Minds:

- Certificate of Completion in Metrology and Fundamentals of Industrial Sensors

Additional Notes

- This detailed professional training program can be tailored to specific industry requirements and application needs
- Hands-on exercises and case studies can be customized to reflect real-world challenges and scenarios faced by participants
- The training can be delivered in a blended format, combining in-person sessions with online modules for flexibility and accessibility
- Global Business Minds can provide ongoing support and resources to participants to ensure their continued success in applying metrology principles and utilizing industrial sensors effectively