GLOBAL
Business
Minds

Comprehensive Training Program on Instrument Safety Systems

TRAIN

Introduction
Instrument Safety Systems (SIS) are critical components of industrial processes, ensuring the safe operation of equipment and preventing hazardous incidents
They play a crucial role in protecting people, property, and the environment from potential hazards arising from process upsets, equipment failures, or human errors
This comprehensive 5-day training program, delivered by Global Business Minds, will equip participants with in-depth knowledge and practical skills in the design, implementation, maintenance, and management of SIS for various industrial applications

Day 1: Fundamentals of Instrument Safety Systems
• Overview of Instrument Safety Systems (SIS) and their role in industrial safety
• Understanding the principles of safety lifecycle, including hazard identification, risk assessment, and safety integrity level (SIL) determination
• Familiarization with SIS architectures, components, and functions
• Exploration of SIS standards, regulations, and best practices
Day 2: SIS Design and Implementation
• In-depth analysis of SIS design methodologies, including front-end engineering design (FEED), detailed engineering design (DED), and HAZOP studies
• Understanding the principles of safety integrity level (SIL) selection and SIL verification techniques
• Familiarization with SIS sensor selection, signal processing, and actuator installation
• Discussion of SIS integration with process control systems (PCS) and industrial automation networks
Day 3: SIS Logic and Programming
• Comprehensive overview of SIS logic and programming languages, such as Structured Text (ST) and Ladder Logic (LAD)
• Understanding the principles of safety programming, including error detection, fault tolerance, and fail-safe behavior
• Familiarization with SIS programming tools and software packages
• Hands-on practice of SIS programming using industry-standard software
Day 4: SIS Testing, Commissioning, and Maintenance
• In-depth analysis of SIS testing methodologies, including static testing, dynamic testing, and loop testing
• Understanding the principles of SIS commissioning and start-up procedures
• Familiarization with SIS maintenance strategies, preventive maintenance plans, and calibration schedules
• Discussion of SIS performance monitoring and diagnostics techniques
Day 5: Advanced Topics in Instrument Safety Systems
• Exploring emerging trends and advancements in SIS technologies, such as wireless SIS, cybersecurity for SIS, and SIS integration with advanced process control systems
• Addressing challenges in SIS implementation and maintenance, such as complex process interactions, cybersecurity threats, and human factors
• Staying up-to-date with the latest SIS standards, regulations, and best practices
• Discussing the integration of SIS with safety instrumented functions (SIFs) and safety-related control systems (SRCS)
Target Audience
This training program is designed for engineers, technicians, and professionals involved in the design, implementation, maintenance, and management of SIS, including:
• Instrumentation engineers
• Control engineers
• Safety engineers
• Reliability engineers

• Maintenance technicians
• Plant engineers

Learning Outcomes
Upon completion of this training program, participants will be able to:
• Demonstrate in-depth knowledge of Instrument Safety Systems (SIS) principles, design considerations, and implementation strategies
• Apply SIS design methodologies to specific industrial applications and determine appropriate safety integrity levels (SILs)
• Select, install, and configure SIS sensors, signal processing elements, and actuators
• Program SIS logic using industry-standard languages and software packages
• Conduct SIS testing, commissioning, and maintenance procedures effectively
• Stay up-to-date with the latest SIS technologies, standards, and best practices
• Contribute to the safe operation of industrial processes by implementing and maintaining effective SIS
Certificate Delivered by Global Business Minds:
• Certificate of Completion in Instrument Safety Systems
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 in their respective industries

• 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 designing, implementing, maintaining, and managing effective SIS for various industrial applications