

# TRAINING CATALOG

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# LEADERSHIP DEVELOPMENT

**Strong leadership is the foundation of a high-performing organization.**

Developing leaders at all levels fosters accountability, improves team engagement, and drives strategic alignment across departments.

## LEADERSHIP LEVEL 1

**Developing leaders and building influence**

**4 Days | Up to 15 people**

- Understand how leadership behaviors influence trust, engagement, and results
- Apply practical communication and feedback techniques to improve performance
- Delegate work effectively while maintaining accountability and development
- Navigate conflict constructively to strengthen teams and decision-making
- Lead teams through growth, change, and performance challenges

## LEADERSHIP LEVEL 2

**Leading change and growing other leaders**

**4 Days | Up to 15 people**

- Sustain improvement through consistent leadership behaviors and disciplined follow-up
- Lead with influence by applying servant leadership, emotional intelligence and the principles of influence
- Strengthen decision-making and composure in high-stress situations
- Multiple organizational capability by developing, coaching, and training others
- Understand and lead change management
- Align daily decisions, priorities, and behaviors to goals
- Expand leadership impact by progressing from managing work to developing leaders

## LEADERSHIP LEVEL 3

**Accelerating company results and changing culture**

**4 Days | Up to 15 people**

- Improve decision quality when facing uncertainty and incomplete information
- Identify systemic drivers of performance issues beyond surface-level symptoms
- Understand organizational culture as a system of behaviors shaped by leadership actions
- Multiply leadership capacity by developing leaders who develop others
- Strengthen succession readiness through leadership pipeline and legacy planning
- Improve decision-making by giving managers financial knowledge

## TRAIN THE TRAINER

**1 Day | Up to 15 people**

- Improve effectiveness of internal training delivery
- Design training that drives behavior change
- Increase learner engagement and retention
- Build internal training capability

## BEYOND TRAIN THE TRAINER

**1 Day | Up to 15 people**

- Advance facilitation and instructional effectiveness
- Adapt training to different audiences and learning needs
- Strengthen reinforcement and application after training
- Improve long-term impact of training investments

## PROJECT MANAGEMENT ESSENTIALS

**2 Days | Up to 15 people**

- Plan and execute projects with clear scope and milestones
- Manage risk, resources, and stakeholder expectations
- Improve on-time, on-budget delivery
- Strengthen accountability throughout the project lifecycle

## FINANCE FOR NON-FINANCIAL MANAGERS

**2 Days | Up to 15 people**

- Understand how financial statements reflect business performance
- Connect operational decisions to financial impact
- Improve cost awareness and resource allocation
- Strengthen decision making using financial data

## NEGOTIATION SKILLS

**2 Days | Up to 15 people**

- Prepare and structure negotiations for better outcomes
- Balance value creation with value protection
- Improve confidence in difficult negotiations
- Strengthen long-term business relationships



# OPERATIONAL EXCELLENCE

**OPEX empowers leaders and teams to streamline operations, cut waste, improve quality and boost productivity.** OPEX gives your team the tools to improve flow, reduce costs, and build a culture of continuous improvement bottom-line results.

## OPEX DAILY MANAGEMENT

**5 Days | Up to 15 people**

- Make current status visible at a glance so teams and leaders can see normal vs abnormal conditions immediately
- Enable faster problem identification, containment, and escalation before issues impact customers or results
- Align frontline metrics with business priorities so improvement efforts focus on what matters most
- Improve accountability by making commitments, actions, and follow-up visible and traceable
- Strengthen leader standard work to ensure consistent coaching, problem-solving, and follow-through

## VALUE STREAM MAPPING

**2 or 3 Days | Up to 15 people**

- An essential step to improvement by visualizing end-to-end flow from order to delivery
- Identify waste, delays, and constraints across processes
- Align cross-functional teams on current-state performance
- Design future-state improvements tied to business priorities
- Reduce lead time, improve flow & increase customer value

## A3 THINKING & PROBLEM SOLVING

**1 Day | Up to 15 people**

- Apply structured thinking to complex business problems
- Clarify problems, root causes, and countermeasures visually
- Align teams around facts, logic, and shared understanding
- Improve decision quality through disciplined problem framing
- Support operational excellence improvements

## LEAN THINKING & UNDERSTANDING WASTE

**1 Day | Up to 15 people**

- Understand core Lean principles through hands-on simulation
- Experience the impact of flow, pull, and waste firsthand
- Connect Lean concepts to real operational challenges
- Build shared language and alignment across teams
- Create momentum for broader Lean deployment

## STANDARD WORK

**1 Day | Up to 15 people**

- Define the current best method for performing work
- Reduce variation through clear, repeatable processes
- Improve training and knowledge transfer
- Create a baseline for continuous improvement

## 5S WORKPLACE OPTIMIZATION

**2 or 3 Days | Up to 15 people**

- Create organized, visual, and efficient workspaces
- Visualize problems and reduce wasted motion and search time
- Improve safety, quality, discipline, and morale
- Establish standards that sustain improvements

## MISTAKE PROOFING (POKA-YOKE)

**1 or 2 Days | Up to 15 people**

- Prevent errors before they reach the customer
- Design processes that make mistakes difficult or impossible
- Reduce rework, defects, and inspection reliance
- Improve quality at the source

## QUICK CHANGEOVER (QCO) & SINGLE MINUTE EXCHANGE OF DIES (SMED)

**2 Days | Up to 15 people**

- Reduce changeover time through structured analysis
- Improve flexibility without capital investment
- Increase uptime and scheduling responsiveness
- Enable faster response to customer demand

## TOTAL PRODUCTIVE MAINTENANCE

**2 Days | Up to 15 people**

- Improve equipment reliability and overall effectiveness
- Reduce unplanned downtime and chronic losses
- Clarify roles between operators and maintenance teams
- Support proactive, planned maintenance strategies

## TOTAL AUTONOMOUS MAINTENANCE

**2 Days | Up to 15 people**

- Engage operators in basic equipment care and inspection
- Detect abnormalities before failures occur
- Improve equipment stability through daily ownership
- Reduce maintenance burden through proactive strategies

## KATA IMPROVEMENT AND COACHING

**2 Days | Up to 15 people**

- Develop daily habits for continuous improvement
- Practice scientific thinking through rapid experiments
- Strengthen coaching conversations between leaders & teams
- Embed improvement into daily work

# SIX SIGMA

**Six Sigma provides a data-driven framework for reducing variation and improving process performance.** These trainings develop problem-solvers who can deliver measurable, lasting improvements across quality, cost, and efficiency.

## LEAN SIX SIGMA YELLOW BELT

**3 Days | Up to 15 people**

- Build foundational Lean Six Sigma knowledge across teams
- Identify waste, variation, and improvement opportunities
- Support project teams with data collection and analysis
- Apply basic tools to improve day-to-day processes
- Strengthen problem-solving capability at the front line
- Reinforce a culture of continuous improvement

## LEAN SIX SIGMA GREEN BELT

**6 Days | Up to 15 people**

- Lead improvement projects with measurable financial impact
- Apply DMAIC to reduce waste and variation
- Identify and prioritize high-ROI improvement opportunities
- Quantify savings and communicate results to leadership
- Improve quality, productivity, and customer satisfaction
- Sustain gains through control and standardization

## LEAN SIX SIGMA BLACK BELT

**10 Days | Up to 15 people**

- Lead complex, cross-functional improvement initiatives
- Drive strategic improvements tied to financial performance
- Apply advanced statistical and analytical techniques
- Eliminate waste using integrated Lean & Six Sigma methods
- Coach Green Belts to expand organizational capability
- Align improvement efforts with business strategy

## DESIGN OF EXPERIMENT (DOE)

**1 Day | Up to 15 people**

- Identify key process factors driving performance
- Design efficient experiments to reduce trial and error
- Analyze interactions to optimize process settings
- Accelerate problem solving with data-driven experiments
- Improve yield, stability, and process understanding
- Link experimental results to measurable business impact

## MINITAB ANALYST

**1 Day | Up to 15 people**

- Lead improvement projects with measurable financial impact
- Apply DMAIC to reduce waste and variation
- Identify and prioritize high-ROI improvement opportunities
- Quantify savings and communicate results to leadership
- Improve quality, productivity, and customer satisfaction
- Sustain gains through control and standardization

## HYPOTHESIS TESTING

**1 Day | Up to 15 people**

- Use statistical tests to validate improvement decisions
- Select the correct test based on data and business questions
- Distinguish real effects from random variation
- Reduce costly trial-and-error decision making
- Strengthen conclusions with fact-based analysis
- Support improvement efforts with defensible statistical evidence



# CORE TOOLS / QUALITY TOOLS

**Quality tools protect organizations from costly mistakes while building confidence with customers.** They enable teams to deliver consistent results, improve efficiency, strengthen compliance, ensure long-term process control and create a lasting competitive advantage.

## FMEA (AIAG/VDA) & CONTROL PLAN

**1 Day | Up to 15 people**

- Apply the AIAG & VDA FMEA methodology to proactively manage risk
- Identify and prioritize failure modes using Action Priority (AP) & Risk Priority Number (RPN)
- Reduce scrap, rework, and warranty costs through prevention-focused analysis
- Integrate FMEA into product, process, and continuous improvement efforts

## STATISTICAL PROCESS CONTROL (SPC)

**1 Day | Up to 15 people**

- Monitor process performance using data, not opinion
- Distinguish common cause from special cause variation
- Reduce defects through stable, capable processes
- Enable teams to react appropriately to process signals
- Calculate and understand control limits and capability analysis
- Understand when to react to data signals and when not to

## MEASUREMENT SYSTEM ANALYSIS (MSA)

**1 Day | Up to 15 people**

- Validate measurement systems used for decision making
- Identify error, bias, and variation in data collection
- Improve confidence in inspection and process data
- Reduce false signals that drive unnecessary adjustments
- Support reliable conclusions from SPC and capability studies

## ADVANCED PRODUCT QUALITY PLANNING (APQP) & PPAP

**1 Days | Up to 15 people**

- Apply structured planning to prevent issues before launch
- Align design, manufacturing, and suppliers to customer requirements
- Reduce launch risk through disciplined documentation and review
- Improve on-time approvals and first-pass yield
- Strengthen cross-functional accountability across the product lifecycle

## 8D PROBLEM SOLVING

**1 Day | Up to 15 people**

- Apply a disciplined approach to recurring and high-impact problems
- Identify root causes using data-driven analysis
- Implement corrective actions that prevent recurrence
- Strengthen cross-functional problem-solving capability
- Improve customer confidence through structured response

## LAYERED PROCESS AUDIT (LPA)

**1 Day | Up to 15 people**

- Reinforce critical process controls at all levels
- Detect issues early through routine, focused audits
- Improve accountability and leadership presence on the floor
- Reduce escapes by sustaining standard work
- Strengthen alignment between leaders, supervisors, and operators

# INTERNAL AUDITOR TRAINING

Internal auditors keep management systems strong by ensuring processes meet standards and drive improvement. These courses build audit skills and award Exemplar Global certification to validate expertise and credibility.

## IATF 16949:2016 INTERNAL & LEAD AUDITOR

Lead Auditor 5 days | Internal Auditor 4 days | 10 people

### EXEMPLAR GLOBAL CERTIFIED

- Build internal audit capability for automotive quality systems
- Reduce CoPQ through effective audit planning and execution
- Identify systemic risks, nonconformities, and improvement opportunities
- Strengthen process performance across suppliers and internal operations
- Prepare internal auditors to execute effective audits independently
- Develop lead auditors to manage teams and complex audit situations

*NOTE: The Lead Auditor portion is the last day of the training. Lead Internal Auditors must complete all days, **including** the last day. Internal Auditors must complete all days **excluding** the last day.*

## ISO 9001:2015 INTERNAL & LEAD AUDITOR

Lead Auditor 4 days | Internal Auditor 3 days | 10 people

### EXEMPLAR GLOBAL CERTIFIED

- Build internal capability to audit quality management systems
- Improve process performance through effective audits
- Identify risks, nonconformities, and improvement opportunities
- Strengthen consistency across processes and business units
- Prepare internal auditors to plan and conduct audits independently
- Develop lead auditors to manage teams and complex audit activities

*NOTE: The Lead Auditor portion is the last day of the training. Lead Internal Auditors must complete all days, **including** the last day. Internal Auditors must complete all days **excluding** the last day.*

## ISO 14001:2015 INTERNAL & LEAD AUDITOR

Lead Auditor 4 days | Internal Auditor 3 days | 10 people

- Build audit capability for environmental management systems
- Reduce compliance risk and environmental-related costs
- Identify improvement opportunities in resource and waste management
- Improve consistency in environmental controls and performance
- Prepare internal auditors to conduct compliant EMS audits
- Develop lead auditors to manage complex environmental audits

*NOTE: The Lead Auditor portion is the last day of the training. Lead Internal Auditors must complete all days, **including** the last day. Internal Auditors must complete all days **excluding** the last day.*

## ISO 45001:2018 INTERNAL & LEAD AUDITOR

Lead Auditor 4 days | Internal Auditor 3 days | 10 people

- Strengthen internal capability to audit safety management systems
- Reduce incident-related costs through risk-based auditing
- Identify hazards, nonconformities, and safety performance gaps
- Improve consistency in safety controls and corrective actions
- Prepare internal auditors to conduct effective, compliant audits
- Develop lead auditors to manage high-risk safety audits

*NOTE: The Lead Auditor portion is the last day of the training. Lead Internal Auditors must complete all days, **including** the last day. Internal Auditors must complete all days **excluding** the last day.*

# MANUFACTURING SKILLS

**Build the foundational capabilities required to complete work correctly the first time.** These courses improve accuracy, consistency, and confidence by improving how teams interpret designs, apply measurements, and perform essential work that protect quality and throughput.

## GD&T

**2 Days | Up to 15 people**

- Interpreting and applying the 14 geometric symbols
- Understanding datums, datum reference frames, and feature control frames
- Applying tolerance zones, modifiers, and functional tolerancing concepts
- Read and create GD&T-compliance drawings and verify GD&T requirements using inspection and measurement methods

## SHOP MATH

**1 Day | Up to 15 people**

- Proficiency with decimals, fractions, and unit conversions
- Understanding dimensions, tolerances, and basic tolerance calculations
- Applying math to measuring, material calculations, and shop floor problem solving
- Using trigonometry to calculate angles, lengths, and part features

## BLUEPRINT READING

**1 Day | Up to 15 people**

- Interpreting technical drawings, symbols, and title blocks
- Understanding line types, views, and drawing layout conventions
- Reading orthographic and three-view drawings accurately
- Interpreting dimensions, tolerances, holes, and angles
- Understanding sections, projections, and tolerance zones

## METROLOGY

**1 Day | Up to 15 people**

- Understanding measurement principles and the role of metrology in manufacturing quality
- Reading and using common measuring instruments
- Accurate measurement using micrometers, calipers, and height gages
- Applying indicators, gage blocks, and surface plates for precise measurement
- Using measurement results to adjust machine offsets

# ROBOTICS

**Robotics Programming and Operation equips teams to safely program, operate, and troubleshoot industrial robots in production environments.** These courses reduce downtime, improve process consistency, and build internal capability to support automated operations.

## FANUC PROGRAMMING & OPERATION

**5 Days | Up to 6 people**

- Build internal capability to create and modify FANUC programs
- Improve consistency using motion types, frames, and macros
- Reduce risk through safe testing and collision management
- Protect production programs with structured backups/recovery
- Reduce startup issues during new or modified programs

## FANUC OPERATION & MAINTENANCE

**5 Days | Up to 6 people**

- Safely operate and recover robots in production
- Reduce downtime through faster fault diagnosis and recovery
- Perform controlled teach pendant adjustments without outside support
- Grow skills with hands-on controller & hardware knowledge
- Support production through consistent robot operation

## ABB PROGRAMMING & OPERATION

**5 Days | Up to 6 people**

- Safely operate and program ABB robots using the FlexPendant interface
- Support production changes through efficient program edits and testing
- Apply frames, I/O, and logic to real manufacturing tasks
- Minimize downtime by troubleshooting and resolving execution errors
- Improve responsiveness to production and process changes



# MAINTENANCE

**Maintenance Training builds the skills needed to diagnose issues, restore equipment, and keep operations running.** These courses strengthen internal maintenance capability across electrical systems, hydraulics, pneumatics, and HVAC to reduce downtime and improve reliability.

## ELECTRICAL TROUBLESHOOTING

**5 Days | Up to 8 people**

- Develop a structured approach to electrical fault isolation
- Safely use meters to diagnose circuit conditions
- Read and interpret basic schematics and prints
- Identify shorts, open circuits, and failed components
- Build foundational skills for maintenance troubleshooting

## ADVANCED ELECTRICAL TROUBLESHOOTING

**5 Days | Up to 8 people**

- Troubleshoot complex electrical and motor control circuits
- Diagnose three-phase power and VFD-controlled systems
- Interpret advanced schematics and wiring diagrams
- Identify grounding, phasing, and sensor faults
- Apply systematic troubleshooting to reduce downtime

## RIGGING & MACHINE LEVELING

**5 Days | Up to 8 people**

- Apply OSHA-aligned safety practices for rigging operations
- Inspect and select rigging equipment based on load requirements
- Perform safe lifting, signaling, and load stabilization
- Plan and execute machine placement and movement
- Align and level equipment to support reliable operation

## INDUSTRIAL HYDRAULIC CIRCUITS

**3 Days | Up to 8 people**

- Safely operate and troubleshoot hydraulic systems
- Interpret hydraulic schematics and ANSI symbols
- Diagnose component failures using pressure and flow data
- Apply fluid theory to real hydraulic circuits
- Perform preventive maintenance on hydraulic components

## PNEUMATIC SYSTEMS

**3 Days | Up to 8 people**

- Understand pneumatic principles of pressure and flow
- Identify and apply pneumatic components in circuits
- Read and build pneumatic system diagrams
- Troubleshoot common pneumatic failures
- Perform basic pneumatic preventive maintenance

## HVAC

**5 Days | Up to 8 people**

- Understand heating and refrigeration system fundamentals
- Apply electrical and mechanical troubleshooting techniques
- Diagnose airflow, refrigerant, and control issues
- Interpret wiring diagrams and HVAC controls
- Build readiness for EPA Section 608 concepts

# WELDING

**Welding Training builds hands-on capability to produce safe, consistent welds in production environments.** These courses strengthen MIG and TIG welding skills to improve quality, reduce rework, and support reliable fabrication operations.

## MIG WELDING (BEGINNER TO ADVANCED)

**5 Days | Up to 10 people**

- Apply welding safety practices and proper PPE use
- Set up, operate, and maintain MIG welding equipment
- Weld mild steel and stainless steel in flat, horizontal, and vertical positions
- Perform fillet and butt welds to specification
- Produce complete joint penetration welds
- Inspect weld quality using AWS visual criteria

## TIG WELDING (BEGINNER TO ADVANCED)

**5 Days | Up to 10 people**

- Apply welding safety practices and proper PPE use
- Set up, operate, and maintain TIG welding equipment
- Weld mild steel, stainless steel, and aluminum
- Perform fillet and butt welds in required positions
- Produce complete joint penetration welds
- Inspect weld quality using AWS visual criteria

# SAFETY

**Safety Training builds awareness and skills to reduce risk and prevent workplace incidents.** These courses support compliance, strengthen safe behaviors, and protect people, equipment, and operations.

## OSHA FORKLIFT OPERATOR / TRAINER

**1 Day | Up to 10 people**

- Train operators on safe powered industrial truck operation
- Apply safe operating practices for powered industrial trucks
- Identify forklift hazards, stability limits, and load handling risks
- Perform pre-shift inspections and basic operational checks
- Meets OSHA 29 CFR 1910.178 requirements

## OSHA 30

**30 hours over 4 days | Up to 10 people**

- Strengthen supervisory-level understanding of workplace hazards
- Apply hazard prevention and control strategies
- Improve safety planning, oversight, and accountability
- Support compliance through proactive safety leadership
- Meets OSHA 30-Hour Outreach Training requirements

## OSHA 10

**10 hours over 2 days | Up to 10 people**

- Build foundational awareness of common workplace hazards
- Identify unsafe conditions and at-risk behaviors
- Understand employee rights and employer responsibilities
- Reinforce personal responsibility for workplace safety
- Meets OSHA 10-Hour Outreach Training requirements

## HAZWOPER 24

**24 hours over 3 days | Up to 10 people**

- Prepare workers for limited-exposure hazardous waste operations
- Apply hazard communication and site control practices
- Use appropriate PPE and monitoring techniques
- Understand roles in controlled cleanup and response activities
- Meets OSHA 29 CFR 1910.120 initial training requirements

## HAZWOPER 8

**8 hours over 1 day | Up to 10 people**

- Refresh hazard recognition and site safety responsibilities
- Reinforce PPE use, decontamination, and emergency response
- Review changes in regulations, hazards, and site conditions
- Maintain readiness for hazardous work environments
- Meets OSHA 29 CFR 1910.120 annual refresher requirements

## LOCKOUT / TAGOUT

**1 Day | Up to 10 people**

- Control hazardous energy during servicing and maintenance
- Apply lockout, tagout, and verification procedures
- Prevent unexpected startup and energy release
- Recognize electrical hazards associated with energized equipment
- Aligns with OSHA 29 CFR 1910.147 hazardous energy control requirements

## HIGH VOLTAGE SAFETY

**1 Day | Up to 10 people**

- Identify shock, arc flash, and arc blast hazards
- Apply safe work practices and approach boundaries
- Select and use appropriate electrical PPE
- Respond appropriately to electrical incidents
- Aligns with OSHA regulations and NFPA 70E electrical safety standards

## CONFINED SPACE

**1 Day | Up to 10 people**

- Identify permit-required and non-permit confined spaces
- Recognize atmospheric, engulfment, and physical hazards
- Apply entry procedures, roles, and monitoring requirements
- Understand rescue planning and emergency response
- Meets OSHA 29 CFR 1910.146 confined space requirements

## FIRST AID/CPR/AED

**1 Day | Up to 10 people**

- Respond effectively to common workplace injuries & illnesses
- Apply first aid techniques until advanced care is available
- Perform CPR and use AEDs in emergency situations
- Recognize signs of medical emergencies
- Delivered by an American Red Cross–authorized instructor

## RIGGING & MACHINE LEVELING

**5 Days | Up to 8 people**

- Respond effectively to common workplace injuries & illnesses
- Apply first aid techniques until advanced care is available
- Perform CPR and use AEDs in emergency situations
- Recognize signs of medical emergencies
- Delivered by an American Red Cross–authorized instructor

# CNC

**CNC Machine Training and Programming builds the skills needed to operate, set up, and program CNC equipment accurately.** These courses improve part quality, reduce setup errors, and strengthen machining consistency across operations.

## MASTERCAM

**5 days | Up to 10 people**

- Create 3D geometry and CNC toolpaths using Mastercam
- Navigate menus, workflows, and file management efficiently
- Import and export part files for CNC programming
- Generate and post cutter paths for machining operations
- Improve programming accuracy and machining efficiency

## CNC TOOLING

**5 days | Up to 10 people**

- Identify tooling and fixtures used in CNC operations
- Understand CNC coordinate systems and offsets
- Select appropriate cutting tools for machining tasks
- Read and interpret CNC code related to tooling
- Improve tool performance and part quality

## CNC MACHINE SETUP

**5 days | Up to 10 people**

- Read traveler sheets and setup instructions accurately
- Verify tools and materials required for each job
- Perform standard CNC machine setup steps
- Identify setup differences across CNC machines
- Improve setup consistency and readiness

## CNC MACHINE OPERATION

**5 days | Up to 10 people**

- Start up, run, and shut down CNC machines safely
- Operate CNC controls and interfaces confidently
- Read and interpret CNC programs during operation
- Monitor machining processes for quality and safety
- Respond to operational issues during production

## CNC PROGRAMMING

**5 days | Up to 10 people**

- Load, run, and test CNC programs on machines
- Understand the fundamentals of G and M codes
- Edit and prove out programs safely
- Apply CAD/CAM concepts to CNC programming
- Reduce errors through structured program validation



# PLC – SIEMENS S7

**Siemens S7 PLC Training builds capability from foundational concepts through advanced programming and troubleshooting.** These courses strengthen internal controls expertise to improve reliability, reduce downtime, and support automated operations.

## INTRODUCTION TO PLC

**5 days | Up to 8 people**

- Configure Siemens PLC hardware and basic TIA Portal projects
- Program foundational ladder logic and basic instructions
- Develop simple HMI buttons and interface logic
- Build a baseline for advanced Siemens PLC programming

## TIA PORTAL PROGRAMMING 1

**5 days | Up to 8 people**

- Configure Siemens PLC hardware and basic TIA Portal projects
- Program foundational ladder logic and basic instructions
- Develop simple HMI buttons and interface logic
- Build a baseline for advanced Siemens PLC programming

## TIA PORTAL PROGRAMMING 2

**5 days | Up to 8 people**

- Develop advanced ladder logic and sequencing applications
- Implement PLC-to-PLC communication and data transfer
- Program advanced HMI functionality for machine control
- Apply Siemens PLC programming to complex production scenarios

## TIA PORTAL WITH VARIABLE FREQUENCY DRIVES

**5 days | Up to 8 people**

- Configure and program Siemens VFDs within TIA Portal
- Integrate motion control and safety interlocks
- Troubleshoot VFD faults and parameter issues
- Improve machine reliability through proper drive integration

## TIA PORTAL HMI DEVELOPMENT

**5 days | Up to 8 people**

- Design custom HMI screens for real-world applications
- Develop diagnostic and monitoring interfaces
- Integrate HMI screens with PLC logic and Factory I/O
- Improve operator usability and troubleshooting speed

## TIA PORTAL MAINTENANCE 1

**5 days | Up to 8 people**

- Troubleshoot PLC hardware, networks, and I/O systems
- Diagnose ladder logic and symbolic fault conditions
- Apply Ethernet and communication maintenance techniques
- Reduce downtime through structured maintenance practices

## TIA PORTAL MAINTENANCE 2

**5 days | Up to 8 people**

- Program and troubleshoot Siemens safety components
- Integrate E-Stops, safety mats, and light curtains
- Maintain and diagnose machine-level safety systems
- Support safe operation of safety-rated automation systems



Our mobile PLC training equipment

# PLC – ALLEN-BRADLEY

**Allen-Bradley PLC Training builds capability from core ControlLogix concepts through advanced programming, networking, and troubleshooting.** These courses strengthen internal controls expertise to improve reliability, reduce downtime, and support automated operations.

## BASIC CONTROLLOGIX

**5 days | Up to 8 people**

- Install and configure ControlLogix hardware components
- Program ladder logic using standard instructions
- Configure communications and upload/download programs
- Adjust timers, counters, and logic sequencing
- Troubleshoot ladder logic to restore machine operation

## STUDIO 5000 GUARDLOGIX PLC

**5 days | Up to 8 people**

- Navigate Studio 5000 and GuardLogix ladder logic
- Search, cross-reference, force, and toggle logic for troubleshooting
- Diagnose field electrical issues from PLC software
- Configure Ethernet communications and RS Linx drivers
- Understand safety signatures and locked safety processors

## APPLIED ETHERNET COMMUNICATIONS

**5 days | Up to 8 people**

- Configure IP addressing and verify network communications
- Build, test, and repair industrial Ethernet cables
- Set up RS Linx drivers to access plant networks
- Configure and troubleshoot managed Ethernet switches
- Diagnose communication faults in real-world plant scenarios

## ADVANCED ETHERNET COMMUNICATIONS

**5 days | Up to 8 people**

- Troubleshoot complex industrial Ethernet network failures
- Configure Hirschmann and Stratix managed switches
- Diagnose cable faults and measure fault distances
- Configure NATRs, remote I/O, and safety devices
- Apply advanced Ethernet troubleshooting under simulated breakdowns

## APPLIED ADD-ON INSTRUCTIONS (AOI)

**5 days | Up to 8 people**

- Identify and navigate Add-On Instructions within ladder logic
- Develop and deploy AOIs for real-world applications
- Troubleshoot AOIs down to the bit level
- Force and toggle bits within AOIs for diagnostics
- Apply AOIs to VFDs, safety devices, and communications

## DEVICE LEVEL RING (DLR) NETWORKING

**5 days | Up to 8 people**

- Configure devices and supervisors on DLR networks
- Wire Ethernet and fiber optic media for ring topologies
- Understand DLR operation and resiliency concepts
- Diagnose and troubleshoot DLR communication faults
- Apply systematic troubleshooting through hands-on simulations

## APPLIED DEVICENET

**5 days | Up to 8 people**

- Build and configure DeviceNet networks using RS Networkx
- Diagnose single- and multi-node DeviceNet failures
- Interpret error codes and network diagnostics
- Configure and troubleshoot DeviceNet scanner cards
- Restore network operation through structured troubleshooting

## INDUSTRIAL CONTROLS REFRESHER

**5 days | Up to 8 people**

- Refresh configuration and replacement of common control components
- Troubleshoot electrical, network, and safety systems
- Configure GuardLogix processors and remote I/O
- Diagnose faults using prints, meters, and software tools
- Reduce MTTR through realistic troubleshooting simulations



Our mobile PLC training equipment