Industrial Training Programs
PLC Technology Series

High-tech training to support local manufacturers

PLC I:  PLC Control Fundamentals

This 40-hour module provides an introduction to the principles of operation and practical applications of PLC input and output devices used to control motors, solenoids, relays, and other devices controlled by the PLC.

General principles of motor control, DC, single phase, and three phase
- Magnetic motor starters
- Push-button control, relays, contactors & magnetic starters
- Ladder diagram
- Timing relays, counters
- Pressure switches, float switches, limit switches
- Two wire control, three wire control multiple push-button stations
- Jog control, hand-off automatic control, drum switch
- Basic sequence control
- Reduced voltage starters
- Introduction to PLC technology & introduction to VFDs

PLC II:  Introduction to Programmable Logic Controllers

This 40-hour module covers programming ladder logic using timers, counters, retentive timers and master control resets. Provides knowledge to install, program, and troubleshoot PLC systems. Hands-on learning results in an understanding of the process for programming with Allen Bradley software (RX Logix 5 and RS Logix 500).

- Introduction to types of PLCs and PLC components
- Introduction to Boolean Algebra and numbering systems
- Developing a working knowledge with AB software
- Practical operation of the software and programming
- Inputs, outputs – XIC, XIO, I/O, latch, unlatch, OTE
- RSLogix software and ladder logic
- Introduction to SFCs (Sequence Function Charts)
- Addressing I/O, data files, and documentation
- B and N files
- Timers: retentive, non-retentive, types & bits
- Counters – type, bits and reset
- One shot
- Troubleshooting with PLCs and PLC Safety

PLC III:  Intermediate

This 40-hour module builds on knowledge gained in PLC II and provides additional theory and practical hands-on application in the PLC lab using RS Logix 5 and RS Logix 500.

- Math functions in PLC programming
- Data manipulation and messaging
- Addressing formats
- Sequencers
- Introduction to PID technology
- Interrupt Instructions
- Troubleshooting using the PLC

PLC IV:  Advanced

This 40-hour module includes training with operator smart devices, encoders, busses, and status files using Rockwell software (RS Logix 5 and RS Logix 500). This course reviews the more popular bus communication technologies and how they interface with the PLC.

- Review of PLC III topics
- Operator smart devices
- Status files
- Introduction to encoders
- Busses used with PLCs
- Introduction to HMI and GUI
- Troubleshooting using the PLC

ControlLogix

This 40-hour module covers the ControlLogix platform and includes practical hands-on application. Content includes tags, tasks, SFC, structured text, and function block programming. This module includes a comparison of RSLogix software (RS Logix 5, RS Logix 500, and RS Logix 5000).

- ControlLogix overview and hardware
- Compare/contrast RSLogix5000 to 500 and 5
- Module configuration, communicate with I/O
- Tag structures
- Program SFC and program structured text
- Program ladder logic and function block diagram
- Communicate with ladder devices
- Motion- Servos
- Troubleshooting using the PLC

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Industrial Training Programs
Advanced Manufacturing Assessment and Training

Assess - Get Results - Target Training

Assess

Automation
Measurement & Gauging
Electrical
Mechanical
Fluid Power
Prints and Drawings
Green Energy
Process Control
Industry Fundamentals
Quality
Lean Manufacturing
Safety
Machining
Structural Engineering
Manufacturing Processes
Surveying
Materials
Thermal
Workplace Effectiveness

Get Results

Get individualized results for each employee
Identify skills gaps and training needs for each employee

Target Training

Training options include traditional hands-on learning, e-learning with virtual simulations, or a hybrid of both training methods.

For More Information Contact:

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Customized Maintenance Training

We are committed to supporting your workforce development needs.

We offer:
- Assessment of company’s specific needs
- Development or modification of training materials to meet your needs
- Qualified, experienced trainers
- Training conducted on-site or at Augusta Technical College
- Evaluation and follow-up

Core Electrical Maintenance Skills:

**Electrical Fundamentals Topics**
Intro to Basic Electrical Components, Circuits, Terms, Diagrams
Electrical Measurement Equipment
Introduction to AC Transformers and Lighting
Overview of Electricity and Magnetism

**Industrial Electricity Topics**
AC Motors and Motor Controls
Sensors and Control Devices
DC Motors and Motor Controls
Introduction to Conductors and Fiber Optics
Raceways, Receptacle Boxes, and Branch Circuits
Three-Phase Power, Transformers, and Grounding

Core Mechanical Maintenance Skills:

**General Industrial Topics**
Blueprints for Mechanical Maintenance
General Plant Safety
Hand Tools; Power Tools

**Math Topics**
Decimals and Fractions
Ratio & Proportion; Percentages
Shapes in Two Dimensions & Objects in Three Dimensions
Using Formulas; Metric System
Calculators

**Precision Measurement Topics**
Steel Rule, Vernier Calipers, Micrometers, Dial Indicators

**Science Foundations Topics**
Force, Work, Rate, Power
Simple Machines

**Specific Mechanical Topics**
Fasteners, Torque, Bearings, Seals, Gears
Lubrication, Couplings, Belt Drives; Chain Drives
Clutches, Shafts and Shaft Alignment

**Pneumatics & Hydraulics Topics**
Pneumatic and Hydraulic Actuators
Complex Circuits
Control Devices
Measuring Devices
Fluid Power
Overhauling Cylinders and Positive Displacement Pumps
Power Units

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