WINTER/SPRING CLASSES
GOING PRO-TALENT FUND

These classes are Instructor Led - Open Entry for all company employees

2019/2020
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Holland MI 49424
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Allen-Bradley RSLogix 5000 – Level I

Course Overview

This forty (40)-hour course is designed to provide basic skills in PLC fundamentals. This course provides an understanding of basic PLC circuits, hardware and applications. Course topics include interpreting relay logic prints, basic PLC instructions, hardware overview, as well as maintaining and troubleshooting a PLC controller’s software and components. This course is the first level of two courses and will focus on Allen Bradley PLC’s and RSLogix 5000 controllers.

Class Size: 8 Students

Course Objectives

Upon completion of this course, the participant will be able to:

- Identify and explain the application of programmable logic controllers PLC
- Read and interpret PLC ladder logic prints
- Describe PLC hardware including racks and power supply
- Maintain and troubleshoot programmable logic controllers
- Troubleshoot I/O device failures using programmable logic controllers
- Read and interpret relay logic prints
- Identify and explain the uses of types of communication cabling
- Employ local, remote I/O, and network communications
- Monitor, edit, upload, and download PLC programs
- Complete PLC programming labs
- Use software to write simple programming instructions using AND, OR, timers, counters and execute program to operate simple electromechanical circuits such as push buttons, sensors, and contactors
- Demonstrate knowledge of PLC programming
- Perform basic troubleshooting techniques with PLC logic

Cost: $1,495
Monday-Friday, 7:30am-4:00pm
Lunch Provided
*Min.5/Max 10
Hydraulic/Pneumatic Controls

Course Overview

This forty (40)-hour course is designed to provide the basic skills in Air/Fluid Power. The course provides an understanding of air/fluid power symbols, basic components of fluid power systems including basic laws and formulas for fluid power calculations. Course topics include pumps, control valves, actuators and maintenance procedures of air/fluid power systems.

Class Size: 12 Students

Course Objectives

Upon completion of this module, the trainee will be able to:

- Define and understand basic laws of energy and motion
- Define and understand basic laws of force, pressure, area, and volume, including Pascal's law, Bernoulli's law, and Boyle's law
- Interpret ANSI symbols and drawings to explain the functions of specific fluid power systems
- Describe the operation of pneumatic/hydraulic cylinders
- Describe the operation of a solenoid controlled directional control valve (DCV)
- Describe the function of a tee and cross
- Correctly read pneumatic and hydraulic pressure gauges
- Troubleshoot pneumatic/hydraulic valves
- Troubleshoot cylinders
- Troubleshoot hoses and tubing
- Adjust pressures and flows mechanically
- Maintain fluid levels for hydraulic systems
- Replace filters on hydraulic/pneumatic systems
- Explain common circuit applications
- Maintain vacuum system on pneumatic equipment
- Maintain filtration systems
- Adjust controls on hydraulic/pneumatic system
- Describe a hydraulic motor
- Define dirt holding capacity (DHC) in a filter

Cost: $1,150
3/2/20-3/6/20, Monday-Friday, 7:30am-4:00pm
Lunch provided
*Min.6/Max 12
MIG Welding for Manufacturing

Course Overview

This twenty-eight (28)-hour training course will familiarize the student with the basic principles of GMAW (Gas Metal Arc Welding), using MIG welder. The course will provide basic skills using MIG welder on mild steel and positions. This course incorporates both lecture and hands-on exercises. This course length is designed to familiarize existing welders to MIG Welding and improve their welding skills.

Class Size: 10 Students

Performance Objectives:

- Understand and practice welding safety
- Perform a safety inspection on the equipment
- Demonstrate an understanding of GMAW equipment
- Properly set up equipment to perform a weld
- Understand power sources and settings for making a MIG weld including voltage and amperage settings
- Understand weld wire part numbers and identify describe weld wires by their part numbers
- Determine correct wire to use based on the situation
- Understand the purpose and use of shielding gases
- Identify common welding problems and their causes
- Demonstrate an understanding of welding principles, procedures, technique, and application
- Properly perform a weld in the flat position
- Properly perform a horizontal weld
- Properly perform a vertical weld

Cost: $599
5/5/20 – 5/8/20: Tuesday - Thursday 7:30am – 4:00pm, Friday 7:30am – 11:30am
*Min.7/Max 10
Basic Electrical

Course Overview

This forty (40)-hour training course covers the basics of AC (Alternating Current) and DC (Direct Current) theory and fundamentals. The participant will first gain an understanding of the concepts of electrical schematics, components, voltage, current, and resistance. These fundamentals will be applied through Ohm’s Law to basic circuit design and analysis. Power, magnetism, and DC generation will then be introduced to complete the theories of DC applications.

Class Size: 12 Students

Course Objectives

Upon completion of this course, the participant will:

- Understand the theory and applications of electrical and electronics as it applies to a broad base of technologies
- Understand what electricity is; learn Ohm’s Law
- Understand the structure of matter and semiconductor theory
- Understand how to operate a digital multi-meter, power supplies, and scope meter
- Know the difference between conductors and insulators
- Know how to identify a short or an open
- Measure current, voltage, and resistance
- Construct series, parallel, and series parallel circuits
- Understand how to operate an AC/DC power supply
- Understand remote operations of a servo motor
- Study magnetic fields
- Understand capacitance and inductance
- Study transformer action and AC Phasing characteristics
- Set up and test Inductive, Capacitive, and Optical Proximity Sensors
- Study Reed and Synchronizing Switches

Cost: $1,150
TBD
*Min. 6/Max 12
AC/DC Motors and Motor Controls

Course Overview

This forty (40)-hour training is designed to provide the basic skills in AC/DC motors and motor control. It also provides an understanding of the operation of AC and DC motors and motor control circuits. Training topics include AC/DC motor operations, control circuit components, motor control wiring, connections, ladder diagrams, and interpretation of electronic motor control schematics.

Class Size: 12 Students

Course Objectives

Upon completion of this training, the participants will have an understanding of theory and operation of various types of electrical AC/DC motors, principles, and devices involved in industrial control of motors. Participants will also develop the skills necessary for wiring basic motor controls while gaining an understanding of control devices, safety components, and electrical motor control circuits.

Upon completion of this training, the participant will be able to:

- Explain the theory of operation for typical AC Motors
- Describe how a rotating magnetic field is developed in a 3-phase AC motor
- Describe the operations of a synchronous motor
- Describe how torque is developed in 3-phase and single-phase AC motors
- Explain the information found on the motor AC and DC nameplates
- Identify DC motor components
- Describe variable speed motors
- Describe control circuit components
- Differentiate manual to automatic control operation
- Identify pilot devices both physically and schematically and describe their operating principles
- Interpret motor control wiring, connection, and ladder diagrams.
- Identify contactors and relays both physically and schematically; and describe their operating principles
- Select timing relays for use in specific electrical motor control systems
- Identify control components to use for motor control circuit
- Troubleshoot motor control circuit using electrical troubleshooting skills

Cost: $1,150
3/2/20-3/6/20
Monday-Friday, 7:30am-4:00pm
Lunch Provided
*Min. 6/Max 12
GDT 102 – Fundamentals of GD&T

Program Description:
This twenty-four (24)-hour course is designed to assist the users of engineering drawings that contain GD&T symbols and terms. This course is an excellent starting point for individuals new to GD&T and is highly recommended as a refresher course for those with limited past exposure.

Performance Objectives:
The course contains the following subject information:

- Background on dimensional standards
- WHY and WHEN to use GD&T
- Definition of term and symbols
- General rules of the ASME Y14.5 national standards
- Material condition modifiers
- The datum reference frame
- Tolerances of form
- Tolerances of orientation
- Positional tolerancing
- Controlling feature coaxiality
- Controlling compound surfaces

Software/text:
If applicable, provided with class

Assessments:
Pre and post assessments may be included as part of class

Course length:
24 hours classroom and lab exercises

Cost: $1200
2/24/20 – 2/28/20
Monday 8:00am-12:30, Tuesday - Thursday 7:30am-12:30, Friday 7:30-12:00
*Min 10/Max 24
GDT 103- Specifying GD&T

Program Description:

This twenty-four (24)-hour course is designed to assist Product Engineers, Mechanical Designers and Drafters in why various characteristics are selected for controlling desired geometry.

Performance Objectives:

The course contains the following subject information:

- Analyzes why piece part features are selected as datum’s
- Investigates advanced GD&T rules as defined in ASME Y14.5
- Studies how to define and control geometry for non-rigid parts
- Studies differences between functional and manufacturing datum’s
- Explores functional gaging practices
- Explains the advantages of using composite position and profile controls
- Demonstrates how to calculate tolerance zone sizes for fixed and floating fasteners
- Review of customer prints to address issues arising in manufacturing

Textbook:

GeoTol textbook used from GD&T 102 class. Cost of textbook is $110, if needed

Assessments:

Pre and post assessments may be included as part of class

Course length:

24 hours classroom and lab exercises

Cost: $1350
4/27/20 – 5/1/20
Monday 8:00am-12:30, Tuesday - Thursday 7:30am-12:30, Friday 7:30-12:00
*Min 10/Max 24
EveryDay Leadership

Course Overview:

EveryDay Leadership offers your company a chance to transform your leadership culture so managers engage all employees, especially Millennials and Gen-Z. The content is centered around the behaviors stepped out in Gallup’s Q12, found in First, Break all the Rules. These leader behaviors include:

- empowering them to do their work
- caring about them as people
- holding them accountable to get results
- developing employees for a better future

Gallup’s information provides a framework for the rest of the program. Learners recognize that when they adopt a few key tools that align with the culture of engagement, their jobs get easier every day.

EveryDay Leadership is structured as four 4-hour workshops. Tools are introduced then participants practice skills so they gain confidence in their new abilities.

Module 1: Creating a Culture of Engagement

- Define the three phases of employee engagement
- Summarize the behaviors expected of an engaging leader
- Describe how to work with employees in each phase of engagement
- Explain how their behavior affects employee results

Module 2: Self-Awareness and the EveryDay Leader

- Use the DiSC as a tool to develop self-awareness
- Identify strengths and challenges in becoming an EveryDay leader
- Use the DiSC model to identify behavioral styles of others
- Modify my behavior to meet others’ behavioral needs
- Use one listening model to hold people accountable and develop relationships

Module 3: Engaging the Team

- Create a culture where people know you have their back
- Give positive and constructive feedback
- Set clear goals
- Hold people accountable
- Achieve maximum productivity gains by choosing the right people to develop

Module 4: Coaching

- Define what coaching is and what it isn’t
- Use a structured process to guide coaching conversations
- Coach for performance improvement

Cost: $475

3/9/20 – 3/12/20 or 5/11/20 – 5/14/20
Monday – Thursday, 8:00am-12:00pm
*Min 5/Max 15
Manufacturing Machine Operator Basics (3-modules)

Module 1—Shop Math
Course Overview

This course is designed to provide an understanding of the basic mathematics that is used on the shop floor

Course Objectives

Upon completion of this module, participants will be able to accomplish the following:

- Use the rules for decimal addition, subtraction, multiplication, and division
- Use a scientific calculator to do repetitive calculations with decimals
- Perform addition, subtraction, multiplication, and division with four-place decimals
- Use the rules for fraction addition, subtraction, multiplication, and division
- Read fractional numbers from a ruler

Module 2—Print Reading
Course Overview

This course provides the participant with the principles and skills of reading and interpreting blueprints

Course Objectives

Upon completion of this module, participants will be able to accomplish the following:

- Understand technical drawing symbology
- Understand how to interpret a technical drawing
- Understand title blocks, notes, and revision identification
- Understand object, hidden, center, extension, and dimension lines
- Define projection and other line combinations
- Understand three view drawings
- Understand orthographic projection
- Understand the arrangement of views
- Understand size and location dimensions
- Understand dimensions for holes and angles
- GD&T dimensioning
- How to calculate tolerance zones
- Understand sections
- Read and interpret blueprints
- Understand notes and symbols
- Effectively interpret detailed drawings
Module 3—Metrology

Course Overview

This course provides the participant with the basic skills in understanding the sciences of measurements that are used in Manufacturing.

Course Objectives

Upon completion of this module, participants will be able to accomplish the following:

- Understand measuring instruments and their uses
- Understand scales and tape measures, and reading inch, decimal, and metric units
- Define measurement procedure for using depth micrometer
- Understand measurements using calipers, digital, and Vernier calipers
- Understand dial indicators and their uses

Cost: $675

3/16/20-3/18/20
Monday-Wednesday, 7:30am-4:00pm
Lunch provided
*Min 6/Max 15
A3 for Problem Solving

Course Overview

This 8-hour A3 Problem Solving course is an activity based, pencil and paper tool designed to solve specific problems. It defines the current condition and looks at the root cause of the issue. The A3 also guides the user to define clear steps to implement changes and builds accountability. Participants will experience a simple and effective way to understand the way work happens now and how it can be redesigned effectively.

Course Objectives

As a result of this workshop participants should be able to:

- Explain why continuous improvement is needed and why it is easier said than done
- How to collect and use meaningful data
- List advantages of A3 Problem Solving and describe how it is used to eliminate waste and reduce variation
- Distinguish between value added and non-value added activities
- Apply A3 thinking along with basic quality tools (cause & effect, multi-voting, value stream mapping, process flow, pictograph, Pareto, run chart, 5-why, 3L5W, scatter diagram, histogram, etc.) to solve actual work related problems

Cost:  $250
2/19/20: Wednesday 7:30am – 4:00pm
or
5/5/20: Tuesday 7:30am – 4:00pm
Lunch provided
*Min 6/Max 15
Robotic Programming
Course Overview

This forty (40)-hour course is designed to provide the basic skills needed to operate and program the FANUC Robotics. Course topics include robotic safety, controls, operations, part programming.

Course Objectives

- Control positions (base, tool, or joint coordinate systems with multiple axes systems)
- Configure I/O, system variables and perform setup
- Label programs
- Configure style table
- Identify function of the robot, teach pendant or controller
- Save, restore, and back up download and upload software
- Understand interpolation operation of robot (linear, circular, joint, speed, accuracy, etc.)
- Define robot motion attributes (speed, accuracy to destination, interpolation)
- Perform robot mastering at zero position and single axis
- Perform robot calibration and test robot for proper master and calibration
- Properly verify and or define tool center Point (TCP)
- Set up or verify software limits, issues relating to new software limit setting program
- Understand program for style options
- Program/modify function conditions (weld, paint, etc.)
- Locate robot inputs and outputs screen to determine status of system or equipment

Cost: $1,195
Monday-Friday, 7:30am-4:00pm
Lunch provided
*Min 6*/Max 12

*Classes will run as scheduled based on meeting the minimum student enrollment