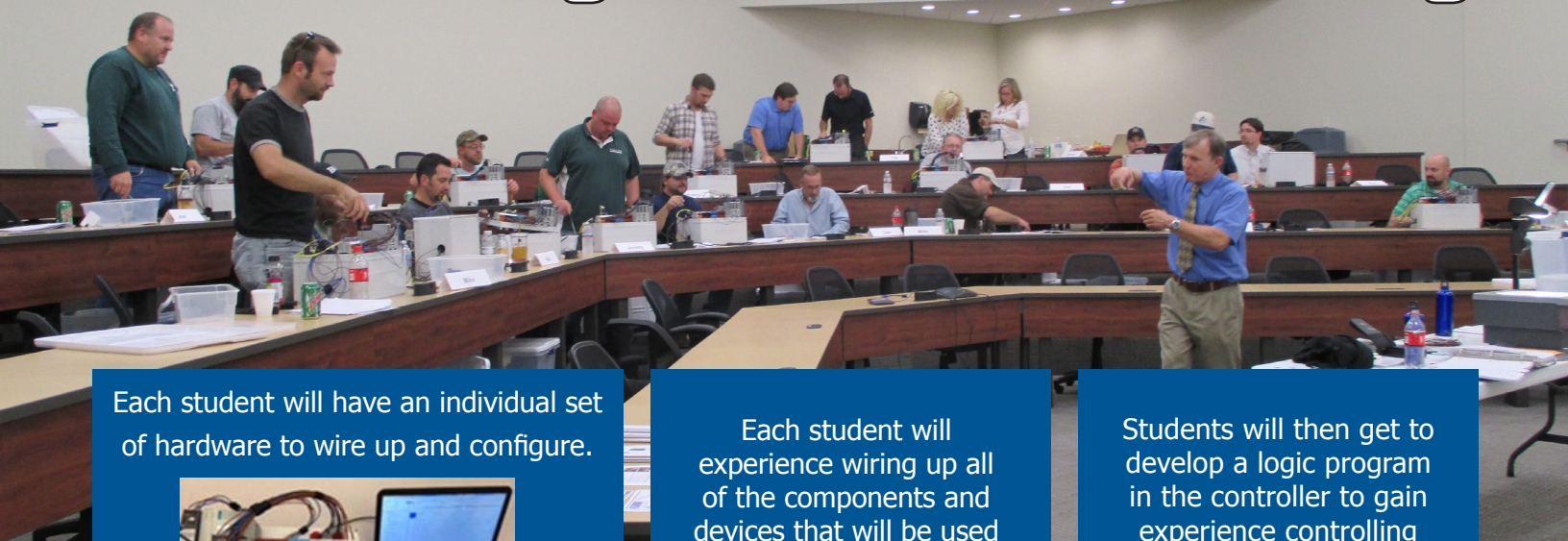


# PLC Wiring & Troubleshooting



Each student will have an individual set of hardware to wire up and configure.



Each student will experience wiring up all of the components and devices that will be used in conjunction with the controller logic.

Students will then get to develop a logic program in the controller to gain experience controlling and troubleshooting their system!

At the completion of this training, the participant will be able to “talk through” and troubleshoot the PLC’s ladder logic using the Logix5000 software in order to locate a “real” faulty input or output device, replace it, and get the process back up and running. ***It’s all about troubleshooting!***

Next, each participant will wire the actual input and output (I/O) field devices to the PLC. This includes photo-electric and inductive proximity sensors, selector switches, pushbuttons, contactors, indicator lamps, along with the DC Power Supply. ***The participants actually wire their own PLC Trainer!***

Using the RSLogix5000 software, the Communication Path will be configured along with the creation of Tags that will be used in the PLC’s ladder logic. The concept of “Real” and “Simulated” inputs and outputs will be covered, along with the troubleshooting tools of Toggling and Forcing. Next, Timer (TON, TOF, RTO, RTF) and Counter (CTU, CTD) circuits will be covered, along with One-Shot (ONS) and First-Scan (S:FS) instructions. Comparison Instructions (EQU, NEQ, LES, GRT, LEQ, GEQ, LIM) and Math Instructions (ADD, SUB, MUL, DIV, CPT) along with Set Bit if Zero/Negative (S:Z, S:N) will be thoroughly covered. The understanding of how a Jump (JMP), Master Control Reset (MCR), and Jump to Subroutine (JSR) functions, will be covered in detail.

To effectively troubleshoot a PLC-based system, one must know how the PLC’s Memory is structured using One, Two, and Three Dimension Arrays. This will be accomplished by troubleshooting ladder logic that includes instructions such as Fill File (FLL), Copy File (COP), Average File (AVE), Bit-Shift Right/Left (BSR, BSL), First-In-First-Out (FIFO) Load/Unload (FFL, FFU), Last-In-First-Out (LIFO) Load/Unload (LFL, LFU), Masked Move (MVM), Sequencer Output (SQO) using the Array, Mask, and Output Tables, along with Indirect Addressing and Add-On Instructions (AOI).

NOTE: Numerous **hands-on** labs utilizing troubleshooting skills are included in all of the above subject matter in order to reinforce the lecture material.

See reverse for dates, locations, and registration info.

## Nov. 2018 - Nov. 2019 Schedule

<u>Date</u>	<u>Kendall Electric Location</u>	<u>City and State</u>
November 6-9, 2018	5101 S. Sprinkle Road	Portage, MI
November 13-16, 2018	4525 44th Street SE	Grand Rapids, MI

### **2019 Class Registration opens October 1, 2018**

February 5-8, 2019	3317 5th Avenue S.	Birmingham, AL
February 19-22, 2019	2395 Shady Lane	Cleveland, TN
March 12-15, 2019	1241 Jan Way	Kingsport, TN
March 26-29, 2019	170 Mabry Hood Road	Knoxville, TN
June 18-21, 2019	4525 44 <sup>th</sup> Street SE	Grand Rapids, MI
July 23-26, 2019	415 Ley Road	Fort Wayne, IN
August 6-9, 2019	5101 S. Sprinkle Road	Portage, MI
November 5-8, 2019	4525 44 <sup>th</sup> Street SE	Grand Rapids, MI

On-site training is also available!

Email [marketing@kendallgroup.com](mailto:marketing@kendallgroup.com) to request training at your facility.

## Cost and Ordering Information

- Course ID # 3752291 PLC Wiring and Troubleshooting
- 4-Day Seminar, Tuesday-Friday
- 8:00 am - 4:30 pm, Lunch and Snack Breaks Provided
- Cost: \$1895 per student
- Receive a 10% discount for 3-5 students; a 15% discount for 6+
- All training materials are provided in class
- Earn 28 Professional Development Hours (PDH) with the completion of this course

For more information, contact your Kendall Electric Account Manager or email our training coordinators at [marketing@kendallelectric.com](mailto:marketing@kendallelectric.com).

Seating is limited. Register today at:

**[training.kendallelectric.com/plc](http://training.kendallelectric.com/plc)**