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Hands-On Technical Workshops

by Ron Beaufort

FAQs about the PLC Boot Camp

Frequently Asked Questions - and Answers

The questions below are related to how our courses are designed and how our classes are taught. For questions about PLC subjects, we recommend that you "search" one of the excellent public internet forums listed on our [Links to PLC Resources](#) webpage. You can also join the forums at no charge and post your questions there. You can expect answers from PLC users around the world. And, of course, you're always welcome to contact us directly for assistance.

01 Your website says that you'll go anywhere to do a ten-minute demo lesson. Are you serious?

Sure - as long as there are enough students potentially involved. Naturally we don't want to travel completely across the country if only a few students are at stake - but for a large enough account, we'll definitely make the trip.

We've had some people ask, "Suppose that you do the show - and I'm not impressed?" We'll take our chances. So far, every ten-minute demonstration that we've ever done has always been a success. It's hard to understand just how different - and how much better - our teaching methods are until you've seen them in action. We don't ask people to believe us - but we'd certainly appreciate a chance to prove it.

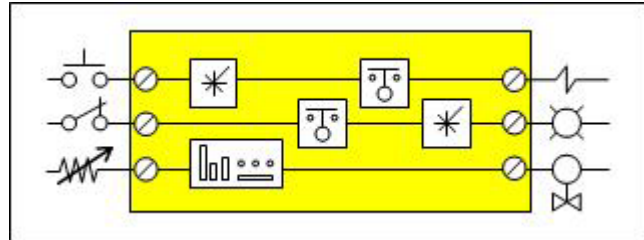
So, yes. If your company has enough technicians who need training, then we'll be glad to drop in **anywhere** and do a free demo lesson - using a few of your plant's "top guns" as students. Give us ten minutes - for three rungs - no joke. If you're not convinced that the PLC training that we're offering is better than anything else available, we'll pack up our gear and go home.

02 Why train my technicians on PLCs since most problems are caused by field devices?

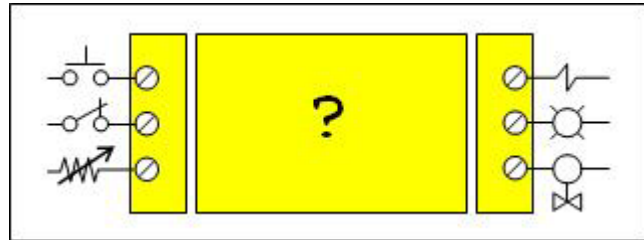
The "short answer" is because the PLC is located precisely at the center of your plant's control wiring. Technicians who don't know what goes on inside that mysterious "black box" often waste troubleshooting time - and needlessly replace parts - even if the root problem has nothing to do with the PLC.

Reality check: In many plants the following scenario is a common occurrence. The machinery is down - and the plant's technicians are stumped. An outside contractor is called in to troubleshoot the system. Eventually he arrives and goes online with the PLC. A few minutes later he points out the problem - usually a simple field device. The technicians replace the part - and the contractor sends a hefty "minimum charge" bill. It doesn't take many episodes like that before effective PLC training becomes a highly attractive investment.

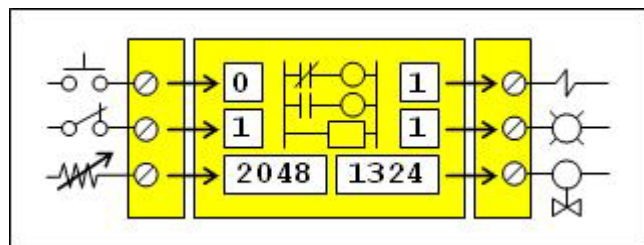
In the days before PLCs, the plant's maintenance technicians were able to track down many problems simply by "following the wire" between the input devices and the output devices. Minor adjustments like timer settings were easy to do. The wiring for each field device was usually brought back to a centrally-located control cabinet. Input and output devices were tied together with "hard wired" connections. Control devices such as relays, timers, and counters were easily accessible by the plant's maintenance technicians.



Today the "hard wired" connections which once tied the plant's field devices together have been replaced by the PLC's ladder program. To an untrained technician, the PLC represents a mysterious "black box" located at the precise center of every control circuit. Tracking down a problem is no longer just a matter of following a physical wire - but instead requires significant computer skills to access and interpret the PLC's program. Even simple problems often appear excessively complicated when confusion surrounds the PLC. Confusion wastes time and money. Production downtime, troubleshooting time, and needlessly replaced parts are all common examples of how inadequate training can affect the plant's bottom line. Even simple adjustments such as timer settings often require an expensive outside contractor if the plant's technicians lack the skills to access and understand the PLC program.



Effective training for your maintenance technicians removes the mystery and confusion about what goes on inside the PLC. The interconnections between the plant's field devices become easily accessible - so troubleshooting takes less time. Production downtime can be minimized. Needless "part-swapping" can be reduced. Minor adjustments to the controls can be made in-house without the delay and expense of outside contractors. The key to success is making sure that the PLC training you purchase is **effective** - and that it provides the specific job skills required by your plant's maintenance technicians.



03 We've always been satisfied with another vendor's training - so why switch to yours?

This probably isn't the answer you expected, but if our competitors are already providing PLC training that fully meets your needs, then we recommend that you **don't** switch to us. We only ask that you keep us in mind for special cases. For example, training an otherwise "good" technician who's truly motivated to learn - but somehow just can't seem to "get it" when it comes to PLC skills. Our simple step-by-step training methods have helped a lot of "untrainable" students over the years. Just please make sure that they're motivated - no one can help the ones who aren't.

Another area where we can often help is with special content courses designed to target specific training needs. Take a look at our Custom Courses webpage to see how easy it is to custom-design a PLC training program for your plant's own programs - right down to the specific ladder file and individual rung level if necessary. Just tell us where your technicians are having the most problems. We'll type up a custom-designed course specification for your approval - and include a price quote for you to consider. Usually we'll have it ready within a few hours. There's no charge for the design work - and you're not obligated to purchase the training.

So, as we said, if you already have a good working relationship with one of our competitors, it's best to stay with them. Just keep us in mind for any special students - or special projects - which the other guys might not be set up to handle.

05 What about the free one-day or two-day "PLC Seminars" available at my local distributor?

Well, the good news is that they're "free" - so our "short answer" advice is to go ahead and take advantage of them. The real question is: how much training will your people actually receive?

You don't have to sit through many of these sessions to realize what's actually going on. While maintenance technicians are usually welcome, the audience that's really being targeted are the engineering-type personnel who specify (and purchase) the distributor's products. Usually the textbook is the distributor's sales catalog - and the "training" turns out to be a series of feature comparisons between "Model-A" and "Model-B" products.

Anyway, based on the general idea that any training is better than no training - sign up and take the free ride. Especially if a decent lunch is provided. And definitely if some demo equipment will be available for some hands-on exercises. Everybody likes that part.

Now for the possible downside. In some plants the "powers that be" have a habit of considering these little seminars to be actual training classes. Each employee who attends one gets a checkmark next to his name - and is duly regarded as having received a proper dose of "PLC training" - for free. In some plants this approach is quite an issue when it comes time to justify an adequate training budget. But as long as that's not a problem in your plant, then the distributor's little seminars are usually pretty harmless.

The biggest issue is to realize that your maintenance technicians probably won't gain much in the way of useful troubleshooting skills from attending - but they might get a free lunch.

08 Why not use our plant's own "in-house-on-the-job" training program - for free?

Our basic advice is the same as for all other training methods. If the training program meets your needs, at a price that you find acceptable, then go ahead and use it. The biggest problem with "in-house-on-the-job" training is that it isn't "free" at all. In fact, programs like this invariably have a lot of hidden costs that often go unrecognized.

First, the personnel conducting the training are usually among the most highly skilled in the plant. Unfortunately those high-level skills can't be put to their best use while the most experienced employees are tied up in training their coworkers.

Second, the plant's "in-house" trainers often lack effective teaching skills - which can lead to ineffective training. Training programs such as this often take a long time to complete - and still give unsatisfactory results.

Next, conducting the training program "on-the-job" practically guarantees that getting the job done will often be delayed - in order to take care of training. On the other hand, if the job is given priority, then the training program will suffer.

"On-the-job" training often gives satisfactory results for teaching skills which are highly repetitive. Seeing the concept work for their equipment operators often tempts a company to use the same type of training program for their plant maintenance technicians. The fact is that troubleshooting and problem-solving skills don't fall into that "highly repetitive" category.

Also, the students being trained through "in-house-on-the-job" programs usually aren't available for their full job duties until the program is finally completed. Students who could be trained in a few days in a classroom are often tied up for months in an on-the-job training program.

Yes, "in-house-on-the-job" training programs do work well in some cases. Situations where they work best generally involve large plants - with plenty of experienced personnel - with plenty of spare time in which to conduct the training - and where lost production isn't a big concern. Most plants don't fit that description - but maybe yours does. As we said earlier, if an "in-house-on-the-job" training program meets your needs, at a price that you find acceptable, then go ahead and use it.

Finally, the biggest problem often occurs when the Human Resources department controls the training budget - and decides that an "in-house-on-the-job" program provides "free" training. The plant's maintenance manager, on the other hand, soon recognizes how much the "free" training is actually costing the company. He's forced to deal with the issues we listed above on a day-to-day basis. At his level, the hidden costs of this type of training program quickly become obvious.

10 What about my local tech school's price reductions through government subsidies?

Those subsidies are probably being provided through the Enterprise Zone Act - or through some similar government program. You'll need to check with your local technical college, of course, but in most cases the school is allowed to use outside contractors to provide the training for those types of programs. We've successfully worked with schools on projects like this in the past. Usually it's just a simple matter of paperwork - and your company may be able to save a considerable amount of money on PLC training.

If you're interested in taking advantage of programs like this, it's definitely best to start by contacting the continuing education department of your local tech school. Tell them what you need - and specify that you want us to do the training. In most cases the school will then get in touch with us and we'll work out the details from there. Usually a one-page boilerplate contract is all that is required.

11 We're looking for training at the lowest possible price - so what's your best deal?

Well, if all that you're looking at is the "bottom line" price tag in dollars and cents, then we're probably not going to be the training vendor you choose. On the other hand, if you're trying to save "real money" in the long run, then our training is 100% guaranteed to help.

It's no more complicated than buying laundry detergent. Every smart shopper knows that the half-priced brand isn't really a bargain - not when you need four times as much as the "good" stuff to get the clothes clean. Once you've made the "actual cost" comparison for PLC training, you'll choose us every time.

Here's an easy to do example: Compare the material that we cover in our five-day PLC Boot Camps with the material that our competitors cover in one of their five-day classes. Match up the lists of topics and you'll usually find that it takes two (or even three) of their oranges to equal one of our apples. "Five days of training" are not always equal to "five days of training" - but the real differences aren't obvious until you dig into the details. So do the math and find out how much it really costs to give your technicians all of the PLC skills they need. And don't forget the expenses for travel, lodging, scheduling, etc. required for those extra sessions that you'll need with the other guys.

Next consider how much material the students will "take home" with them. Our **Problem/Solution** training method insures a much higher retention rate than traditional Lecture/Lab approaches. Our website includes an extensive list of comments from our former students - and from some popular public PLC forums. Just read through a few of those for a quick idea of how much more "in depth" and effective our classes are when compared to other training programs.

Another area to watch is the class size. We keep our classes small - only six students at the most. Some of our competitors cut their costs by enrolling as many as eighteen students in each class. Naturally the amount of instructor attention suffers - but the biggest disadvantage comes at lab time. Many of the bargain vendors assign two (or even more) students to each training station. We recognize that most of the actual "learning" takes place during the hands-on projects - so we never assign more than one student to a workstation. If you're paying for "hands-on" training, make sure that your personnel are getting their fair share of it.

Finally, every meaningful cost comparison should always consider the "value received" and not just the "bottom line" price tag. Our classes cover more useful material, at a far greater depth, with much better retention, than any other PLC training available. That's what we mean when we say "effective" PLC training.

12 What if we've already spent our training budget with another vendor - with poor results?

Unfortunately, we hear that a lot. The customer's sad story usually goes something like this:

"I wish I had known about your training a year ago. I recently put my entire maintenance crew through a full PLC training program with one of your competitors. Most of my people got a little bit better - but none of them have all of the skills that they really need. I'm convinced that you could have done a better job for us - but now it's too late. I've already spent my entire training budget. If I go back upstairs and ask for more money, I'll get myself fired."

So where does that leave us? The customer loses. The students lose. We lose. The only ones who really come out on top are our competitors. And since most of them don't offer a guarantee, there's not much that the customer can do about the situation.

Unfortunately there's not much that we can do about it either - except sympathize - and make one final offer. Call us up and tell us your own sad "blown the budget" story. In most cases we'll let you send one student to our next PLC Boot Camp class - absolutely free. Think of it as those deals where Pizza Hut accepts the coupons from Domino's. Basically we want you to see what you missed out on - and hope that you'll think about us the next time around.

13 How hard is it to set up a custom-designed course?

Actually it's quite easy. In most cases the process only takes a few hours - you're under no obligation to purchase the training - and we'll help you with the design work for free.

The easiest approach is to mix and match components from some of our existing courses. Then pencil in anything new that you want to add - and mark out anything that you don't need. Or you can build a new course of your own completely from scratch. The [Course List](#) page on our website includes examples of courses that our customers have come up with in the past to get you started.

Once you've got an idea of what you want on paper, give us a call. We'll type up a set of specifications for you to look at - and include a price quote for you to consider. Or just call us right from the start and tell us what you have in mind. We'll be glad to work with you.

If you need more detail, just see the [Custom Courses](#) page on our website. Or give us a call and we'll be glad to work with you.

14 Can you do onsite training here at our plant?

Yes - all of our lab equipment is designed to be portable so onsite classes are available if you need them.

Please allow for adequate lead time when you consider the class schedule. Keep in mind that conducting one week of onsite training requires that we reserve a three-week block of time from our local training calendar. This is necessary for transportation to and from your site - and to allow sufficient time for setting up and taking down all of our hands-on lab equipment.

Just contact us to discuss the logistics involved and to request a free no-obligation price quote for the extra expenses required.

15 Any suggestions on which of my plant's technicians I should send first?

Surprisingly it usually works out best if you send us your "top guns" first. That's because even the most experienced technicians invariably have certain "misconceptions" about what really goes on inside the PLC. We've had several occasions in the past where a "beginner" has gone through one of our PLC Boot Camps - and then gotten into a heated debate with one of experienced technicians back at the plant. Sure enough, the "new guy" was right - and the "old guy" was wrong - but stirring up arguments isn't the best way to build teamwork. A better approach is to make certain that the experienced technicians have all of their facts straight first. That way they can help reinforce - instead of contradict - what the greener guys have just learned.

Now suppose that you think that your "top guns" would be wasting time in a PLC Boot Camp class. There's an easy way to find out. Just have them work through some of the "Email Quizzes" that we have in the [Sample Lessons](#) area of our website. This is an entertaining way to let them test their own PLC knowledge - and get a good idea of how much detail we include in our classes.

Another way is to have them give us a call. Ten or fifteen minutes on the phone is usually plenty of time to help them see where they stand. Most "top guns" only get to that position through their determination to learn. Once they find out that we're able to help them learn even more, they become some of our most enthusiastic students.

22 If you skip the lectures, how can your students possibly do their hands-on projects?

Short answer: We coach them over the rough spots. Keep reading if you want more detail.

Notice that the idea of "coaching" is not the same as just spoon-feeding the correct answers - or even giving hints. Actually it consists of helping the student mentally "connect the dots" and recognize how a new piece of information is related to a framework of existing knowledge.

Next let's talk about the lectures that you mentioned in your question. The students in every classroom all have different levels of experience and capabilities. So which level student do most instructors lecture to? If they aim high enough for Experienced Ed's level, then Beginner Bob gets left behind. Shooting for Bob's level leaves Ed bored. And of course, trying to cover all of the bases just spreads the misery around. No matter how you slice it, a large amount of time gets wasted in each and every lecture. We skip the lectures in our PLC Boot Camp classes - which lets us recover that wasted time and put it to better use.

Now let's see how all of this ties into our students' hands-on projects. The instructor makes the assignment and the students go to work. The instructor continuously circles the room and monitors each student's progress. Experienced Ed is moving right along - so the instructor doesn't even pause at Ed's station. Beginner Bob made it through one or two steps - but then he ran into a problem. The instructor helps Bob recognize the problem - and then provides just enough coaching to help him find a good solution. Once Bob is back on track, the instructor moves on again. Even Experienced Ed will need help somewhere along the way. Our hands-on projects are designed to be challenging.

Notice that Experienced Ed isn't being held back. Beginner Bob isn't being dragged along. Instead, all of our students are constantly working - and learning - at their optimum levels. That's something that just never happens in a traditional lecture.

Finally just ask any technician-type student where most of the learning goes on - while listening to a lecture - or while working through a hands-on project? You know what the answer will be. That's one of the main reasons that our PLC Boot Camps can accomplish so much more than other training programs. We skip the stuff that doesn't work - and concentrate on the stuff that does.

23 Aren't there some students who don't do well in a PLC Boot Camp class?

Only the very few who aren't seriously motivated to learn. Once in awhile we get a student who looks at "training" as being a paid vacation from work. They arrive Monday morning expecting to cruise through a cozy "getting to know you" session, then sleep through a PowerPoint slide show, take a break, sleep through a long lecture, take a break, then be led step-by-step through a simple lab exercise. In other words, they expect the same old run-of-the-mill training that they've always seen before. The PLC Boot Camp is different.

Less than ten minutes after the class starts on Monday morning, our students are working on their first hands-on project - and they keep working - and thinking - all the way through the five-day class. There are no PowerPoints, no lectures, and breaks are taken on a "need to go" basis. The vast majority of our students fully enjoy the constant mental challenge of the continuous hands-on labs and follow-up discussions - but the very few with a "vacation time" attitude sometimes have issues.

You're probably already aware of any of your employees who fit into this particular category. Please just give us a call before you send them our way. We have some suggestions on how to correct a potential problem before it ever surfaces. Our 100% money-back guarantee gives us a vested interest in helping each and every student get the most out of our classes. The motivated ones always do well. The real trick is making sure that they're all motivated when they arrive.

24 Don't you ever have any complaints about your PLC Boot Camp classes?

There's one that comes up quite frequently. The students often wish the class could be longer.

Actually we look at that "complaint" as more of a compliment. It means that the students stayed constantly busy - not bored - and that they really enjoyed the time that they spent in the class.

As for wishing for "longer classes" - we're in complete agreement. Unfortunately the plant's work schedule and training budget are usually the biggest obstacles standing in the way of that.

42 How about the web-based courses and training CDs available online from other vendors?

Our basic advice is the same as for all other training methods. If the training program meets your needs, at a price that you find acceptable, then go ahead and use it. Some people can learn quite well by following these "go-at-your-own-pace" type courses. Other people need a more disciplined approach to training.

Our PLC Boot Camp classes are intended primarily for plant maintenance technicians who need effective PLC skills for troubleshooting purposes. Our courses use five days of intense training to prepare a student with the PLC skills normally needed by a maintenance technician.

On the other hand, working all the way through one of these "go-at-your-own-pace" courses invariably takes a lot longer than just five days. Usually several months to a year are required. If that longer time frame is acceptable, then one of those other courses might work fine for you.

Even more important than the time required, let's look at the skills offered by one of those web-based or CD-based courses. In most cases, some of the course material is concerned with how PLCs are supposed to work. The rest of the material usually focuses on writing basic ladder logic programs. Those skills might be valuable to a programmer - but they don't really satisfy the requirements of a maintenance technician who is troubleshooting a malfunctioning system. The point is that most of those other courses don't cover much at all along the lines of troubleshooting and problem-solving skills.

Suppose that time isn't an issue - and that the skills being offered are adequate for your needs. Then also consider whether your personnel will really be determined enough to work on their own for several months while completing the program. If all of those conditions are met, then a web-based or CD-based PLC training course might serve you well.

Future questions - just call us for answers

- 04 Why use your 5-day class instead of a 16-week semester at our local tech school?
- 06 What if I can't decide between your PLC Boot Camp training or another vendor's class?
- 07 How can I convince my Human Resources department that your training is better than others?
- 09 Couldn't one of my techs take your class, then come back and train the rest?
- 16 Do you offer an "assessment test" to see where each of my technicians stand?
- 17 Could a totally "green" beginner do well in one of your classes?
- 18 Won't my experienced technicians be bored in your "start at the beginning" classes?
- 19 Don't your students ever get "burned out" from the pace?
- 20 If the "Boot Camp" approach is too intense for some of my techs, can you tone it down a bit?
- 21 How do you handle both experienced and non-experienced students in the same class?
- 25 Do I need a background in electricity to take your PLC classes?
- 26 Any suggestions on how to get ready for your class?
- 27 Besides the PLC Boot Camps, do you also offer PLC programming classes?
- 28 What do you mean by "Programmer Skills" and "Technician Skills" - what's the difference?
- 29 What's the difference between Level 1 and Level 2 - and what about Level 3?
- 30 Can you do a basic 1-day or 2-day "PLC Introductory" class for my new hires?
- 31 All ladder logic is the same - so how can your courses be much different from the rest?
- 32 Isn't your method of teaching just one more way of looking at ladder logic?
- 33 What makes you say that some other PLC training programs are teaching wrong ideas?
- 34 Do your students really "correct the instructor" the way you mentioned on your website?
- 35 Why do you say that "the programming screen lies?"
- 36 Why can't I find the class I want on your online schedule?
- 37 What time do your classes end on Friday afternoon?
- 38 Can I buy a copy of the text book that you use in your classes and study on my own?
- 39 Why don't you write a book - or sell videos of your classes?
- 40 Do you allow tape or video recorders in your classes?
- 41 If I could get the hardware and the software, couldn't I just learn PLCs on my own?
- 43 What can I do about my clueless PLC instructor at the local technical college?
- 44 Any suggestions on how to keep my technicians "sharp" after they take your class?
- 45 Will taking your class help me land a job working with PLCs?

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