

# Solutions for Your Process Engineer Shortage

Joe Arvin

**As you might imagine, I talk to many gear industry people through the course of my day-to-day activities.** And there is one question that I hear over and over again. “Joe, we need an experienced gear process engineer. Do you know anyone who’s available?”

Unfortunately, my response is usually, “I’m very sorry, but no.”

The role of the gear process engineer is critical to the success of a gear manufacturing company. And having an experienced engineer who can develop an efficient process often means the difference between profit and loss on a job.

If you are like most gear companies, qualified people for this role probably aren’t trying to knock your door down looking for a job. So, what do you do to fill this role when no one is responding to your recruitment efforts? You basically have two options. You can either find an experienced engineer you can lure away from a competitor, or you can develop someone internally. More often than not, the latter will need to be your course of action. For this reason, I wanted to share a few ideas on how you can internally develop a process engineer in the most effective way.

## Accept the Investment Right Up Front

When choosing the option of developing a process engineer internally, you’re going to have to understand that this will be a long-term project — one that comes with a significant price tag. But remember, this is an investment in the future of the organization.

## Finding the Right Trainee

For the most part, there are two types of people who will be likely candidates for the process engineer training — a recent graduate with an engineering degree, or a person from the shop floor with machining experience. When making the decision between these two options,

consider these points.

A newly degreed engineer will most likely not have any experience in gear manufacturing, and he or she will require a lot of information to get up to speed. But on the other hand, don’t forget that these individuals do have the traditional training as engineers, and this will often help in their transition to becoming productive members of your engineering team.

As for developing people from the shop floor, the benefit here is that they will likely have a wider knowledge of general gear manufacturing principles. And the deeper their machining experience, the better off they will be. Obviously, a tooth grinder will have more developed experience than someone in turning. But keep in mind that the transition to the role of engineer will require a lot of new information, and you need to allow time for this.

Here is another thing to consider in the comparisons between a newly degreed engineer and someone from the shop floor. Generally, it is not feasible for this person to be in training eight hours per day every week. People can only take in so much new information effectively. If the trainee was an operator, they can spend their off-training time working with the person who replaced them and sharing their machining knowledge. For a trainee who is a degreed engineer, in their off-training time, consider assigning other engineering tasks like designing tooling or fixtures so that they can be as productive as possible.

The bottom line here is that you will need to carefully evaluate each of these two options in the context of your organization and your needs. However, in either case, it’s best to explain clearly to the trainee that this will be a long process that will cost the company a significant amount of investment. Make sure that they are willing to make a personal commitment to you to complete the training and continue

contributing to the company after their training is completed. Obviously, you can’t make the trainee an indentured servant, but it is important that this expectation is communicated.

## Assigning a Mentor for Guidance

For ensuring the best results, it is advisable that you select an experienced engineer in your department to act as the primary mentor for the new engineer. This individual will be tasked not only with sharing information, but to also with guiding the trainee through the trajectory of his or her training program. The mentors will be the ones to give and review assignments, and gauge when the trainee is ready for the next level.

But you might be thinking, “Joe, come on, the reason we need another process engineer is because our guys are swamped. We don’t have time to pull our experienced guys off of their projects.” If this is the case, you might consider engaging the services of a consultant or recent retiree for this role. By having them in your plant several hours per week, or available for email and phone communication, you can avoid putting additional responsibilities on your existing engineers.

Again, as I said before, it will be a long road to transform a trainee to an experienced process engineer. For this reason, it’s best to work a well thought-out plan for how the engineer’s training will progress. Consider these steps in that sequence.

## The Course of Study

To begin, have the trainee spend time in all of your departments. Have them speak with the operators for insights about how and why certain things are done. It has been my experience that trainee engineers are often dropped into the engineering department to absorb information. Don’t overlook this valuable introductory learning opportunity to have the trainee really get to know

each area of your manufacturing operation. Perhaps this time in the shop can take place for half of the day, with the other half spent in your engineering department learning from the mentor or other engineers.

Provide the trainee with a capabilities spreadsheet for all of your operations so that they know the scope of your capabilities and the tolerances that are possible.

Have the trainee tour the facilities of your vendors that perform outside services. They need to understand these operations as well as those performed in-house.

Seek out opportunities for outside training courses, such as community colleges or industry seminars that provide insights to your specific manufacturing process. The American Gear Manufacturers Association (AGMA) is a valuable resource for this type of training. Also, be sure the trainee is receiving key publications for the industry like *Gear Technology* magazine, and encourage them to carefully read all of the technical articles.

Have the trainee learn the CAD/CAM software used by your company. This should include both formal training as well as the opportunity for self-paced experimentation.

Provide the trainee with existing processes for proven methods of manufacturing on past jobs. Have them start with a study of the blueprint, and then have them study the actual process.

Have the trainee study various specifications required by your customers so they know how to read these and what to look for as a process engineer.

Using blueprints from past jobs, have the trainee develop his or her own process, and then compare those to the proven methods developed for those jobs.

Have the trainee begin processing simple jobs for your customers.

Finally, begin assigning processing assignments for more detailed and complex jobs for active orders.

In time, if you picked the right candidate, this person will have a good knowledge of your capabilities and will be able to take part in this valuable role for your company and contribute to your profitability.

### **A Final Word**

*If there is a topic you would like to have addressed in this column, please send me an email at [ArvinGlobal@Gmail.com](mailto:ArvinGlobal@Gmail.com). Also, if you have a particular problem or question, please call me at 815-600-2633. I'm always happy to provide some free advice.*

*Also, if you missed any of my previous articles in 2017, here is a list of them by issue number and page. If you'd like for me to send you a copy, please send me an email or give me a call.*

### **Business Development for the New Year**

*Jan/Feb 2017 - Page 50*

### **It doesn't matter how efficient your plant is!**

#### ***What matters is the accuracy of your quote?***

*Mar/April 2017 - Page 54*

### **Can Lean Manufacturing Kill Your Job Shop?**

#### ***A Tale of Two Companies***

*May 2017 - Page 42*

### **You Cannot Rely on Labor Efficiency Reporting!**

*July 2017 - Page 48*

### **The Valued Troublesome Employee To Terminate or Not To Terminate**

*September/October 2017 - Page 22*

### **Strategies for Building Your Business**

*November/December 2017 - Page 54*

**Joe Arvin** is a veteran of the gear manufacturing industry. After 40 years at Arrow Gear Company, Joe Arvin is now President of Arvin Global Solutions (AGS). AGS offers a full range of consulting services to the manufacturing industry. His website is [www.ArvinGlobalSolutions.com](http://www.ArvinGlobalSolutions.com) and he can be reached by email at [ArvinGlobal@Gmail.com](mailto:ArvinGlobal@Gmail.com).

