Palomar College

Industrial Technology

Advisory Committee Minutes

Feb. 14 2019

**Introduction:**

We held our first Industrial Technology advisory meeting January 2018. This year I wanted to visit the sites of the attending member’s and new member’s work places. I wanted to see first hand their machinery and talk about the software that is used in their industry.

**Solar Turbines** Feb. 23, 2019

Tom Russell (619) 544-2541

Team Lead

Experimental Manufacturing and Tooling

1. We talked about how one of my best students was doing. Brandon secured employment and an apprenticeship through Solar Turbines. Tom is a master machinist and is in charge of training the apprentices. This is a 5-year program and Branded is in his last year. Tom was impressed with Brandon’s experience with SolidWORKS and MasterCAM, which he learned at Palomar.

2. We talked about the machines they use. The apprentices start out with “Hand Turning” machines and move on to CNC machining. We talked about Palomar‘s machinery and the fact that we don’t have any hand turning machines. His recommendation is that when we get more room and as the program grows we should incorporate a little training on manual mills and lathes.

3. We talked about the software that is used at Solar Turbines. Their main drafting package is Creo. I explained we have one class in Creo, and he suggested that we add an advanced class in the drafting department. The machining software used is FeatureCAM. Tom said it would be nice to have students with some experience with the software, but MasterCAM is a good base to start with.

4. We talked about precision measuring. I talked about our training with the basics using the dial calipers, micrometers, surface plates, gage blocks and pins, and indicators, along with an introduction to measuring with a CMM (Coordinate Measuring Machine). Tom stated that all of these are important tools of the trade, and are great stepping-stones for his program.

**RC Machine** March 3, 2019

Rick Carroll

Owner

First let me say, that without Rick’s help we would not have a CNC machine shop. Rick has spent countless hours helping me specify machines, set up the machines and teaching me MasterCAM. I have talked to Rick many times in the past year about our program. Rick has also help me set up the Geometric and Dimension and Tolerancing class, and has provided me with parts for students to measure.

**Meziere Precision Manufacturing** Mar. 27 2019

Mike Meziere (760) 746-3273

Owner

I spent some time with Mike, he talked about the software and machinery used in his shop. Specifically, they use SolidWORKS for their 3D modeling and MasterCAM to program their machinery. They have many Haas machines that are used to manufacture their products. I appreciated Mike’s time, and he was very busy, and introduced me to Johna Symons who gave me a tour of the entire shop. As we walked around I noticed their Haas mills were like ours, only much larger. There were mostly mills and a few lathes, however they had a Haas laser cutter that was used quite a bit. Johna said that all of their manufacturing was MasterCAM controlling the CNC machinery. I asked if they had any “Hand Crank” machines and he said they very little. We went to an area where there were some very great quality older machines, but they were specific for cutting gears and broaching and grinding.

The laser cutting and engraving is something that I have thought about incorporating into our program. I examined some of the cuts that their laser cutter did, and it is far superior to our water jet cutter. The laser engraver is used to cut in the company logo along with serial numbers for all products. Johna said it might be a good idea to introduce students to the laser cutting and engraving processes.

We went through the assembly area where the products are assembled and packaged. Johna felt that this might be another area that would benefit students, the assembly of a product, so students could see how parts fit together. I agreed, and said it would also help students understand tolerances between parts.

As I was leaving, I saw Mike and thanked him for his time and support. I also asked him that if there is anything that I need to add to my program that would help my students get employment, that he should feel free to call me or send me a note, and I would address and concerns. Mike did think for a minute, and said we wanted to give some more time to think and would get back to me.

**Enstrom Mold** Mar. 21, 2019

Cherie Enstrom (760) 744-1880

Enstrom Mold has been a member of my drafting advisory committee for many years. They were supportive when the drafting committee asked for support to start this CNC certificate. I talked to Cherie about the software they used to control their CNC machines and she replied that MasterCAM was the only software they use. Cherie also reminded me that they still use SolidWORKS exclusively to 3D model their projects. I gave her a copy of the classes required to obtain the certificate and she wanted to look over the classes and get back to me with any suggestions.

**Swissmeca** Mar.21 2019

Kevin Boegli (760) 738-5529

Production Supervisor

Kevin is familiar with our program. He attended our first Industrial Technology advisory committee meeting and supported the class structure and curriculum. SolidWorks is used at his company, but writes most of his own G-Code for the machinery, but does use programming software called BobCAM. Kevin did suggest that we incorporate tool grinding somewhere in the program. He did say that we would need a special grinder to grind custom tooling.

**C & H Machine** Mar. 21 2019

Patrick King (760) 746-6459

CNC programmer/Manufacturing Lead

Patrick knew about our program. One of his operators is taking my Geometric Dimensioning and Tolerancing class this semester. The company does have some Haas machinery, but they are really working towards more 5-axis machining. They use some MasterCAM, but they have been using HyperMill to do the 5-axis programming.

I also asked Patrick that if there is anything that I need to add to my program that would help my students get employment, that he should feel free to call me or send me a note, and I would address and concerns. Patrick wanted to review our classes and our course outlines and get back to me when he had more time.

**See Scan** April 9, 2019

Kirk Joy (760) 666-0512

Machine Shop Manager

I first met with Loretta Kratz the Recruiting Manager and she gave me a tour of the campus. Very nice, this company really takes care of their employees. There was a walkway all of the way around the facilities, fruit trees, and a company garden. Inside there was a bird aviary and a coy pond where employees could relax and gather their thoughts. Next I was introduced to Kirk Joy and got a tour of the massive machine shop. They had many Haas mills similar to the ones we have. We talked about the Haas mills and they were happy with their performance. Two years ago they purchased a large 5-axis mill and are starting to produce more parts using the 4 and 5-axis machine. We talked about MasterCAM and they did use some, but their main programming for the CNC machines is FeatureCAM. The 5-axis programming was proprietary to their specific machine.

I did ask about the use of the manual machines that were around the shop. Kirk said that most of them are being phased out, but they still use them once in a while for some special work.

We discussed our program and I asked about any recommendations he could make to the classes we offer. Kirk liked the GD&T class and the link to actual precision measuring with our tools and CMM machines. I asked Kirk what he would like to see from students applying for an entry-level machinist and in his opinion he stated he would like the students to have the following:

 1. Basic cutting a rough block to size using a saw. (We cover this IT-191)

 2. Square a block to size. (We cover this in IT-191

 3. Speeds and feeds of tooling. (We cover this in I-191)

 4. Basic computer skills. (I told him we work on this in all of our classes)

I then met with Cuc Nguyen the Engineering Manager. Cuc is a member of my drafting advisory committee and she was instrumental when I proposed the Industrial Technology Machining Certificate. Cuc spoke to the need in her company and was the first vote for approval.

**DeepSea Power & Light** April 9, 2019

Jon Simmoms (858) 430-4320

Design/Drafter Machine Shop

Bruce McDermott

Machine Shop Supervisor

Jon gave me a tour of the facilities; they have Haas machinery and also EDM machines, laser cutters and 3D printers. I then met with Bruce and we talked about our program and what he would like to see from potential employees. Bruce’s main concern was the attitude and desire to learn. He then really looks for experience in the “Set-Up” process. They both did recommend experience in laser cutting and engraving. They do a tremendous amount of 3D printing, but that is usually handled by through the drafting department.

**Hunter Industries**

I have an appointment Tuesday April 30 with Hunter Industries. They have heard about our shop and see the shop program and talk to me about our program. I will add the meeting notes to this as an addendum after the meeting.

**Conclusion and Recommendations**:

I actually really enjoyed visiting the machine shops in the area. I found the smaller shops use SolidWORKS, MasterCAM and Haas Machines. The larger companies use a variety of machines and programming software. The common threads are the following:

 1. Can the student transfer the skills from Palomar to their specific needs, and it looks like the successful students will be able to.

 2. Quality Control is important and being able to use the measuring tools that match their tools is essential to accomplish spot measurements and insure product accuracy and precision.

 3. Attitude and the willingness to learn more. These companies know that I cannot teach them everything. They are looking for students that show “Potential” and that they can invest in for long term employment.

 4. Add basic knowledge of hand tools to the curriculum.

 5. Add basic knowledge of hand tools to the curriculum. Not just mills and lathes but other basic tools like cold saws for roughing out material.

 6. Think about adding laser cutting and engraving.

 7. Everybody was happy with the direction that Palomar is going with the machining program. They all said that when they are looking for an entry level person, they would contact me for a referral.