**Fullerton College**

**Manufacturing Technology Machining**

**Machine-Metrology-Automated Technology Advisory Committee**

**Agenda**

Fullerton College Manufacturing/Machine/Metrology/Automated Technology

Meeting ID

914-9553-5150

No Required meeting password

Invited Attendees

Join URL: <https://cccconfer.zoom.us/j/91495535150>

Thursday May 7th, 2020, 3:30pm to 5:00pm

# Welcome and Introductions: Dan O’Brien, Department Coordinator

* **Department Update:** Dan O’Brien/ George Bonnand, Faculty

# Disneyland Resort/Park Apprenticeship Program

# New and On-Going Department Grants

# New Curriculum/Courses/Certificates

* **New Potential Curriculum**

# New Equipment/Software

# Future Staffing and Space Requirements

# Donations

# Student Recruitment and Conference Activities

# Round Table Discussion

# Department Motions

# Committee Members

**Proposed Discussion Items**

**for**

**Machine-Metrology-Automated Technology Advisory Committee Meeting**

Fullerton College Manufacturing/Machine Technology

Thursday May 7th, 2020, 3:30pm to 5:00pm

**Department Update: (Note: Items will be discussed at varying levels of detail)**

# Disneyland Resort Machinist/Sound Mechanics Program:

## Number of cohorts currently enrolled

## New Machinist Cohorts start Spring Semester

* Machine Cohorts complete in Fall Semester and Sound Mechanics complete in Spring Semester (eight semesters)
* Certificates Earned

# New and On-Going Department Grants:

* Strong Workforce Initiative Funding $461,000 for Precision Machining and Metrology. Funding for Year-One is **$230,500.** Funding for Year-Two is **$230,500.**
* VTEA Funding-Requested funding of $314,000 for new equipment.



# New Curriculum/Courses/Certificates -Review of Courses and Programs (SLOs, Objectives, Outlines, etc.):

# Mini-Metrology Certificate is pending State approval as of April 2019. Courses are implemented and have been successful since Fall 2018.

# Metrology Certificate is State approval as of April, 2019

* Conversational Programming Certificate is pending State approved as of April 2019. Courses are implemented and have been scheduled as of Fall 2020.
* CNC Operator Certificate-revised certificate is pending state approval as of April 2018.
* Electro-Mechanical Technician Certificate-Pending approval at DCCC
* Automation Fundamentals Certificate-Pending approval at State
* Industrial Maintenance Certificate-Pending approval at DCCC
* Engineering Technology Certificate-New -in process-pending approval in CNET
* Industrial Technology AS-Approved April 2019 and currently under revision
* Fusion 360 course-Mach 157 has been approved but not offered as of yet.
* Conversational programming course(s) -Incorporation of conversational programming courses into Certificate program with Machine 101 F, Machine 105 F and 106 F.

# All Machine/Metrology Technology courses are now completely revised as Level-100 or higher and are State approved. See Table 1

* Technology related courses for the Automated Fundamentals Certificate; Electro-Mechanical Technician Certificate; Industrial Maintenance Certificate; and Engineering Technology Certificate have been approved by the State. See Table 2
* All courses are being reviewed to determine whether courses can be taught online/hybrid or not.
* Review of Course Outlines and Program Outlines for Objectives; Student Learning Outcomes (SLOs); etc. for all courses/programs per handout material.

Table 1-Machine/Metrology Technology related courses (\*\* in front of the course name indicates courses are to be reviewed/revised for online instruction pending)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| \*\*MACH 101 F Introduction to Machine Tools \*Active\* | \*\*MACH 110 F CNC Machine Set-Up and Operation \*Active\* | MACH 142 F Advanced CNC Swiss Style Lathe Set-up and Operation \*Active\* | \*\*MACH 157 F Computer-Aided Manufacturing \*Active\* |  |
| \*\*MACH 102 F Intermediate Machine Tools \*Active\* | \*\*MACH 115 F CNC Parts Programming \*Active\* | MACH 145 F Basic CNC Swiss Style Lathe Programming and Applications \*Active\* | \*\*MACH 180 F Introduction to Metrology \*Active\* |  |
| \*\*MACH 103 F Advanced Machine Tools \*Active\* | \*\*MACH 116 F Machine Tools \*Active\* | \*\*MACH 150 F CNC Programming Using Mastercam \*Active\* | \*\*MACH 182 F Introduction to CMM Inspection and Romer Arms \*Active\* |  |
| \*\*MACH 104 F Advanced Topics in Machine Technology \*Active\* | \*\*MACH 120 F Advanced CNC Machining \*Active\* | \*\*MACH 152 F Advanced CNC Programming Using Mastercam \*Active\* | \*\*MACH 184 F Advanced CMM and Romer Arm Inspection \*Active\* |  |
| \*\*MACH 105 F Conversational Programming I \*Active\* | \*\*MACH 130 F Multiple Axis CNC Set and Operation \*Active\* | \*\*MACH 154 F CNC Programming Using Surfcam \*Active\* | MACH 185 F CMM and Romer Arm Applications \*Active\* |  |
| \*\*MACH 106 F Conversational Programming II \*Active\* | \*\*MACH 140 F Basic CNC Swiss Style Lathe Set-up and Operation \*Active\* | \*\*MACH 156 F Advanced CNC Programming Using Surfcam \*Active\* | \*\*METL 192 F Metallurgy \*Active\* |  |

Table 2-Technology Related Courses (\*\* in front of the course name indicates courses are to be revised for online instruction)

|  |  |  |
| --- | --- | --- |
| \*\*TECH 081 F Technical Mathematics I \*Active\* | \*\*TECH 132 F Basics of Electric Motor Controls \*Active\* |  |
| \*\*TECH 082 F Technical Mathematics II \*Active\* | \*\*TECH 135 F Introduction to Programmable Logic Controllers \*Active\* |  |
| \*\*TECH 088 F Technical Science \*Active\* | \*\*TECH 136 F Computer Integrated Manufacturing and Advanced PLC \*Active\* |  |
| \*\*TECH 108 F Manufacturing Processes \*Active\* | \*\*TECH 137 F Electronic Instrumentation and Networking \*Active\* |  |
| \*\*TECH 127 F Industrial Safety \*Active\* | \*\*TECH 138 F Electronic Instrumentation and Networking II \*Active\* |  |
| \*\*TECH 131 F Basic Electricity and Basic Electronics \*Active\* | \*\*TECH 199 F Technology and Engineering Independent Study I \*Active\* |  |

**New Potential Curriculum**

# Open

# New Equipment/Software:

* 2 TAKASAWA TCC1100 lathes with robotic loaders to replace 2 aging and unsafe FEMCO lathes (in-process).
* 1 HAAS ST10Y lathe with Y axis to replace aging current HAAS lathe –Fall 2019.
* 2 Universal Robotic Controller robot arms-Received February 2020
* 1 HAAS Mini mills with updated controller to replace aging current HAAS mini mills (VTEA 2019-TBD).

# Future Staffing and Space Requirements:

## Additional space is needed for equipment (Romer arms) and Inspection Workstations. Another Instructor is needed to teach the Metrology Program and other disciplines.

# Donations:

## Gene Haas Scholarship $15,000

## Anderson International donates “Baltic Birch Plywood” on an on-going basis.

## Master Chemical/Coast Industrial’s donations include—Trim Sol Microsol 585xt Coolant, oils, cleaners, and cutting tools.

* TRAK Machine Tools-(formerly Southwest Industries)-Donation of two Protrak milling machines
* Senga Engineering- Material Donation-Stainless Steel and Tool steel donation

# Student Recruitment and Conference Activities:

## Technology and Engineering Division Facebook Page

* Machine Technology LinkedIn Page
* CTE Anaheim High School Pathways Day, April 2019
* Technology and Engineering Website-revised
* National Manufacturing Day, October 5, 2019
* Smart Start Saturday at Fullerton College, August, 2019
* Major Declaration Day-March 2019
* California High School Career day, February, 2019
* Bolsa Grande High School Career day
* Western High School Career day
* Anaheim Union Career day
* High School Career Days and Presentations (La Serna/La Vista, Anaheim Union High Schools)

## Fullerton College CTE Counselor Event, March 2019

**Round Table Discussion**

* **Directed by Faculty**

**Department Motions by Committee Members To Approve the following:**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **New** | **Revised** | **Title of Programs or Courses or items in need of updating and approval** | **First Motion** | **Second Motion** | **Approved** |
| x |  | Mini Metrology Certificate | x | X | x |
|  | x | CNC Operator Certificate | x | x | x |
| x |  | Conversational Programming Certificate | x | x | x |
| x |  | Electro-Mechanical Technician Certificate | x | x | x |
| x |  | Automation Fundamentals | x | x | x |
| x |  | Industrial Maintenance Certificate | x | x | x |
| x |  | Engineering Technology Certificate | x | x | x |
| x |  | Industrial Technology Certificate | x | x | x |
| x | x | All courses materials (with updates as necessary) mentioned in Table 1 and 2 | x | x | x |
|  | x | All courses to maintain a maximum class size of 20 or smaller. | x | x | x |
| x | x | All programs associated with courses mentioned (with updates as necessary) in Table 1 and 2 | x | x | x |

Note: See addendum materials for Programs and Courses above.

Committee Members

**Meeting Minutes for the Machine-Metrology-Automated Technology Advisory Committee Meeting on 5-7-20.**

**Note: 4 zip files and an agenda were emailed to each member for review ahead of the meeting on 4-24-20. Members were asked to review each zip file and the agenda.**

Audio Transcript of Zoom meeting: <https://cccconfer.zoom.us/rec/share/_5xKH7rurVxISK_KzXDtQLEOTtvAT6a81CBI__pfy0gXI5KUuNoqUptquxE-JTti>

The Zoom Meeting came to order on 5-7-20 at approximately 3:35PM. The following members were present:

Dan O’Brien-Fullerton College and D.F. O’Brien and Associates

George Bonnand-Fullerton College

Michael Benson-Adjunct faculty

James Duarte-BASF Inc. and Adjunct faculty

Brooke Haueisen-Hutchings Technology and Adjunct faculty

Larry Deptula-TRAK Machine Tools

Ray Elledge- Verisurf Inc.

Jason Lovelace-Disney

Terry Schmidt-Automation Pathways-Santiago College

Diana Ramirez-Reborn Cabinets

Dan Carter-Fullerton College

Dan O’Brien started off the meeting with introductions. All members introduced themselves.

Dan O’Brien gave an overview of the current state of affairs with the given the Covid-19 issues facing all community colleges. All college courses have gone to “Remote Instruction” for the remainder of this semester and for this summer.

For Fall 2020 the method of instruction is yet to be determined given the current flux in the daily situations regarding Covid-19. However, Dan stated that if we have a good documented plan for conducting lab safely we may be able to proceed with face to face instruction as normal or as the a “new normal” face to face. He stated there are number of things that must be done first before we can do that so that we can ensure student safety. First spacing then PPE equipment, wash hands and wipe down equipment. Now what happens if the student tests positive for Covid-19. What do we do now? We have to have written set rules before we get started.

We have submitted 3 plans for the Fall 2020 schedule. Plan A is the normal schedule with our normal courses; Plan B are those courses that are to be done 100% online only where we have removed lab intense courses that need hands on instruction-Dan when on to explain which classes were affected and which ones were not affected; the third plan is a hybrid plan where the first 8 week is 100% remote instruction only and the second 8 weeks we are allowed to work in the lab.

Dan spoke about funding, equipment and number of people of we could schedule in a class.

Dan spoke about the Disneyland resort training program and the number of cohorts and the fact that they are on furlough.

Jason Lovelace discuss the current state of affairs with the cohorts and what is happening with the Disney program and how they are on furlough hence they cannot go on with the courses.

Dan moved on to VTEA and Strong Workforce funding which we have used to purchase new equipment. Details were given as to what was purchased with these funds. Seeking of additional funds will not happen this year in order to take a step back and learn the new technology thoroughly that has been acquired.

Dan stated we have money from the Gene HAAS foundation which will be awarded to students this semester. Brief details were given as to the current status of the program, the applications process and the awards that will be given to each student. More money will be applied for by June 30th from the Gene HAAS foundation for next year in hopes of receiving more.

Dan stated that we at Fullerton College are very well financially supported as compared to other colleges for our normal funding.

George Bonnand was then asked to speak in regards to the Curriculum (Courses and Programs).

George stated that everyone on the committee should have received a zip file with all the courses and programs.

George gave an overview of each new/revised certificate and degree listed on the agenda, stating the status of each and/or where they are at in the process in regards to the Curriculum, District and State. Explanations were given as to the status. Many are awaiting state approval at this time.

George gave a brief overview of what constitutes Remote Instruction; Online instruction; and Hybrid instruction for courses.

George stated OTC certification for instructors teaching Online and Hybrid courses starting Spring 2021 will be required. Training will need to be completed by Spring 2021 in order to teach online or hybrid courses.

A brief overview of each MACH and TECH courses listed on the Agenda was given. Course prerequisites were given along with an explanation of sequencing.

Dan stated that many of the TECH courses were a direct result of the Disney program and that the apprenticeship programs such as the Machinist program and Sound technician program have been the reason most these courses were developed and have also brought back courses in this area which were almost dead.

George did an overview of the:

* “Courses Outline of Records” information that is present on each course COR as well the methods of approval; SLOs; Instructional Objectives; etc. for each.
* “Program of Study” information that is present on each program POR as well the courses required to complete a certificate.

George stated that the committee will need to take a vote on whether to approve all courses and programs listed on the agenda. George asked if there were any questions or concerns with the courses and programs listed. No questions were voiced or noted. Some members voiced approval.

George when on to give an overview of the course information, in-depth course syllabus, LMS system (Canvas), etc. that is used to teach the MACH Tech courses. Members seem to be pleased with courses and programs presented.

Dan O’Brien then was asked to take over the discussion to inform everyone about the “New Equipment and Software” that has been purchased with the VTEA and Strong Workforce money. An overview of each item listed on the agenda under “New Equipment and Software” plus the NC Simulation and VeriSurf software was given to the committee. Explanations/justifications were given as to why we purchased each piece of equipment/software and how it relates to our metrology and automation theme and programs.

Dan and George asked the committee if there were any “New or Potential Curriculum” (courses or programs) that we should look at or things that we should be doing that we are not doing?

Jason Lovelace asked if we could go back and touch on the TECH 081 course. Jason stated he was impressed with the curriculum. Dan stated there were a number of courses that were created in the TECH area to support the Disney Sound Technician program as well as Automation certificate. Jason state we have a lot going on and congratulated us on our hard work. George then brought up the TECH 081 F course of record outline onto the screen for everyone to view and summarized what the TECH 081 F course outline covered.

Jason stated he is looking forward to the Metrology Certificate. Jason then asked about the metrology program and the two certificates. Dan and George summarized the two metrology programs, courses to be taken, why students should take it, and who they were designed for. Jason stated the two tier method is a smart approach to teaching the program. All courses are stackable which means they count for something and that they all lead to an AS degree in Manufacturing Technology. Jason stated it was a smart way to do things, well thought out, applies to the local environment and that he liked the way we did the program with the stackable courses.

Terry Schmidt ask what is the composition of our students? High School students, industry professional, re-entry students, etc.

Dan O’Brien stated we get all types of students in our program. He summarized the type and who our audience is. Dan mentioned the recruiting efforts that is done by all members of the faculty in our department at high schools, career fairs, etc. to meet the shortage and current demand of the industry. Dan mentioned we try to recruit from various areas to meet the demand.

Terry then asked about class size of the courses and how many people are enrolled? Are the classes full? Dan answered the questions by stating that some classes are full and some are not depending on when the class are offered. Night courses seem to fill up more than day courses. Dan stated we like to keep class size to 20 due to safety concerns and issues regarding supervision. Dan also stated how we double up on courses offered such as MACH 102 and 103 are combined and being offered at the same time since our fill rate minimum is 60% for each class. Dan spoke about how some courses are difficult to fill such as our CNC Swiss course and the college does allow it to go with a minimum class size number since it is an advanced course topic which is very generous of the college to allow this.

Terry then asked if there were any industry credentials available to students once they finish or complete certain courses via an exam or demonstration to get a credential? Dan answered the questions by stating that we have our certificates which are very well respected in the industry. Dan also discuss NIMS credentials which are respected with employers on the East coast and Midwest but not so much on the West coast. Employers here on the West coast do not really look for this credential that we have found. Dan when on to discuss some of the details of NIMS certification and the financial requirements for maintaining the NIMS certification. We are not looking at this time to do NIMS.

Terry stated we do not need NIMS certification because we are way beyond it. Terry stated we are doing a good job.

George Bonnand then stated that SME has similar certifications however this certification may put a financial burden on students and that the certification would be of limited use to them. This SME certification is of limited use unless you are at the Engineering level but not Machinist or similar. Most employers are looking for individuals who have hands on skill and can think on their feet hence this is what we teach.

The topic then changed to “Future staffing and space requirements”. Dan spoke about our biggest problem which is space in the lab. We cannot grow but we can replace equipment because of safety issues. We might be able to add robots or similar things like that but even then the robots no place to go. Dan stated there might some space opening up in the next year or two due to the new building currently being built on campus across from the 900 building.

Dan spoke about how Brooke has been very involved with Metrology program and the 3D printer we now have. We are now looking at going into more of the industrial automation using robots and applicable tools. Dan spoke about the printing shop next door which may move which would open up some space. This would allow us to grow the metrology program since we do not have adequate space for metrology and 3D printing right now. Due to the new building being built next to the machine shop this will create a number of new classrooms. These new classrooms may free up space from the 700 building next door to the 900 building which could provide additional lab space for our program. Dan stated he would like a dedicated Metrology lab and to get more into 3D printing if possible.

Dan stated in regards to staffing that we are fortunate to have Brooke as our instructor who has championed the program. The Metrology program is too much for Dan to undertake at this time by himself so he is hoping to get a full time position added and approved for the Metrology/Technology area. A person who has a variety of skills that can teach metrology and other technology course is what we are looking for. Dan stated that we did request this and that it made to a priority 11 out of 20 however the college only hired the first 4 which is the process. Next year it may move up the ranking and it may get to the point where we may hire someone for the position. Dan stated again our biggest problem is being space challenged so that we can have room to grow.

The subject then changed to “Donations” we received at the college. George Bonnand reviewed the list on the agenda of donations which could be seen on the Zoom screen and gave some details as to how they are each used.

The subject then changed to “Student Recruitment and Conference Activities” listed on the agenda. Dan when over in detail the various websites we maintain and high schools career days we visited this past year to recruit students. Dan also spoke about the various conferences (HTEC, IMTS) and college events (SMART Start Saturday, Career day, Counselor meetings, etc.) that we attend on campus to recruit students. Various projects are shown at these events to show the range of industries that machining is involved in especially medical manufacturing. Students and parents still have a misconception about manufacturing hence the medical device parts seem to stir interest since these are important parts that both students and parents can understand better. Dan stated that he and George like doing these types of events and recruitment activities and are always open to doing this more. However it must be stated that these events and activities have been eliminated as of late due to the Covid-19 issue.

The subject then changed to “Department Motions by Committee Members To Approve” items listed in the table shown in the agenda under this topic. George Bonnand suggested that we approve all items listed in the table as a block. Dan O’Brien made the first motion to approve and James Duarte seconded the motion. George Bonnand then asked for all those in favor to say “I”. A number of “Is” were heard. No “nays” where heard or viewed on the chat line. All items listed in the table below were approved.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **New** | **Revised** | **Title of Programs or Courses or items in need of updating and approval** | **First Motion** | **Second Motion** | **Approved** |
| x |  | Mini Metrology Certificate | x | X | x |
|  | x | CNC Operator Certificate | x | x | x |
| x |  | Conversational Programming Certificate | x | x | x |
| x |  | Electro-Mechanical Technician Certificate | x | x | x |
| x |  | Automation Fundamentals | x | x | x |
| x |  | Industrial Maintenance Certificate | x | x | x |
| x |  | Engineering Technology Certificate | x | x | x |
| x |  | Industrial Technology Certificate | x | x | x |
| x | x | All courses materials (with updates as necessary) mentioned in Table 1 and 2 | x | x | x |
|  | x | All courses to maintain a maximum class size of 20 or smaller. | x | x | x |
| x | x | All programs associated with courses mentioned (with updates as necessary) in Table 1 and 2 | x | x | x |

George Bonnand stated that if any member had any questions about any of this that they should email him at his email address [gbonnand@fullcoll.edu](mailto:gbonnand@fullcoll.edu) and that he would give them any information they would like regardless of the number of emails it would take.

The topic was then changed to a “round table” discussion to get as much input from the committee as possible.

George Bonnand asked Terry Schmidt if the program curriculum that he has seen here at Fullerton similar to what he has seen at other schools? Terry indicated we are way ahead of everybody else and that we are doing a great job. Terry indicated that what he likes most are the courses we have selected for the automation program which are in alignment with many of the programs we offer and are in alignment with the many career pathways for students in other disciplines. George stated that we are trying to comply with guided pathway principle which is what the community college system state wide is going towards which allows students a clear pathway to a certificate, degree or transfer to a 4 year school.

Terry stated that the other five college that are working on the automation certificate have programs in HVAC, Automation, Energy, etc. which all have the same fundamental courses across the board due to the same knowledge being required. Terry indicated he is working on making sure that students who take any of these courses can transfer to any of the other five colleges for a career path that they want to pursue. George Bonnand stated he is willing to work with Terry on any paperwork that is need to make that happen. Terry stated he is working on an umbrella program that would incorporate everyone.

Some positive comments were made regarding the program. Diana Ramirez joined the late but introduced herself. She stated she had some information she would like to send to George Bonnand the next day.

George Bonnand stated that he is more than happy to send any of the information covered today to any member of the committee.

Meeting concluded at 5:01PM