

The Academic Senate for the California Community Colleges (ASCCC) hosted a series of thirteen (13) “Trade Laboratory Modifications for Online Environments” webinars from April 1-23, 2020. These 13 webinars were part of a larger series of webinars to assist the field with the changing classroom environment as a result of the onset of the COVID-19 virus. A total of 134 people registered for the webinars. These webinars were facilitated by Carrie Roberson, the North Representative on the Academic Senate Executive Committee/Career Technical Education Leadership Committee Chair; Andrew Maz, Professor of Commercial Music and CTE Liaison, Cerritos College and Dr. Lynn Shaw, the Statewide Academic Senate CTE-CID Curriculum Chair.

These open discussions were a forum to share best practices as well as questions and concerns about teaching labs. The webinars were meant for Career Technical Education (CTE) faculty, where labs play a critical role in preparing students for the 21st century world of work. Multiple CTE disciplines were represented including, Automotive, Welding, Mechatronics, Electrical Technology, Fashion, Fashion Design, Culinary, Early Childhood Education, Drafting, Aeronautics, Pre-Emergency Medical Technician, Allied Health, Forklift, Construction, Hospitality, Business, Dental Hygiene, Energy and Utilities, Professional Studies, Machining, Technical Theatre, Applied Technology, Industrial Maintenance, Cosmetology, Music Production, Horticulture, Engineering Tech, Water Technology, Computer Aided Drafting, Digital Media, and Agriculture. We were also joined by a few administrators, distance education coordinators and some Spanish, counseling, physics, chemistry, and biology faculty.

Faculty present shared tips and practical suggestions that they were successfully using in the online environment. Many faculty are focusing on the essentials in labs and saving all the “extras” for the return of face-to-face labs. Other faculty are using this pandemic to revamp their entire program. All faculty were practicing “unrelenting flexibility”. However, there seemed to be universal agreement that hands-on labs were critical for CTE students. The current situation offered opportunities to more fully utilize the online options, but most faculty were hoping to get back to hands-on labs. Although this is not possible right now, the overwhelming sentiment was that current campus restrictions are doing a disservice to students by not having face-to-face hands-on labs.

Since many of the CTE programs are sequential, the loss of large entry level classes can have a long lasting impact on the capstone courses. The loss of one semester or more will have a significant and negative impact on achieving minimum enrollment in the upper level course. Smaller class sizes should be allowed for COVID-19 impacted students. As soon as face-to-face labs can begin again, it is in the best interest of students to do so without waiting for a minimum class size to be met so students do not fall behind.

CTE faculty and others on these calls asked for additional information, webinars, and ways to connect with other faculty in their disciplines. They suggested the Academic Senate work closely with employers, employer organizations, the Chancellor’s Office, and colleges, to share solutions and best practices. Many faculty requested professional development on how to

teach on-line and the technical skills needed to produce high quality lab videos. They also were appreciative that the webinars gave faculty a chance to be heard and it made them hopeful that there can be some flexibility in the rules, regulations, and laws during the COVID-19 pandemic, to help students succeed. Some examples of future flexibility could include:

Adjust Scheduling of Labs

Several colleges have already decided to have Fall classes all online. The suggestion is to only offer lecture classes and offer lab classes in the Spring of 2021.

Super Charge Scheduling of Labs

Once the campuses are reopened offer extra sections, weekend sections, and short intensive sections of labs.

Conduct Open Labs

Record lectures, demonstrations so students can access information at any time during the day or night.

Integrate Virtual Labs

While most faculty agree that nothing beats hands-on, some faculty have found success with virtual labs, or online simulations in their disciplines. Many companies are offering free or reduced rates for use of their systems.

Utilize Students Employment as Lab

For students who are currently working in their field of study, work with their employers to utilize their work experience as lab credit.

Home Lab Kit

Loan tools and equipment by organizing a locally approved socially distanced Covid-19 exchange policy and procedure for the pick-up of tools and equipment so students can complete labs at home. For example, one robotics program prepared kits for students to make robots at home and then film them at work.

Separate Lab and Lecture

Some colleges have combined classes with both lab and lecture. It may be easier for students if lab and lecture are two separate classes.

Live Lab Demonstrations

Conduct live labs online so students can see it and ask questions as the demonstration goes along. Some faculty find that the filming of the labs works better because the students can see better instead of gathering physically around as the faculty demonstrates, the cameras get in close with no obstruction of their view. Multiple faculty are making the films/videos like the students are really there by using creative camera set ups.

Film Lab Demonstration

Complete all labs on film and post them for students to review. Some students have commented that they love the lab YouTube videos because they can pause, rewind, and view it on their own schedule.

Apprenticeship as Labs

Change the format of labs completely by using on-the-job training of an apprenticeship program as the lab component. The on-the-job supervisor of more skilled worker will sign off on the skills as the apprentice (student) shows competency.

Work Experience as Labs

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Return to the Labs

Some faculty advocated for returning to the labs as soon as possible and utilizing personal protective equipment (PPE). The lab class size would be reduced to 9, so that at any one time 10 or less people would be in the classroom. They also suggested a professional development training sponsored by the Academic Senate or the Chancellor's Office to train faculty to use PPE.

Open Hand-On Labs

Allow students who only had a virtual experience to attend the open lab in order to check skills once campuses reopen. Offer a hands-on badge for completing the in-person lab.

Use the Chat Room as a Lab Discussion

Have students write a step by step solution to a practical problem to solve. Once the student has posted a solution, let the students see other student solutions. Have the student comment on the other students' solutions. Have the faculty comment on each students solution. Many faculty also suggested using the reaction button (thumbs up, happy face) helps keep students engaged.

Lab Testing

Allow students to take exams multiple times until they demonstrate their competency and can pass the exam.

Social Distancing in Labs

Many labs already have social distancing built in to the current programs, such as welding.

Essential Business Labs

Some faculty advocated for the programs that are pathways to essential businesses be allowed to continue with their labs with all the social distancing and safety protocols in place.

Deploy Classified Employees

Classified employees that are tool room attendants or lab assistants can be utilized in an online lab environment to help the faculty keep in contact with the students. They can schedule calls, follow-up with students to assist technical issues, and help with logistical needs of the online lab.

Waive the funding formula

Faculty were concerned about future funding if the number of completers is smaller. The funding formula should be waived, modified, or changed to account for the COVID-19 impact on enrollment and completion. Suggestions include; use the numbers from the previous semester or year, waive some requirements until colleges are back in session, allow for the counting of students who complete everything but the hands-on labs.

Adapt Industry Standards

Work with employers and 3rd party certification organizations to soften some of the current standards to allow students to be provisionally certified until they can complete the hands-on labs.

Use Canvas

Voice Thread and Canvas can be used to have a student do a PowerPoint and give a talk to demonstrate understanding of the lab.

Use the Polling Feature

Many online platforms offer a polling function. Some faculty found that by polling the students there was more engagement.

Use iPen

Using an iPen with a PowerPoint to demonstrate understanding of the lab.

Use the Break Out Rooms in Zoom

Have students engage in small groups to discuss a practical problem to solve (even though they cannot do it on line) and present the solution to the faculty and other students.