

# Machine, Welding and Industrial Mechanics

MWIM



## 2020

### ANNUAL REPORT OF PROGRAM DATA



UNIVERSITY of HAWAII®  
**HAWAII**  
COMMUNITY COLLEGE

## 1. Program or Unit Description

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This program prepares the student for employment in the metalworking and mechanical/maintenance trades. Employment may be in construction, food processing, manufacturing, utilities, astronomical observatories, or related industries. The job requires good physical health, above average eye/hand coordination, mechanical reasoning, and good form perception and spatial relationship. Job responsibilities may include fabricating, repairing, or maintaining metal products on equipment, buildings, and systems.

There is no specific target population, but over the past years we have been reaching out to K-12 students and building our relations with high school programs.

## 2. Analysis of the Program/Unit

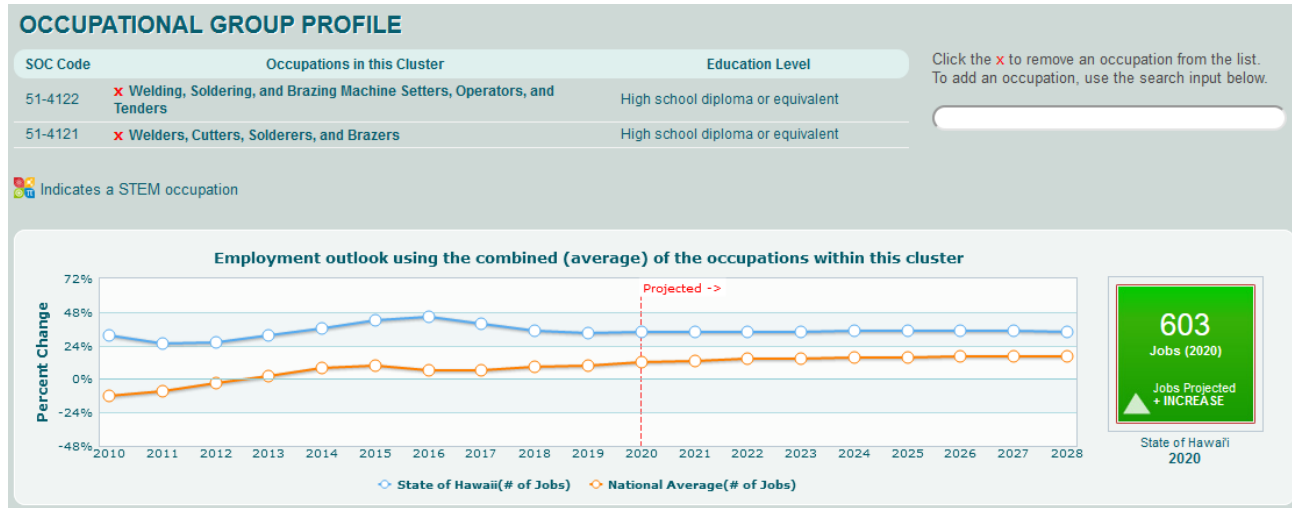
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### Demand Indicator: Healthy

#	Demand Indicators	2017 - 18	2018 - 19	2019 - 20	Demand Health
1.	New & Replacement Positions (State)	90	87	86	<b>Healthy</b>
2.*	New & Replacement Positions (County Prorated)	13	9	10	
3.	Number of Majors	35	30	30	
3a.	Number of Majors Native Hawaiian	14	15	16	
3b.	Fall Full-Time	86%	77%	87%	
3c.	Fall Part-Time	14%	23%	13%	
3d.	Fall Part-Time who are Full-Time in System	0%	0%	0%	
3e.	Spring Full-Time	85%	72%	89%	
3f.	Spring Part-Time	15%	28%	11%	
3g.	Spring Part-Time who are Full-Time in System	0%	0%	0%	
4.	SSH Program Majors in Program Classes	767	614	720	
5.	SSH Non-Majors in Program Classes	8	8	44	
6.	SSH in All Program Classes	775	622	764	
7.	FTE Enrollment in Program Classes	26	21	25	
8.	Total Number of Classes Taught	9	9	9	

The outlook for this industry looks great as the demand for new and replacement positions are forecasted to increase over the next 8 years (see below). Although the numbers reported on our ARPD (above) shows only 10 new and replacement positions, the demand is actually greater than this. As you can see below, the SOCs listed are limited to welding occupations. If you added the machinist and industrial mechanic's occupations to the cluster the demand will increase.

2020 Hawai'i Community College ARPD  
 Program: Machine, Welding and Industrial Mechanics



**Workforce Alignment:** Classification of Instructional Programs (CIP) -to- Standard Occupational Classification (SOC)

**Machine, Welding & Industrial Mech Tech**  
 CIP Code = **48.0508**

- 51-4121 - Welders, Cutters, Solderers, and Brazers
- 51-4122 - Welding, Soldering, and Brazing Machine Setters, Operators, and Tenders

**Efficiency Indicators: Healthy**

#	Efficiency Indicators	2017 - 18	2018 - 19	2019 - 20	Efficiency Health
9.	Average Class Size	15	12	15	<b>Healthy</b>
10.*	Fill Rate	84.1%	65.9%	82.3%	
11.	FTE BOR Appointed Faculty	1	2	2	
12.*	Majors to FTE BOR Appointed Faculty	35	15	15	
13.	Majors to Analytic FTE Faculty	35	15	15	
13a.	Analytic FTE Faculty	2	2	2	
14.	Overall Program Expenditures	\$204,572	\$152,921	\$162,311	
14a.	General Funded Budget Allocation	\$133,231	\$137,987	\$145,361	
14b.	Special/Federal Budget Allocation	0	0	0	
14c.	Tuition and Fees	\$71,341	\$14,934	\$16,950	
15.	Cost per SSH				
16.	Number of Low-Enrolled (<10) Classes	0	0	0	

We have been continuously working hard participating in various outreach events and this is the result - we have steadily increased the first-year enrollment over the years! We will try to continue, but not being able to fill our Faculty and APT position will have an impact in the future enrollment. We understand that outreach has to start as early as possible and must be continuous year after year. Without the help, all of the load is on the only faculty of this program. Currently another APT (within our division) assists us with outreach.

**Effectiveness Indicator: Healthy**

#	Effectiveness Indicators	2017 - 18	2018 - 19	2019 - 20	Effectiveness Health
17.	Successful Completion (Equivalent C or Higher)	96%	100%	98%	<b>Healthy</b>
18.	Withdrawals (Grade = W)	0	0	0	
19.*	Persistence Fall to Spring	81%	81%	87%	
19a.	Persistence Fall to Fall	38%	48%	46%	
20.*	Unduplicated Degrees/Certificates Awarded	26	18	22	
20a.	Degrees Awarded	4	4	7	
20b.	Certificates of Achievement Awarded	8	9	9	
20c.	Advanced Professional Certificates Awarded	0	0	0	
20d.	Other Certificates Awarded	16	9	12	
21.	External Licensing Exams Passed <sup>1</sup>				
22.	Transfers to UH 4-yr	0	1	1	
22a.	Transfers with credential from program	0	1	1	
22b.	Transfers without credential from program	0	0	0	

Our Persistence Fall to Spring has increased by 6% to 87% and our Unduplicated Degrees/Certificates Awarded has increased by more than 5% from last year. The persistence numbers are really great and we will try to maintain or increase them. As far as the unduplicated degree/certificates awarded goes, it is expected to cause this indicator to bounce between Healthy and Cautionary. The reason for this is because we have a student capacity limited which is successfully completing the program at a rate of 98%! The additional degrees awarded are from students that completed the AAS Degree requirements after graduating from the program with their CA which is great, but because of the design of the rubric (which requires an increase of degrees and CAs awarded year to year) affects us negatively.

**Perkins Indicators**

#	Perkins Indicators	Goal	Actual	Met	2019
29.	1P1 Technical Skills Attainment	93	100	Met	
30.	2P1 Completion	55	45.45	Not Met	
31.	3P1 Student Retention or Transfer	81.9	66.67	Not Met	
32.	4P1 Student Placement	66.25	46.67	Not Met	
33.	5P1 Nontraditional Participation	23.5	11.9	Not Met	
34.	5P2 Nontraditional Completion	23	12	Not Met	

#	Perkins Indicators	Goal	Actual	Met	2018
29.	1P1 Technical Skills Attainment	94.75	93.75	Not Met	
30.	2P1 Completion	61	50	Not Met	
31.	3P1 Student Retention or Transfer	86	68.18	Not Met	
32.	4P1 Student Placement	66.75	68.18	Met	
33.	5P1 Nontraditional Participation	23.75	14.71	Not Met	
34.	5P2 Nontraditional Completion	23.25	22.22	Not Met	

Perkins data is a year behind other ARPD indicators. Overall, compared to last year's numbers, we did better and moved in the right direction. See 2019 and 2018 Perkins data above.

The only indicator we did worse was in 1P1 (Technical Skills Attainment) which was caused by one student dropping. This student was not doing so well in class, but was due to personal issues outside of school. Also note that all of the goals have increased, which contributed to us not meeting 1P1. The only indicator we met was 4P1 (Student Placement). Although all indicators are important, we do strive to meet 4P1 (even though it does not capture everyone) because getting or maintaining a job is our priority!

### **Overall Program Health: Healthy**

College: **Hawai'i Community College**  
Program: **Machine, Welding & Industrial Mech Tech**  
Status: Report Complete

#### **Program Quantitative Indicators**

#### **Overall Program Health: Healthy**

The screenshot shows a 'Workforce Alignment' tool. On the left, a dropdown menu is set to 'Machine, Welding & Industrial Mech Tech' with a 'CIP Code = 48.0508'. A blue arrow points to a list of two Standard Occupational Classification (SOC) codes: '51-4121 - Welders, Cutters, Solderers, and Brazers' and '51-4122 - Welding, Soldering, and Brazing Machine Setters, Operators, and Tenders'.

Overall this program is doing great and is continuously moving forward in the right direction which is reflected in the ARPD. One of our biggest strengths has been our ongoing outreach efforts. Although this report only captures one year, it is the outreach done year-to-year for the past 5 years that contributed to our increased enrollment.

There are a few issues that will be affecting us in the future which are not finding a replacement APT, not finding a replacement Faculty, and the effects of COVID-19. We did have two attempts to hire an APT, but none went through. We were also preparing to advertise the faculty position but the hiring freeze due to the economic effects of COVID-19 put a hold on both of these positions. We did have a lecturer covering unfilled faculty position and another APT in the division assisting with outreach efforts. This is putting additional loads on the only remaining faculty member.

The effects of COVID-19 are not good, but we are still uncertain how bad this will be. It was a mad scramble when we went into shutdown of the shop and the mandatory move to online instruction at the end of March to figure out and learn new modalities of delivering curriculum. We will continue preparing for the possibility of more shutdowns. This again, without the assistance of a second faculty member and/or an APT, puts more load on the remaining faculty member.

Some upcoming changes to the program are the updating of the courses, course numbering and PLOs. All updates will be implemented next semester – Fall 2020. The updating of the course

numbering to 100 level courses (to match the rigor) is very important because it will allow us to look into and create pipelines from high schools to our program such as early college or dual credit courses.

<https://uhcc.hawaii.edu/varpd/index.php?y=2020&c=HAW&t=CTE&p=2101>

### **3. Program Student Learning Outcomes or Unit/Service Outcomes**

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#### A. List of the Program Student Learning Outcomes

1. MWIM PLO1: Demonstrate mechanical reasoning; form perception & spatial relations; numerical reasoning and communication skills as a part of the basic entry-level skills and knowledge to gain employment in the machining, welding, industrial mechanics or related fields.
2. MWIM PLO2: Demonstrate the attributes of a good employee; good safety practices; positive work ethics; working collaboratively or independently under supervision; an awareness of hazardous materials and a responsibility for the orderliness and cleanliness of the workplace.
3. MWIM PLO3: Demonstrate eye and hand coordination and dexterity in the proper set-up and use of the basic machine tools and equipment; metalworking equipment; the common welding & cutting processes; industrial mechanics equipment; material handling equipment and related machinery.
4. MWIM PLO4: Demonstrate the applications of and the ability to use the common hand tools; layout tools; measuring tools; precision measuring tools; common cutting & forming tools, tools used with the common fasteners and specialty tools and the common metalworking and mechanic tools.
5. MWIM PLO5: Demonstrate form perception and spatial relations in the applications of geometric construction; the three common methods of pattern development; industrial practices in framing and structural fabrication; practices in welding joint design & joint preparation and the common machine shop operations & practices.
6. MWIM PLO1: Demonstrate the skills of a life-long learner; the ability to read blueprints; knowledge of metals and the common materials and supplies; the ability to do the work-related math; the ability to communicate and read technical resources.
7. MWIM PLO1: Program or Unit/Service Outcomes that have been assessed in the year of this Annual Review.

- B. No assessment has been done this year. We are implementing updated courses, course numbering and revised PLOs in Fall 2020. The plan is to run the updated courses once and then assess on the second go around.

## 4. Action Plan

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### Action Plan

1. Research and develop a plan to strengthen the high school to program pipeline. We will need to look at various options such as early college, dual credit, PLA, internships, etc. and figure out what would work the best. The results of creating and implementing some kind of a pipeline will equate to an increase of enrollment while addressing all Perkins Indicators. If students can take at least one of our courses during high school, the ones entering our program will be better prepared and have the understanding what our program entails. Also, having an introductory or exploratory course in high school would encourage more participation, including nontraditional, as it will be a smaller commitment rather than jumping into our 2-year program.
2. With the uncertainties COVID-19 brings, it is hard to create a solid action plan. We do need to fill our 2 empty positions (faculty and APT) to help move our plans forward, but with the hiring freeze in place, it will be tough. At this point, Action Plan 2 is to be proactive and prepare for the worst and to be ready to adjust and adapt quickly as needed. This action plan is vague, but we are acknowledging that COVID-19 is serious and could throw us a massive curveball to any plan we set.
3. These action plans are the same with Diesel Mechanics because I will be working together with the DISL faculty member with these action plans. We both have the same goals and since losing our shared APT position we both can use the assistance of each other. Working together will allow both of us to be as efficient as possible with what we have.

## 5. Resource Implications

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Detail any resource requests, including reallocation of existing resources (physical, human, financial)

1 Faculty position – to teach the machinist side of the program. We are currently under a hiring freeze. We need to secure a dedicated person for the long term.

1 APT - Educational Specialist that is shared between this program and Diesel Mechanics. Another possibility is to have the ABRP/AMT APT assist the whole Transportation Department as the safety aspects of the job are closely related.

**I am NOT requesting additional resources for my program/unit.**