

HAWAI'I COMMUNITY COLLEGE PROGRAM ANNUAL REVIEW REPORT

Machine, Welding, and Industrial Mechanics (MWIM)

Date: 16 November 2015

**Review Period
July 1, 2014 to June 30, 2015**

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Program/Unit Review at Hawai'i Community College is a shared governance responsibility related to strategic planning and quality assurance. Annual and 3-year Comprehensive Reviews are important planning tools for the College's budget process. This ongoing systematic assessment process supports achievement of Program/Unit Outcomes. Evaluated through a college-wide procedure, all completed Program/Unit Reviews are available to the College and community at large to enhance communication and public accountability. Please see <http://hawaii.hawaii.edu/program-unit-review/>

Program Description

Please provide a brief description of your Program. Include your Program Mission statement.

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.

The MWIM Tech Program accepts all students from all segments of our community that meet the Community College's open-door requirements. It is an open entry/exit program that serves multiple occupational opportunities in the metal fabrication/welding field. Applicable Certificate of Completion, Certificate of Achievement, and Associate of Applied Science degree will be awarded to graduates.

With the continued restructuring of this program it will be able to also better service the industrial mechanics, installation, maintenance and repair occupations.

The MWIM Program initiated a new compressed curriculum beginning in 2011, combining existing modules to form larger units of study. This has not served our students as well as hoped.

Program Mission: The MWIM Program will provide the knowledge, and teach skills required for the entry level machine, welding and industrial mechanics occupations. The program will also instill good work ethics, a positive attitude, and accountability that will make him/her EMPLOYABLE in a variety of related industries as well as basic preparation to enter any employment field.

Part I. Review of Program Data

Go to the Annual Reports for Program Data (ARPD) website linked below and review the data for your program.

<http://www.hawaii.edu/offices/cc/arpd/>

Part I: Program Quantitative Indicators

Overall Program Health: **Cautionary**

Majors Included: MWIM Program CIP: 48.0508

Demand Indicators		Program Year			Demand Health Call
		12-13	13-14	14-15	
1	New & Replacement Positions (State)	35	21	19	Unhealthy
2	*New & Replacement Positions (County Prorated)	3	2	2	
3	*Number of Majors	27	31	33	
3a	Number of Majors Native Hawaiian	13	16	14	
3b	Fall Full-Time	56%	72%	86%	
3c	Fall Part-Time	44%	28%	14%	
3d	Fall Part-Time who are Full-Time in System	0%	0%	0%	

3e	Spring Full-Time	63%	72%	84%
3f	Spring Part-Time	37%	28%	16%
3g	Spring Part-Time who are Full-Time in System	0%	0%	0%
4	SSH Program Majors in Program Classes	334	558	718
5	SSH Non-Majors in Program Classes	0	0	15
6	SSH in All Program Classes	334	558	733
7	FTE Enrollment in Program Classes	11	19	24
8	Total Number of Classes Taught	8	9	10

Efficiency Indicators		Program Year			Efficiency Health Call
		12-13	13-14	14-15	
9	Average Class Size	8.6	12.3	13.4	Healthy
10	*Fill Rate	45.3%	71.6%	72.8%	
11	FTE BOR Appointed Faculty	1	1	2	
12	*Majors to FTE BOR Appointed Faculty	27	30.5	16.5	
13	Majors to Analytic FTE Faculty	19.2	19.6	16.5	
13a	Analytic FTE Faculty	1.4	1.6	2	
14	Overall Program Budget Allocation	\$104,827	\$125,321	Not Yet Reported	
14a	General Funded Budget Allocation	\$60,456	\$98,835	Not Yet Reported	
14b	Special/Federal Budget Allocation	\$10,179	\$5,499	Not Yet Reported	
14c	Tuition and Fees	\$30,867	\$20,909	Not Yet Reported	
15	Cost per SSH	\$314	\$225	Not Yet Reported	
16	Number of Low-Enrolled (<10) Classes	3	3	0	

*Data element used in health call calculation

Last Updated: October 7, 2015

Effectiveness Indicators		Program Year			Effectiveness Health Call
		12-13	13-14	14-15	
17	Successful Completion (Equivalent C or Higher)	100%	89%	96%	Healthy

18	Withdrawals (Grade = W)	0	0	3
19	*Persistence Fall to Spring	74%	78.1%	76.4%
19a	Persistence Fall to Fall	35%	53.5%	50%
20	*Unduplicated Degrees/Certificates Awarded	15	6	11
20a	Degrees Awarded	15	6	1
20b	Certificates of Achievement Awarded	9	4	1
20c	Advanced Professional Certificates Awarded	0	0	0
20d	Other Certificates Awarded	1	1	9
21	External Licensing Exams Passed	Not Reported	Not Reported	N/A
22	Transfers to UH 4-yr	0	2	0
22a	Transfers with credential from program	0	0	0
22b	Transfers without credential from program	0	2	0

Distance Education: Completely On-line Classes		Program Year			
		12-13	13-14	14-15	
23	Number of Distance Education Classes Taught	0	0	0	
24	Enrollments Distance Education Classes	N/A	N/A	N/A	
25	Fill Rate	N/A	N/A	N/A	
26	Successful Completion (Equivalent C or Higher)	N/A	N/A	N/A	
27	Withdrawals (Grade = W)	N/A	N/A	N/A	
28	Persistence (Fall to Spring Not Limited to Distance Education)	N/A	N/A	N/A	

Perkins IV Core Indicators 2013-2014		Goal	Actual	Met	
29	1P1 Technical Skills Attainment	91.00	71.43	Not Met	
30	2P1 Completion	47.00	28.57	Not Met	
31	3P1 Student Retention or Transfer	75.21	83.33	Met	
32	4P1 Student Placement	68.92	53.85	Not Met	
33	5P1 Nontraditional Participation	17.50	6.90	Not Met	
34	5P2 Nontraditional Completion	16.00	0.00	Not Met	

Performance Funding		Program Year			
		12-13	13-14	14-15	
35	Number of Degrees and Certificates	24	10	2	
36	Number of Degrees and Certificates Native Hawaiian	10	0	1	
37	Number of Degrees and Certificates STEM	Not STEM	Not STEM	Not STEM	
38	Number of Pell Recipients	23	17	19	
39	Number of Transfers to UH 4-yr	0	2	0	

*Data element used in health call calculation

Last Updated: October 7, 2015

[Glossary](#) | [Health Call Scoring Rubric](#)

Part II. Analysis of the Program

Based on the ARPD data in Part 1, analyze the Program in terms of Demand, Efficiency, and Effectiveness. Include significant Program actions (e.g., new certificates, stop out, gain/loss of positions) and results of prior year's action plan. Include analysis of any Perkin's Core Indicator(s) for which the Program's goal was not met. Also discuss any trends or other factors (internal/external) affecting the Program and analyze other Program changes or information not included elsewhere.

The MWIM program is unfairly misrepresented by using a single program CIP code. For example, the MWIM program teaches students how to weld (CIP 48.05.08), machine (CIP 48.05.01), sheet metal (CIP 48.05.06), and computer numeric control (CIP 48.05.10).

It is understood that the program is only allowed to use just one CIP.

CIP 48.05.01 Machine Tool Technology

CIP 48.05.06 Sheet Metal Technology

CIP 48.05.08 Welding Technology

CIP 48.05.10 Computer Numeric Control (CNC)

The demand indicators for the MWIM program demand health call is unhealthy. This is due to the way the demand and effectiveness is calculated differently in 2015 as compared to 2014. The measure needs to go back to the way it was in the 2014 cycle; this will correct the unhealthy indicator.

Regarding the Perkins Core indicators, five of the six indicators were "not met" because the struggling economy and construction industry, and industry reluctance to accept females on an equal basis with males. Until these trends end, we will not see any improvement.

Part III. Action Plan

Describe in detail the Program's overall action plan for the current/next academic year. Discuss how these actions support the College's Mission and can lead to improvement(s) in student learning. Include specific action plans to address any ARPD Health Call scores of "Cautionary" or "Unhealthy," and any Perkin's Core Indicator(s) for which the Program's Goal was not met.

Currently, the MWIM schedule is from 12-9 p.m. M/W and 5-9 p.m. T/R. I plan to adjust the starting hours to an earlier starting time of 7:30 or 8:00 a.m. This will align with starting times of other programs and allow students to attend elective classes in the afternoon. There is also no reason to maintain the old class hours as they were tailored to accommodate workers from the plantation days.

Implement a minimum math and reading comprehension requirement. The machine shop technology portion of the MWIM program requires that students can perform mathematical calculations such as geometry, trigonometry, and conversion of fractions to decimals, adding and subtraction of fraction.

I would implement an intern program where students can gain valuable on-the-job training from industry such as the machine shops at the observatories. I would set a minimum qualification of 3.3 GPA, drug screening, and minimum of two letters of recommendation from instructors of student choice. This would support the college's strategic plan of the innovative initiative for higher technical skills.

Part IV. Resource Implications

Please provide a brief statement about any implications of current operating resources for the Program. Budget asks are included in the 3-year Comprehensive Review, except for the following that may be included here: health and safety needs, emergency needs, and/or necessary needs to become compliant with Federal/State laws/regulations. Describe the needed item(s) in detail, including cost(s) and timeline(s). Explain how the item(s) aligns with one or more of the Strategic Initiatives of the Hawai'i Community College 2015-2021 Strategic Plan. Identify and discuss how the item(s) aligns with the Initiative's Goal, Action Strategy, and Tactic. [HAWCC Strategic Plan](#)

The MWIM program is in need of a proper corrosive/acid storage cabinet to properly store welding fluxes. This would enhance the programs chemical hygiene plan for safe use and storage of such chemicals. The guideline for safe storage is 29 CFR (Code of Federal Regulations) Standard 1910.1450. The estimated cost for a 45 gallon capacity corrosive/acid cabinet is \$1,800 and is available through local vendors such as Airgas Hawaii, Fastenal, and Matheson.

Part V. Comprehensive Review Information

Please provide a short summary regarding the last comprehensive review for this program. Discuss any significant changes to the Program since the last comprehensive reviews that are not discussed elsewhere.

The last MWIM Comprehensive review was on Nov. 27, 2013.

I was hired in 2014 as the second program instructor.

Compressed block courses were implemented and some student concerns are evident, because the new courses don't work for all students. Not all want to learn all 3 trades in one program.

Changes in the industry mean our students need to learn new tools, new techniques, and new materials. This means our program needs to update our course curriculum and resources, and students need to know higher level math to succeed in the industry today.

Required for ARPD Web Submission: Provide the URL to the specific location of this Unit's last Comprehensive Review on the HawCC Program/Unit Review website (see link on page 1):

[Machine, Welding and Industrial Mechanics Technologies - MWIM](#)

Part VI. Program Student Learning Outcomes

For all parts of this section, please provide information based on the PLOs (P-SLOs) that were assessed through PLO-aligned course assessments in AY 2014-15.

A) Evidence of Industry Validation (CTE Programs)

[General Pre-Professional Programs can skip industry validation.]

Provide documentation that the program has submitted evidence and achieved certification or accreditation from an organization granting certification in an industry or profession. If the program/degree/certificate does not have a certifying body, you may submit evidence of the program's advisory committee's/board's recommendations for, approval of, and/or participation in assessment(s).

The Program has an advisory team comprised of the program faculty, members of the community employed in the machine and weld industry and, when possible, graduates of the program. The advisory team meets annually. Minutes of the Feb 2015 meeting are below.

Darrell Miyashiro – Instructor MWIM

Malcolm Chun - Instructor MWIM

Mark Devenot – Keck Observatory – Supervisor

Cooper Nakayama – Gemini Observatory

4:10pm - Meeting Starts

4:15pm Introduction between Mark who is on PolyCom and Malcolm and Darrell. Mark expresses interest in working with HawCC and identifying areas of need in both college and the Keck Observatory.

4:17 Cooper walks in. Malcolm starts with trying to identify what and how HawCC can better train the HawCC students.

4:18 Mark recommends for HawCC instructors to explain what's available to the students since he's familiar with what the college offers.

4:20 Darrell explains programs and how programs have changed. Darrell expressed concerns about the time frame it takes for students to complete a degree. Darrell is wondering how to restructure the program to be more effective and keeping enrollment high.

4:21 Mark explains what the Observatory needs as far as skills go. Mark explains that Keck has a lot of different projects coming online and they are in need of welders. (No exact numbers given).

4:23 Cooper explains that there is space for some of HawCC students. Cooper explains that although there are opportunities for HawCC students at the observatories, the observatories cannot take all students or cannot absorb all HawCC Students.

4:25 Darrell explains how although there are not many openings in the observatories, there is room for HawCC program to be training in some specific skills that the observatories will need.

4:28 Malcolm discusses concerns over expenses with equipment in welding (Gas). Cooper also discusses the importance of teaching basics of welding and making sure students have the basic principles mastered.

4:30 Malcolm discusses the classes he teaches and the equipment he uses although he expresses concerns that the equipment is old. Malcolm also explains how he wants to start a class tailored to meet the needs of the observatories.

4:32 Cooper explains that learning too much in one program may hurt the student since they may not be able to handle too much training. Cooper explains that students may have trouble learning all the course content since the content is complex.

4:34 Darrell discusses how teaching all the principles is important since students must learn all the basics first.

B) Expected Level of Achievement

For each Course assessed in AY 2014-15: Discuss the rubric(s) standards and the benchmark goal(s) for student success (e.g., “85% of students will achieve Excellent or Good ratings in the assessed activity” or “90% of students will score Meets or Exceeds Standards on the assessment rubric”).

COURSE #	Expected Level of Achievement
MWIM 42	70% passing grade
MWIM62	70% passing grade
MWIM52	70% passing grade
MWIM72	70% passing grade
MWIM45	70% developing proficiency
MWIM55	70% developing proficiency
MWIM645	70% developing proficiency
MWIM75	70% developing proficiency

C) Courses Assessed

List all Program Courses assessed during AY 2014-15. Also list Program Courses for which a follow-up “Closing the Loop” assessment was implemented in AY 2014-15.

Assessed Course Alpha, No., & Title	Semester assessed	PLO-aligned CLOs that were assessed Example: CLO1 aligned to PLO3
MWIM42 Intro to Machine and Welding	Fall 14	CLO1 aligned to PLO2
MWIM62 Lathe Facing and Knurling	Fall 14	CLO1 aligned to PLO4
MWIM52 Sheet Metal and Intro to Lathes	Spring 15	CLO3 aligned to PLO5
MWIM72 Vertical Milling Machine and Intro to CNC	Spring 15	CLO3 aligned to PLO3
MWIM45 Introduction to Arc Welding	Fall 14	CLO3 aligned to PLO1
MWIM55 Intermediate Welding and Quality Procedures	Fall 14	CLO3 aligned to PLO5
MWIM65 Advance Welding	Spring 15	CLO3 aligned to PLO5
MWIM75 Special Process Welding and Rigging	Spring 15	CLO3 aligned to PLO5
“Closing the Loop” Assessments Alpha, No., & Title	Semester assessed	PLO-aligned CLOs that were assessed
None		

D) Assessment Strategy/Instrument

For each Course assessed in AY 2014-15, provide a brief description of the assessment strategy, including the type of student work or activity assessed how and when the assessment was conducted, how and why assessed artifacts were selected, and how the artifacts were analyzed.

COURSE #	Assessment Strategy	Rubric/Scoring Instruments
MWIM 42	Give a test on all the aspects of occupational safety and health administration....	Text book subject matter test
MWIM62	Give written test to determine students understanding and knowledge of machinist tools	Text book subject matter test
MWIM52	Student to demonstrate basic pattern layout	Text book subject matter test
MWIM72	Student to demonstrate machining patterns	Text book subject matter test
MWIM 45	Students to demonstrate arc welding using the virtual arc welder	Utilized a performance rubric to establish proficiency ratings.
MWIM65	welding exercise	Utilized a performance rubric to establish proficiency ratings.
MWIM55	Demonstrated and described proper welding techniques in various welding positions on the Virtual Welder.	Utilized a performance rubric to establish proficiency ratings.
MWIM75	Demonstrated MIG welding on the Virtual Welder.	Utilized a performance rubric to establish proficiency ratings.

E) Results of Program Assessment

For each Course assessed in AY 2014-15, provide a summative description of the assessment results. Discuss how these results collectively demonstrate achievement of the Program's Learning Outcomes and support the College's Mission.

	Results
MWIM 42	Test was to measure students' comprehension of safety in the shop and understanding of OSHA. Class achieved 90 percent average score.
MWIM62	Test of student's measure students understand of external Acme thread result was 83 percent passing.
MWIM52	Sheet metal project to measure to measure student's understand of sheet metal was 89 percent.

MWIM72	Test to measure student's understanding of components of Vertical Milling Machine was 91 percent.
MWIM 45	We set a minimum goal of 70% of the students at Developing Proficiency and we assessed at 95.5% Proficient. We have found that students grasp the concepts and understand the materials being covered in this curriculum.
MWIM65	We set a minimum goal of 70% of the students at Developing Proficiency and we assessed at 94.8% Developing Proficiency. We have found that students grasp the concepts and understand the materials being covered in this curriculum.
MWIM55	All students were assessed above the set goal. The students had an average rating of 91% proficient, which is much higher than the set goal.
MWIM75	All students were assessed above the set goal. The students had an average rating of 82.5% developing proficiency which is higher than the set goal.

F) Other Comments: Include any additional information that will help clarify the assessment results. Include comparisons to any applicable College or Program standards, or to any national standards from industry, professional organizations, or accrediting associations. Include, if relevant, a summary of student survey results, CCSSE, e-CAFE, graduate-leaver surveys, special studies, or other assessment instruments used.

None at this time.

G) Next Steps

Based on the Program's overall AY 2014-15 assessment results, describe the Program's intended next steps to enhance instruction in order to improve student learning. Instructional changes may include, for example, revision to curriculum, teaching methods, learning outcome statements, student support, and other options. Please note here if proposed changes will involve Program and/or Course modifications requiring approval.

The next step to enhance instructions would be to provide more variety in hands on projects. Also, there is a greater need in increase the text book theory on applications such as using and reading precision measuring instruments. Students seem to learn this in the beginning, but show difficulty in using and reading precision measuring instruments.

COURSE #	Assessment Strategy/CLO	Rubric/Scoring Instruments/PLO
MWIM 42	Give a test on all the aspects of occupational safety and health administration. CLO 1 Explain purpose of OSHA Act.	Text book subject matter test PLO2 Demonstrate good safety practices
MWIM62	Give written test to determine students understanding and knowledge of machinist tools. CLO1 Describe fundamental knowledge of machine tools.	Text book subject matter test PLO4 Demonstrate use of shop tools and instruments.
MWIM52	Student to demonstrate basic pattern layout. CLO3 Calculate geometric patterns.	Text book subject matter test. PLO5 Demonstrate pattern development.
MWIM72	Student to demonstrate machining patterns. CLO3 Calculate cutting speeds and feeds for various metals.	Text book subject matter test. PLO3 Demonstrate the use of proper speeds and feeds during cutting operations.
MWIM 45	Students to demonstrate arc welding using the virtual arc welder. CLO3 Select proper welding techniques	Utilized a performance rubric to establish proficiency ratings. PLO3 Demonstrate proper welding techniques.
MWIM65	welding exercise CLO5 Order of welding operation.	Utilized a performance rubric to establish proficiency ratings. PLO5 Demonstrate proper sequence in welding.
MWIM55	Demonstrated and described proper welding techniques in various welding positions on the Virtual Welder. CLO5 Select proper welding procedures.	Utilized a performance rubric to establish proficiency ratings. PLO3 Demonstrate hand and eye coordination.
MWIM75	Demonstrated MIG welding on the Virtual Welder. CLO2 Use of MIG equipment.	Utilized a performance rubric to establish proficiency ratings. PLO1 Demonstrate MIG welding skills.

Part VII. Cost Per SSH

Please provide the following values used to determine the total fund amount and the cost per SSH for your program:

General Funds = \$ _____
Federal Funds = \$ _____
Other Funds = \$ _____
Tuition and Fees = \$ _____

Part VIII. External Data

If your program utilizes external licensures, enter:

Number sitting for an exam _____

Number passed _____

[If your program does not utilize external licensures, skip Part IX.]