

HAWAI`I COMMUNITY COLLEGE
ANNUAL
PROGRAM REVIEW REPORT

**Machine, Welding, and Industrial Mechanics
Technologies (MWIM)**

December 3, 2009

(Assessment Period: 2008-2009)

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**UHCC December 2009 Coversheet –
Annual Report Program Data**

College: Hawaii Community College

Program: Machine, Welding, and Industrial Mechanics Technologies

Check All Credentials Offered	AA	AS	ATS	AAS	CA	CC	COM	ASC	APC
				X	X	X			

Introduction: Brief description of the program and program mission.

The MWIM Tech Program accepts all students from all segments of our community that meet the Hawai'i Community College's (HawCC) open-door requirements. It is an open-entry/exit program that prepares students for multiple occupations offering two (2) Certificates of Completion, two (2) Certificates of Achievement, and (2) Associate of Applied Science degrees. With the continual restructuring, this program will be offering additional courses and certificates in installation, maintenance, and repair type occupations. The Program prepares students with the technical and employability skills and knowledge required for the machine, welding and industrial mechanics occupations which are in alignment with the College's imperative of Workforce Development. With an open-entry/exit structure cultural competency is paramount. As part of the curriculum, students are made aware of hazardous materials and are sensitive to the environment. The curriculum provides the students the opportunity to use current technology used in industry. The students are provided opportunities to serve their communities by fabricating items which are then donated for fundraising purposes. With the continual restructuring, this program will be offering courses and certificates for installation, maintenance, and repair type occupations.

Student Learning Outcomes:

1. 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. 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. 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. 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. 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. Demonstrate the skills of a life-long learner; the ability to read blueprints; knowledge of metals and the common materials & supplies; the ability to do the work related math; the ability to communicate and read technical materials; and the ability to use available technical resources.
7. Demonstrate an awareness of our cultural, social and natural environment and be a contributing member of our community.

Part I.

Quantitative Indicators (Reported on 2009 Summary Report Program Data excel sheet --includes health calls based on system scoring rubric).

**Annual Report of Program Data for Machine, Welding & Industrial Mech Tech
Hawaii Community College Program Major(s): MWIM,WELS,MST**

Overall Program Health				Cautionary		
Demand Indicators				Demand Health Unhealthy		
		Academic Year				
		Fall 06	Fall 07			08-09
1	New & Replacement Positions (State)	21	56			61
2	New & Replacement Positions (County Prorated)	3	6			5
3	Number of Majors	24	28			44
4	SSH Program Majors in Program Classes	182	231			682
5	SSH Non-Majors in Program Classes	88	46			58
6	SSH in All Program Classes	270	277			740
7	FTE Enrollment in Program Classes	18	18			25
8	Total Number of Classes Taught	12	12	23		
Efficiency Indicators						
		Academic Year				
		Fall 06	Fall 07	08-09		
9	Average Class Size	11.3	12.0	15.1		
10	Fill Rate	73%	90%	82%		

11	FTE BOR Appointed Faculty	1.0	1.0	2.0	Efficiency Health Healthy
12	Majors to FTE BOR Appointed Faculty	24.0	28.0	22.0	
13	Majors to Analytic FTE Faculty	12.0	14.0	18.9	
13a	Analytic FTE Faculty	n/a	n/a	2.3	
13b	Majors to Analytic FTE Faculty @12cr.	9.7	11.3	15.1	
13c	Analytic FTE Faculty @12cr.	2.5	2.5	2.9	
14	Overall Program Budget Allocation @12cr. F07, 0809	\$99,460	\$125,758	\$228,270	
14a	General Funded Budget Allocation	n/a	n/a	\$153,270	
14b	Special/Federal Budget Allocation	n/a	n/a	\$75,000	
15	Cost per SSH @12cr. F07, 0809	\$368.37	\$454.00	\$308.47	
16	Number of Low-Enrolled (<10) Classes	4	4	8	

Effectiveness Indicators		Academic Year			Effectiveness Health Cautionary
		2006	2007	08-09	
17	Successful Completion (Equivalent C or Higher)	n/a	n/a	97%	
18	Withdrawals (Grade = W)	n/a	n/a	0	
19	Persistence (Fall to Spring)	79%	71%	89%	
20	Unduplicated Degrees/Certificates Awarded	n/a	n/a	6	
20a	Number of Degrees Awarded	3	5	4	
20b	Certificates of Achievement Awarded	4	0	2	
20c	Academic Subject Certificates Awarded	n/a	n/a	0	
20d	Other Certificates Awarded	n/a	n/a	0	
21	Transfers to UH 4-yr	0	0	0	
21a	Transfers with degree from program	n/a	n/a	0	
21b	Transfers without degree from program	n/a	n/a	0	

C/P denotes that the measure is provided by the college, if necessary.

Data current as of: 8/19/2009 - 3:30:PM

Distance Education Completely On-line Classes		Academic Year		
		Fall 06	Fall 07	08-09
22	Number of Distance Education Classes Taught	n/a	n/a	0
23	Enrollment Distance Education Classes	n/a	n/a	0
24	Fill Rate	n/a	n/a	0%
25	Successful Completion (Equivalent C or Higher)	n/a	n/a	0
26	Withdrawals (Grade = W)	n/a	n/a	0
27	Persistence (Fall to Spring Not Limited to Distance Education)	n/a	n/a	0%
Perkins IV Core Indicators				
Perkins IV Measures 2007-2008		Goal	Actual	Met

28	1P1 Technical Skills Attainment	90.00	100.00	Met	
29	2P1 Completion	44.00	54.55	Met	
30	3P1 Student Retention or Transfer	55.00	76.47	Met	
31	4P1 Student Placement	50.00	50	Met	
32	5P1 Nontraditional Participation	25.00	10.34	Did Not	
33	5P2 Nontraditional Completion	25.00	0	Did Not	

Part II.

Analysis of the Program (strengths and weaknesses in terms of demand, efficiency, and effectiveness based on an analysis of the data).

OVERALL PROGRAM HEALTH: Rated as *Cautionary*

Demand Indicators: Rated as *Unhealthy*

Demand based on new and replacement positions in the county is weak showing only 5 positions available and the number of majors in fall 2009 is 44. This gives a ratio of 8.8 majors to 1 position which places the demand indicator with an Unhealthy score. Strong industry support suggests a higher demand for graduates from this Program more than is indicated by the county statistics. The MWIM program is the only program of its kind in the State as we have the only Machine Technology Program. Therefore, we may look to addressing the positions at the state level, which is 61 for 2008-2009 and this puts us in a ratio of 1.386 positions per major. Industrial contacts on Oahu have been established that may show interest in our graduates, once the economy improves.

Efficiency Indicators: Rated as *Healthy*

All the statistics used to determine efficiency increased favorably. The efficiency of the program is deemed Healthy with a fill rate of 82% and a ratio of majors/FTE BOR Appointed Faculty of 22.

Effectiveness Indicators: Rated as *Cautionary*

The persistence from fall to spring is 89%, an increase of 18% from fall 2007. This falls in the healthy level. The number of unduplicated certificates/degrees awarded in 2008-09 (6) compared to the number of majors (44) is cautionary; however, the number of unduplicated certificates/degrees awarded in 2008-09 (6) compared to the number of new & replacement positions (5) is Healthy. Not all students enter this Program to seek a degree and thus the cautionary persistent rate and low number of degrees/certificates awarded will continue. This Program also provides advance skills training for people in industry, opportunities to increase individual employment potential, and personal enrichment.

Note: 1) Career Technical Education (CTE) programs must include in analysis any Perkins IV Core indicator for which the program did not meet the goal.

MWIM met four out of the six Perkins indicators. 5P1 Nontraditional Participation and 5P2 Nontraditional Completion were not met. In the Fall 2007 there were three new female enrollees and one returning female student who graduated with two degrees in Spring 2009. In Fall 2009, one of the Fall 2007 new enrollees returned to complete her education for an AAS degree. More efforts will be placed on recruitment and retention of nontraditional students.

Significant Program Actions (new certificates, stop-out; gain/loss of positions, results of prior year’s action plan).

The MWIM program began training technicians for renewable energy type jobs in partnership with the Hawaii County Economic Opportunity Council (HCEOC). Presently there are 16 students enrolled in courses totaling 10 credits.

Some of the Refrigeration and Air Conditioning (RAC) trainers have arrived over the summer and are being installed.

Plan of Action 2008-2009	Status
Continue to review and update student learning outcomes and receive validation from industry.	Ongoing. The faculty keeps abreast of the current and changing technologies and keeps in close contact with the Advisory Council.
Develop assessment tools to evaluate student achievements.	Ongoing. Currently rubrics are being developed and instructors will implement.
Develop industrial mechanic curriculum and submit to CRC.	Ongoing. Will submit to CRC in January.
Purchase equipment to institute industrial Mechanics course offerings.	Ongoing. Some of the RAC, Hydraulic and Pneumatic trainers have arrived and are being installed.
Institute industrial mechanics course offerings.	Tabled. Delay in acquiring of all of the trainers has postponed this to f2010 at the earliest.
Expand course offerings as equipment/trainers become available.	Ongoing. RAC startup date has been pushed back until all equipment is available.
Continuously evaluate/modify MWIM curriculum.	Ongoing. F2009, the welding textbook was changed in order to better the curriculum. Several new videos were also purchased.
Continuously communicate with industry partners.	Ongoing. We continue to rely on industry partners for advice.

Plan of Action 2008-2009	Status
Begin to develop Automotive Machining courses.	Ongoing. Researching equipment needs and available textbooks and materials. Program change will also need to take place.
Develop partnerships with DOE robotics.	Tabled. Temporarily halted, as the contact working had not responded.
Develop partnerships for opportunities to target groups with immediate and specific needs relating to industrial mechanics.	Ongoing. We have maintained/begun contacts with the observatories, resorts, power generators, and members in the renewable energy fields.
Continue to participate in professional development activities.	Ongoing. The faculty continues to participate in professional development activities.

Part III. Action Plan

Several of these items are a continuation from 2008-2009 which are ongoing and/or were never pursued

1. Continue to review and update student learning outcomes and receive validation from industry.
2. Develop assessment tools to evaluate student achievement.
3. Develop industrial mechanic curriculum and submit to CRC.
4. Purchase equipment to institute industrial mechanics course offerings.
5. Institute industrial mechanics course offerings.
6. Expand course offerings as equipment/trainers become available.
7. Continuously evaluate/modify MWIM curriculum.
8. Continuously communicate with industry partners and expand with more contacts on the neighbor islands.
9. Begin to develop Automotive Machining courses and curriculum and submit to the CRC.
10. Purchase equipment to institute an Automotive Machining course offering.
11. Develop partnerships with DOE robotics.
12. Develop partnerships for opportunities to target groups with immediate and specific needs relating to industrial mechanics.
13. Continue to participate in professional development activities.
14. Recruit non-traditional students and work at retaining them.

Part III. Resource Implications (physical, human, financial)

Needs	Description	Estimated Cost
Furnish two faculty offices	Instructors offices will need desks and outfitting with equipment (laptop, printer, paper shredder) and furniture (file cabinets, wall lockers, shelving units) and office tools (staplers, hole punches, etc.	8,000
Furnish classroom/lab	New classrooms will need instructors desk, audio visual equipment, etc.	10,000
Increase supply budget	Existing budget is not sufficient to adequately run classes.	8,000
Furnish automotive machining lab	Beginning with the most requested phase of Auto Machining, this will have demand by Diesel and Auto Mechanics students who want to learn about cylinder headwork. This should also have appeal to those presently in the field.	135,000
Purchase three welding simulators	The future of Virtual Reality in the classroom and lab is here. The welding simulators should help by saving on the consumables and into the direction of “going green”	150,000
Purchase five axis CNC machining center	Much of the machining done today is being done on computer numerically controlled (CNC) machines. There are several here on this island and quite a few on Oahu, especially, but not limited to Pearl Harbor.	500,000
Purchase supplies and tooling for five axis machining center	The machine comes without tooling and cutters.	100,000
Upgrade the machining lab with newer/better tools	Some of the precision tools are old and some have rusty surfaces that make them difficult to read. With the increase in enrollment, we need more than one of each tool to expedite the students’ ability to complete their projects in a timely manner. More height gauges, angle plates, and surface plates would be beneficial. Replacement milling and other cutters are needed.	7,000

Needs	Description	Estimated Cost
Upgrade the welding lab equipment with new accessories	Replacement cables, stingers, cable lugs, ground clamps, work clamps, and other small tools are needed.	5,000
Upgrade the sheet metal lab with new equipment	The small (36") brake, shear, and slip rolls need replacement, as these are probably from the territory days.	50,000

Annual Report Program Data and analysis located on college website at:

[AY 2009 Completed Annual Program-Unit Reviews](#)