Attachment 1 –A
Revised July 2007

UNIVERSITY OF HAWAI`I COMMUNITY COLLEGES
ANNUAL INSTRUCTIONAL PROGRAM REVIEW
PROCEDURES, COMPONENTS, AND MEASURES

Machine, Welding and Industrial Mechanics Technologies
(MWIM)

Introduction:
Program Mission Statement and brief description of the program including a listing of program level student learning outcomes.

The Machine, Welding and Industrial Mechanics Technology 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.

PROGRAM STUDENT LEARNING OUTCOMES

1. ***The student will demonstrate the skills and knowledge required for the machine, welding and industrial mechanics occupations; demonstrate good work ethics, positive work habits and attitudes that will make him/her employable in this cluster of occupations.***

SPECIFIC LEARNING OUTCOMES:

A. The student will 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.

B. The student will 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.

C. The student will 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.

D. The student will 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.

E. The student will 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.

F. The student will 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.

G. The student will demonstrate:
an awareness of our cultural, social and natural environment and be a contributing member of our community.

Part I. Quantitative Indicators for Program Review

	AY 04-05	AY 05-06	AY 06-07
MWIM_WELS_MST			
1. Annual new and replacement positions in the State	276	276	276
2. Annual new and replacement positions in the County	5	5	5
3. Number of majors	31	21	24
4. Student Semester Hours for program majors in all program classes	170	192	182
5. Student Semester Hours for Non-program majors in all program classes	24	80	88
6. Student Semester Hours all program classes	194	272	270
7. FTE Program enrollment	12.93	18.13	18
8. Number of classes taught	8	10	12
9. Determination of program's health based on demand (Health, Cautionary, or Unhealthy)	HEALTHY	HEALTHY	HEALTHY
10. Average Class Size	11.13	14.4	11.25
11. Class fill rate	134.85%	83.72%	72.58%
12. FTE of BOR appointed program faculty	1	1	1
13. Student/Faculty ratio	31:1	21:1	24:1
14. Number of Majors per FTE faculty	23.31	13.13	12
15. Program Budget Allocation (Personnel, supplies and services, equipment)	$67,460.90	$80,780.00	$99,460.00
16. Cost Per Student Semester Hour	$347.74	$296.99	$368.37
17. Number of classes that enroll less than ten students	2	2	4
18. Determination of program's health based on Efficiency (Healthy, Cautionary, or Unhealthy)	HEALTHY	HEALTHY	HEALTHY
19. Persistence of majors fall to spring	74.19%	57.14%	79.17%
20. Number of degrees earned (annual)	0	3	5
21. Number of certificates earned (annual)	7	5	0
22. Number of students transferred (enrolled) to a four-year institution in UH	0	0	0
23. Perkins core indicator: Academic Attainment(1P1)	44.44%	83.33%	60.00%
24. Perkins core indicator: Technical Skill Attainment (1P2)	100.00%	100.00%	83.33%
25. Perkins core indicator: Completion Rate (2P1)	13.33%	40.00%	16.67%
26. Perkins core indicator: Placement in Employment Education, and Military (3P1)	.00%	.00%	100.00%
27. Perkins core indicator: Retention in Employment (3P2)	.00%	.00%	50.00%
28. Perkins core indicator: Non Traditional Participation (4P1)	4.35%	14.29%	4.55%
29. Perkins core indicator: Non Traditional Completion (4P2)	.00%	50.00%	.00%
30. Determination of program's health based on effectiveness (Healthy, Cautionary, Or Unhealthy)	HEALTHY	HEALTHY	HEALTHY
31. Determination of program's overall health (Healthy, Cautionary, or Unhealthy)	HEALTHY	HEALTHY	HEALTHY
32. Number of FTE Faculty	1.33	1.6	2

TABLE 2
AVERAGE ANNUAL AND TOTAL JOB OPENINGS
2002 AND 2012
STATE OF HAWAII

SOC Code	Occupational Title	Employment		Change		Average Annual Openings Due to		Due to		
		2002	2012	Number	Percent	Growth		Separations		Total
47-0000	**Construction & Extraction Occupations**	**24,400**	**31,040**	**6,640**	**27.2**	**660**		**490**		**1,150**
47-2011	Boilermakers	90	90	0	0.0	0	*		*	
47-2073	Operating Engineer & Other Const Equip Operat	1,710	2,040	330	19.3	30		40		80
47-2152	Plumbers, Pipefitters, & Steamfitters	1,470	1,780	310	21.1	30		30		70
47-2211	Sheet Metal Workers	590	730	140	23.7	10		10		30
47-2221	Structural Iron & Steel Workers	210	270	60	28.6	10	*			10
47-3000	Helpers, Construction Trades	1,600	2,010	410	25.6	40		70		110
49-0000	**Installation, Maintenance, & Repair Occupations**	**22,040**	**24,890**	**2,850**	**12.9**	**290**		**500**		**790**
49-9000	Other Installation, Maint, & Repair Occupation	11,680	13,540	1,860	15.9	190		250		440
49-9021	Heating, Air Cond, & Refrigeration Mech & Install	710	910	200	28.2	20		10		30
49-9041	Industrial Machinery Mechanics	480	560	80	16.7	10		10		20
49-9042	Maintenance & Repair Workers, General	6,740	7,950	1,210	18.0	120		130		250
49-9043	Maintenance Workers, Machinery	200	220	20	10.0	*		*		10
49-9096	Riggers	210	220	10	4.8	*		*		10
49-9098	Helper--Installation, Maintenance, & Repair Worker	690	810	120	17.4	10		20		40
49-9099	Installation, Maintenance, & Repair Worker, Other	1,010	1,070	60	5.9	10		20		30
51-0000	**Production Occupations**	**18,440**	**19,750**	**1,310**	**7.1**	**170**		**440**		**610**
51-2000	Assemblers & Fabricators	1,530	1,660	130	8.5	20		40		60
51-2041	Structural Metal Fabricators & Fitters	170	170	0	0.0	0	*		*	
51-2099	Assemblers & Fabricators, All Others	470	510	40	8.5	*		10		20
51-4000	Metal Workers & Plastic Workers	1,560	1,840	280	17.9	30		40		70
51-4041	Machinists	310	340	30	9.7	*		10		10
51-4121	Welders, Cutters, Solderers, & Brazers	870	1,120	250	28.7	20		20		50
51-4199	Metal Workers & Plastic Workers, All Other	160	150	-10	-6.3	0	*		*	

Part II. Analysis of the Program

Strengths and weaknesses in terms of demand, efficiency, and effectiveness based onan analysis of data:

The MWIM Tech Program has improved since restructuring and is reasonably healthy in the demand, efficiency and effectiveness but can improve. The program continually addresses its weaknesses and the program restructuring is intended to show an improvement in the data elements in table 8.

Data elements 1 to 9, demand elements, would be positively changed with implementation of the planned restructuring and expansion of the curriculum. The employers and students the program serviced will increase the enrollment and the other data elements.

Data elements 10 to 18 efficiency elements, with the continued restructuring, there should be improvement with an increase in enrollment and an increase in class sizes. Program costs per unit of measure should be reduced with an increase in enrollment.

Data elements 19 to 30, effectiveness elements, measures do not include service to short term workforce development students who usually do not seek a degree. This aside, there should be some improvement in these elements with the planned increase in the traditional CA and AAS degree student in the Industrial Mechanics and RAC offerings.

Assessment of the Program Learning Outcomes is an ongoing process by the instructors as the student progresses with written tests, performance tests and assessment of individual students in teams working on "live projects". Inputs from the industry we service are used to develop the standards for measuring the learning outcomes.

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The real measure of the program learning outcomes, is the employment of the student and the success of the student as employees in their chosen careers. Many of the current students are already employed and are upgrading themselves for their current employer or for career changes. With the good relationship the program has with most of the employers, there is constant feedback on student success and shortcomings.

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

The assessment and improvement of the Program Learning Outcomes and Student Learning Outcomes is a vital part of the restructuring of the MWIM Tech Program and will change as the program completes the restructuring.

The development of the Machine Option and the Weld/sheet Metal Option is mostly complete and the development of the new curriculum and course offerings in the Industrial Mechanics Option will be dependent on having the MWIM Laboratory equipped with the necessary Trainers, Equipment and Supplies.

The RDP Funding has provided a good start of the Industrial Mechanics part of this program and these budgetary requests are needed to complete the program restructuring and to maintain the present level of instruction.

Building 324 was completed in 1989 and is in need of Repairs and Maintenance. The roof and water collection system deterioration has been accelerated with the acid rain from the continuous volcanic eruption and needs replacement.

The Equipment that is a part of the building has not been properly serviced and maintained for almost 20 years and needs to be serviced. The equipment purchased when the facility was opened in1989 has to be replaced and is included in this budget on a 5 year replacement schedule.

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

Task:	Academic Yr.	Who is responsible	$ amount & budget category Except R/M	Best fits which ADP Goal	Supported by ADP Resource Require-ment? Y/N	Addresses which strength or weakness
1.Furnish RAC/ Mech Lab	2008-09	Program Coord.	$150K, Equip	C,E	N	W1, W3
2.Onetime startup supplies/ (small tools) for RAC/ Mech Lab	2008-09	Prog. Coord.	$30K Supplies /small tools; S1x	C		W1,W3
3.hire 1 FTE-Faculty	2008-09	Program Coord.	$50K, P	A,C	N	W1
4. Furnish (2)Faculty Office	2008-09	Program Coord.	$8K, Equip./ Furni-ture; S1x	A, C		W2
5. Furnish class room/Lab	2008-09	Program Coord.	$10K, Equip./ Furni-ture	C, E		W2
6. Complete furnishing Rac/Mech Lab	2009-10	Program Coord.	$200K, Equip.	C,E	N	W1, W3
7. Increase Supply(B) Budget	2008-beyond	Program Coord.	Increase startup costs of program expand. 5 yr adj. $7K/yr	C,E		W1,W3

Key to abbreviations:

ADP Goals are: A, B, C, D, E

Budget Categories: P=Personnel; S1x=Program Review Special Fund; SE=Supplies Enhanced; Eq=Equipment

Strengths/Weaknesses are numbered (S1, S2, S3, W1, W2, W3—from A.3

Table 6B.--Repair and Maintenance

Nature of Problem	**Describe Location: e.g. Building(s) & Room(s)**
Leaking roof, irreparable gutter system, Deterioration of building Exterior	Building 324
Repair and maintenance of 3Ton Overhead Crane	Building 324
Service/Repair Forced Air Ventilation systems (7ea.)	Building 324
Service/Repair Air Compressor	Building 324
Service and Repair Roll-up Doors	Building 324

Table 7—Equipment Depreciation, if applicable (add rows as needed; examples given)

Program Assigned Equipment (E) and Controlled Property (CP) (List in order of chronological depreciation date)	**Category: CP or E**	**Expected Depreciation Date**	**Estimated Replacement Cost**
(1989) Multiple Operator Weld Power Source	E	2009	$15K
(1989) 5 ea. GTAW Power Sources	E	1 each/year: 2009, 10, 11, 12, 13	$6K each Total cost: 5yrs=$30K
(1989) 5 ea. GMAW Power Sources w/Feedr & Gun	E	1 each/year 2009,10,11,12, 13	$7K each Total cost: 5 yrs=$35K
(pre 1989) 5 ea, Individual SMAW (Inverter Type) Power Sources	E	1 each/year 2009,10,11,12, 13	$6K each Total cost: 5yrs=$30K
(1989)Oxy/Acet Manifold system, Weld, Braze	E	2009	$5K
(1989)Oxy/Acet Manifold system, Cutting,	E	2010	$7K
Update Faculty (3) PCs and connect Fiber optics	CP	2010	