

**HAWAII COMMUNITY COLLEGE  
ANNUAL INSTRUCTIONAL  
PROGRAM REVIEW**

**Electrical Installation and Maintenance  
Technology**

**APRIL 2, 2007**

**Harry Takiue  
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**ANNUAL INSTRUCTIONAL PROGRAM REVIEW**  
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**I. Narrative and Analysis of Data**

**a. Statement on the mission or purpose of the program, including the target student population;**

The Electrical Installation and Maintenance Technology program (EIMT) prepares students for entry level employment with electrical appliance shops, utility companies, electrical construction contractors and electrical maintenance companies.

**b. Information on external factors affecting the program;**

**c. Attach PHI Report (CTE Programs only)** None.

**d. Required external measures, if applicable (e.g.) Nursing Cert.** Students who earn the AAS who are accepted into the apprenticeship program may receive one year credit toward their apprenticeship requirements.

**e. Data Analysis**

*The program is healthy. Data elements are well above the average for the ATE division in almost all categories.*

*Number of Majors:* The number of FTE student majors of 45.33 compared to the 974 unduplicated majors. This is the highest number of majors for the ATE division. The percentage of FTE student majors to unduplicated majors is 48% which is lower than most of the programs in the division. This is an indication of a number of students working on their pre requisites to enter the program. Typically the 1<sup>st</sup> year program starts out full with a significant number of students deciding to forgo earning their AAS degree.

*Average Class Fit & Student- Faculty Ratio:* Class caps for the program are set at 20. The program's average class size is 17.25 and the average class fit for the year is 86.3%. These are well above the average for the division. The student faculty ratio is 11.2.

*FTE Faculty:* The number of faculty assigned to the program is adequate. The FTE of BOR appointed program faculty is 2 and the number of FTE faculty based on contact hours is 2.29.

*GPA and Number of Graduates:* The program paid course (PPC) average GPA is 3.00 and the non-PPC average GPA is 2.4. The number of graduates for the reporting period is

11, which is greater than the average number of graduates (9.33) for the ATE Division. Assuming the class started out with 20 students, the graduation percentage rate is 55% which is higher than the average for the division.

**II. Update or Create Your Action Plan including Budget Request with Justification, if needed.**

Goals for the upcoming year include:

1. Continue recruitment efforts.
2. Develop a priority list of equipment replacement and seek funds to replace. Tool replacements that are needed as soon as possible total \$25,000.
3. Hold an advisory council meeting.
4. Finalize student learning outcomes for the program.
5. Document and develop as necessary assessment strategies for student learning outcomes.
6. Complete a comprehensive program review November 2007.
7. Determine what is required and cost to include as part of the EIMT program the running of communication cable and being certified to terminate it. Running the communication cable is one thing, terminating is another. Instructors can currently install communication cable but are not certified to terminate. One instructor is seeking funds to participate in training to become certified to terminate. The advisory council has asked that this be included in the curriculum. If training is received, equipment will be needed and curriculum will need to be updated. Estimated cost for current year, \$5,000. *Note: The first step in this process is for the program to verify that this is not a duplication of what is being incorporated in the Electronics program.*

**Data Chart**

**QUANTITATIVE TREND DATA CHART**

**Program Name: Electrical Installation & Maintenance Tech**

	<b>Fall 2005</b>	<b>Spring 2006</b>	<b>AY</b>
<b>#1 Number of Unduplicated Majors</b>	79	63	94
<b>#2 Total Student Semester Hours</b>	731	629	1360

#3	FTE Student Majors	48.73	41.93	45.33
#4	Number of Graduates	-	-	11
#5	Number of classes	2	2	4
#6	Avg Class size	18.50	16.00	17.25
#7	Avg Class fit	92.5%	80.0%	86.3%
#8	FTE of BOR Appointed Program Faculty	-	-	2
#9	Number of FTE Faculty	-	-	2.29
#10	Student semester hours for all PPC class enrollments	396	372	768
#11	Student-Faculty Ratio	-	-	11.20
#12	PPC Credits Earned Ratio	.89	.97	.93
#13	Non-PPC Credits Earned Ratio	.60	.68	.64
#14	PPC Avg GPA	3.12	2.87	3.00
#15	Non-PPC Avg GPA	2.05	2.75	2.40
#16	Budget	-	-	6992.00
#17	Program Cost per SSH***	-	-	106.05

\*\*\* - calculated using rank 4 rate per credit hour of instruction

The Program Health Indicators Review provides a comprehensive, empirically based review of academic programs. Major sections of the report provide descriptive information about the development and history of a program, goals, faculty and advisory committees, admission and degree requirements, and graphic representation of the program’s standing. The major clusters of program health indicators are program demand, program efficiency, and program outcomes. Hawai’i Community College uses five data elements to develop these clusters: number of applicants and majors (program demand), class fit and average class size (program efficiencies) and graduates (program outcomes).

Chancellor :	Rockne Freitas
Vice Chancellor for Academic Affairs:	Doug Dykstra
Department Chair:	Clyde Kojiro

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**PROGRAM DESCRIPTION**

The Electrical Installation & Maintenance Technology program is placed in the Applied Technical Education – Construction Trades department of Hawai‘i Community College. Other programs within this department include: Agriculture, Carpentry, and Architectural, Engineering and CAD Technologies.

The Electrical Installation and Maintenance Technology Program (MWIM) offers a Certificate of Achievement with the successful completion of 45 semester credits and the Associate in Applied Science Degree with 69 semester credits completed. The program prepares students for employment with electrical appliance shops, utility companies and electrical construction and maintenance companies. Students learn skills needed for planning, designing, constructing, installing and maintaining electrical wiring and equipment.

## **PROGRAM GOALS**

The primary goals of the Hawai'i Community College Electrical Installation and Maintenance Technology Program are as follows:

1. To provide curricula and activities that allow students to gain knowledge and saleable skills that will qualify them for entry-level employment in occupations requiring skills necessary for installing and maintaining electrical wiring and equipment.
2. To serve the community's needs for upgrading the skills of professionals in the field of electrical installation and maintenance through utilization of the program's physical and instructional resources as well as faculty expertise.
3. To educate students in the knowledge and skills that will enable them to understand and appreciate their heritage and to be aware of the contributions of different cultures; to exercise good judgment as citizens; and to instill a desire for lifelong learning that will enable them to respond to changing technology and code compliance.

**PROGRAM HEALTH INDICATORS**

INDICES	MINIMUM LEVEL	ACTUAL LEVEL	SATISFACTORY LEVEL
<b>PROGRAM DEMAND/CENTRALITY: Fall 2006</b>			
Number of Applicants	<b>30</b>	<b>80</b>	<b>40</b>
Number of Majors	<b>20</b>	<b>82</b>	<b>30</b>
Student Semester Hours	<b>240</b>	<b>384</b>	<b>360</b>
Class Credit Hours	<b>24</b>	<b>24</b>	<b>24</b>
Number of Classes Taught	<b>2</b>	<b>2</b>	<b>2</b>
<b>PROGRAM EFFICIENCY: Fall 2006</b>			
Average Class Size	<b>10</b>	<b>16</b>	<b>15</b>
Student Semester Hours per FTE Faculty	<b>120</b>	<b>192</b>	<b>180</b>
Equiv. Class Credit Hours per FTE Faculty	<b>12</b>	<b>12</b>	<b>12</b>
Percentage of Small Classes	<b>50%</b>	<b>0%</b>	<b>0%</b>
<b>PROGRAM OUTCOMES: Fall 2004 (See Perkins III Core Indicators on Page 5)</b>			
Credits Earned Ratio – General Education			
Credits Earned Ratio – Vocational Education			
Degrees and Certificates Awarded – AY 2001-2002			
Placement into Further Education, Employ, or Military			
Program Retention – Fall to Spring			
Retention in Employment			
Non-Traditional Program Participation – Females			
Non-Traditional Program Completion – AY 2001- 2002			

**2005-2006 PERKINS III CORE INDICATORS**

Core Indicators	# in Denominator	# in Numerator	Adjusted Level	Actual Level
Academic Achievement	<b>23</b>	<b>20</b>	<b>81.92%</b>	<b>86.96%</b>
Vocational Skills	<b>25</b>	<b>23</b>	<b>90.00 %</b>	<b>92.00%</b>
Degrees & Certificates	<b>25</b>	<b>10</b>	<b>37.33%</b>	<b>40.00%</b>
Placement/Employment	<b>13</b>	<b>10</b>	<b>71.72%</b>	<b>76.92%</b>
Retention/Employment	<b>10</b>	<b>8</b>	<b>92.00%</b>	<b>80.00%</b>
Nontraditional Participation	<b>60</b>	<b>8</b>	<b>14.60%</b>	<b>13.33%</b>
Nontraditional Completion	<b>12</b>	<b>2</b>	<b>12.73%</b>	<b>16.67%</b>

**OCCUPATIONAL DEMAND**  
**Hawai'i County -**

Occupational Title	State 2005	Hawaii 2005	Hawaii New 2005-2011	State Replacement 2005-2011	Hawaii Replacement 2005-2011
Electricians	2,545	288	29	289	32
Total demand 2005-2011 = 61					

\* Employment estimate is less than ten, but not equal to zero.

Source: EMSI Table for Hawaii County

## **ANALYSIS OF THE PROGRAM**

### **Program Demand/Centrality:**

The indicator demonstrates a high percentage of demand for the program. The **number of applicants was well above** satisfactory level. The **number of majors was well above** the satisfactory level. The **student semester hours were above** the satisfactory level.

The outlook of the construction industry is in a demand state. The majority of EIMT students work part-time after school, on weekends, and during semester breaks in the electrical construction and maintenance industry. The companies in industry then hire the students on a full-time basis after graduation. This is a clear indication of the high demand for the electrical program.

### **Program Efficiency:**

The indicators demonstrate a program with a high efficiency rate. The **average class size was above** the satisfactory level and there were no small classes offered.

### **Program Outcomes:**

The program exceeded the desired level in academic achievement, vocational skills, credentials, placement, and nontraditional completion. It is slightly below the desired level in retention and nontraditional participation. Students often leave the program when a full time job is offered and they are supporting a family.

### **Plan of Action 2005-2006**

The EIMT faculty maintained its “good health” standings by continuing to deliver quality instructions and staying involved with the recruitment efforts. Their plan of action is to maintain the programs “good health” standings.

### **Response to last year’s plan of action**

The program decreased percentages in the areas of academic achievement, vocational skills, credentials, and placement. It improved in retention, nontraditional participation, and nontraditional completion. Industry and employers’ demand for students who have completed even one semester of the EIMT program is high. Consequently, students often leave when offered a job and do not complete the program.

### **Plan of Action 2006-2007**

8. Continue recruitment efforts.

9. Develop a priority list of equipment replacement and seek funds to replace. Tool replacements that are needed as soon as possible total \$25,000.
10. Hold an advisory council meeting.
11. Finalize student learning outcomes for the program.
12. Document and develop as necessary assessment strategies for student learning outcomes.
13. Complete a comprehensive program review November 2007.
14. Determine what is required and cost to include as part of the EIMT program the running and termination of communication cable. Running the communication cable is one thing, terminating is another. Instructors can currently install communication cable but are not certified to terminate. One instructor is seeking funds to participate in training to become certified to terminate. The advisory council has asked that this be included in the curriculum. If training is received, equipment will be needed and curriculum will need to be updated. Estimated cost for current year, \$5,000. *Note: The first step in this process is for the program to verify that this it will not be duplicating portions of the Electronics program.*

## **Appendix A: History and Admission Requirements**

### **Program History**

In response to the growing demands of the Big Island's electrical industry, the Electricity Program at Hawai'i Technical School began in the fall of 1955. At that time the program had one full time instructor and 12 students. The program first offered a Certificate of Achievement to those students who satisfactorily completed the two-year program.

In 1970, the institution was renamed Hawai'i Community College, University of Hawai'i at Hilo. As one of the state's community colleges, the program began offering an Associate of Science Degree in Electricity in addition to the Certificate of Achievement.

In 1982, the program title was changed to Electrical Installation and Maintenance Technology. The reason for the change was to bring about a closer fit with the program objectives; to articulate with program titles with other community colleges in the state having similar objectives and curricula; and to reduce confusion with the Electrical programs/courses offered by the Department of Education.

In the fall of 1988, through joint cooperative efforts with the Hawai'i State Corrections Center and Hawai'i Community College, the EIMT program extended its offerings by initiating a Certificate of Achievement program to Kulani Correctional Center. The program courses were modularized, on an experimental basis, to allow them to be offered at that institution. The arrangement allowed inmates who began the program at Kulani to receive credit for classes taken at the center, and transfer to UHH following their release. Thus, the former inmates were able to complete the requirements for the Certificate or go on to receive the Associate of Science degree. The first class offered at Kulani enrolled ten students. One of these students enrolled in the EIMT program at HawCC and graduated in spring 1990 with an A.S. degree.

### **Program Admission Requirements**

The EIMT program presently accepts new students only in the Fall Semester. The students are ranked and selected by:

1. COMPASS Placement scores
2. The order in which the applications are received

The admission requirements have insured that the students who are admitted to the program are able to understand the curriculum and complete the course requirements in a timely manner. However, in keeping with the college's policy of open admissions, the admission criteria will be carefully evaluated in order to insure that they are both fair and appropriate.

## **Appendix B: Degree Requirements**

		<b>CA</b>	<b>AAS</b>
<b>First Semester</b>			
Elec 24	Interior Wiring	12	12
Blprt 22	Blprt Reading and Drafting	3	3
** Math 51	Algebra Topics for Electricity	3	3
	<b>TOTAL</b>	<b>18</b>	<b>18</b>
<b>Second Semester</b>			
Elec 22	Electricity II	12	12
Blprt 30C	Blprt Reading for Electricians	-	3
** Eng	Eng 21, 51, or 22 or higher	3	3
	<b>TOTAL</b>	<b>15</b>	<b>18</b>
<b>Third Semester</b>			
Elec 41	Alternating Current	12	12
Elective	Social, Natural, & Cultural Env. (Phys 50 or higher recommended)	-	6
	<b>TOTAL</b>	<b>12</b>	<b>18</b>
<b>Fourth Semester</b>			
Elec 43	Industrial Electricity	-	12
Elective	Social, Natural, & Cultural Env.	-	3
Elec 93V	CVE (optional with instructor approval)	-	-
	<b>TOTAL</b>	<b>-</b>	<b>15</b>
	<b>TOTAL</b>	<b>45</b>	<b>69</b>

## **Appendix C: Faculty**

### **Regular Faculty**

<b><u>Name</u></b>	<b><u>Tenure Status and date</u></b>	<b><u>Degrees Held</u></b>	<b><u>Rank</u></b>
Harry Takiue	Tenured, 1996	Certificate	C-4
Patrick Pajo	Tenured, 2003	AS Degree	C-3

### **Part-time Faculty**

<b><u>Name</u></b>	<b><u>Tenure Status and date</u></b>	<b><u>Degrees Held</u></b>	<b><u>Rank</u></b>
Renee DelaCruz Lecturer	none	AS Degree	

## **Appendix D: Advisory Committee**

John Kimura, President, J.K. Electric, Inc.

Clyde Nagata, Managing Engineer, Hawaii Electric Light Co.

Wayne Fukunaga, President, Fukunaga Electric

Reid Furutani, President, Able Electric

## **Appendix E: Definitions of Data Elements (All data includes West Hawai'i)**

### **A. Program Demand/Centrality:**

1. Number of Applications: Total number of applications received complete and incomplete.
2. Number of Majors: Major declared/on file during the semester.
3. Student Semester Hours: Total number of semester hours based upon class multiplied by the enrollment for each class. Includes practica and other classes where 5 students = 1 semester (credit) hour. Excludes cancelled, 99V, 199V, 299V, and all CVE classes.
4. Class Credit Hours: Sum of credits of all classes offered within the program/with the program/major code/alpha. Includes practica and other classes where 5 students = 1 semester (credit) hour. Excludes 99V, 199V, 299V, and all CVE classes.
5. Number of Classes Taught: Total number of classes conducted/run within the program/with the program/major code/alpha. Includes practica and other classes where 5 students = 1 semester (credit) hour. Excludes 99V, 199V, 299V, and all CVE classes.

### **B. Program Efficiency:**

1. Average Class Size: Average class size of all classes conducted/run within the program/with the program/major code/alpha. Includes practica and other classes where 5 students = 1 semester (credit) hour. Excludes 99V, 199V, 299V, and all CVE courses. Total enrollment in each class excludes students with "DR" and/or "W" grades.
2. Student Semester Hours per FTE Faculty: Total student semester hours from A.3. divided by analytical FTE Faculty.
  - a. Analytical FTE Faculty: Teaching based upon a full load (15 or 12 credits depending upon the contact hours.) Division Chairpersons are assigned an analytical FTE Faculty equivalent of 0.70 FTE.
  - b. Each full-time faculty within a program is considered to be 1 FTE. FTE based upon lecturers are calculated by the number of credits each are assigned to teach.
  - c. Assigned time is to be extracted from FTE calculations... similar to calculating the FTE for a Division Chair. For example, if a Full-time faculty received 3 credits assigned time (out of a regular 15-credit load) it would be considered a .8 FTE rather than 1.

3. Equivalent Class Credit Hours per FTE Faculty: Total class credit hours from A.4. divided by total analytical FTE Faculty.
4. Percentage of Small Classes: Percent of classes within the program/with the program/major code/alpha that had less than 10 students. Includes practica and other classes where 5 students =1 semester (credit) hour; however, these classes are considered to be Low-enrolled only if there are less than 5 students or between 6 and 9 students. Excludes 99V, 199V, 299V, and all CVE classes.

### **C. Program Outcomes:**

1. Credits Earned Ratio (Remedial/Developmental): Percentage of program majors enrolled in ESL 9, ESL 13, ENG 20R, ENG 20W, ENG 51, LSK 51, MATH 22, and MATH 50 who passed with a grade of A, B, C, D or CR.
2. Credits Earned Ratio (General Education): Percentage of program majors enrolled in all LBART courses (excluding those in C.1.) who passed with a grade of A, B, C, D or CR. Includes practica and other classes where 5 students = 1 semester (credit) hour. Excludes 99V, 199V, 299V, and all CVE courses.
3. Credits Earned Ratio (Vocational Education): Percentage of students enrolled in vocational courses who passed with a grade of A, B, C, D or CR. Includes practica and other classes where 5 students = 1 semester (credit) hour. Excludes 99V, 199V, 299V, and all CVE courses.
4. Credits Earned Ratio (Overall): Combination of C.1., C.2., and C.3. above.
5. Graduate Placement Rate: Students who graduated with a certificate/degree in the PAST academic year.
6. Degrees Awarded: The number of certificates and degrees awarded during the PAST academic year.
7. Retention Rate: New students within a program/major continuing or retained in that program/major from the past two or more terms. (Students registered in Fall 2000 who started in Spring 2000 or Fall 1999. Students registered in Fall 2001 who started in Spring 2001 or Fall 2000.)