

# **HAWAI`I COMMUNITY COLLEGE ELECTRICAL INSTALLATION & MAINTENANCE TECHNOLOGY PROGRAM REVIEW REPORT**

**November 30, 2007**

**Assessment Period: July 1, 2004 to June 30, 2007**

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**Program Review at Hawai'i Community College is a shared governance responsibility related to strategic planning and quality assurance. It is an important planning tool for the college budget process. Achievement of Student Learning Outcomes is embedded in this ongoing systematic assessment. Reviewed by a college wide process, the Program Reviews are available to the college and community at large to enhance communication and public accountability.**

**HAWAI'I COMMUNITY COLLEGE  
ELECTRICAL INSTALLATION &  
MAINTENANCE TECHNOLOGY  
PROGRAM REVIEW REPORT  
2007-2008**

**A. Program Effectiveness**

- **HawCC Mission**

- Hawai'i Community College promotes student learning by embracing our unique Hawai'i Island culture and inspiring growth in the spirit of "*E 'Imi Pono.*"

- **Programs' Mission**

- Our endeavor is to provide the maximum learning opportunity for students to build proficiency in electrical installation and maintenance technology, current NEC National Electrical Code NFPA 70 interpretations and comprehension, current construction field and industry methodology, related field manual dexterity, and sound work ethics; in alignment with UHCC's and HawCC's mission to serve all segments of our Hawai'i Island Community.

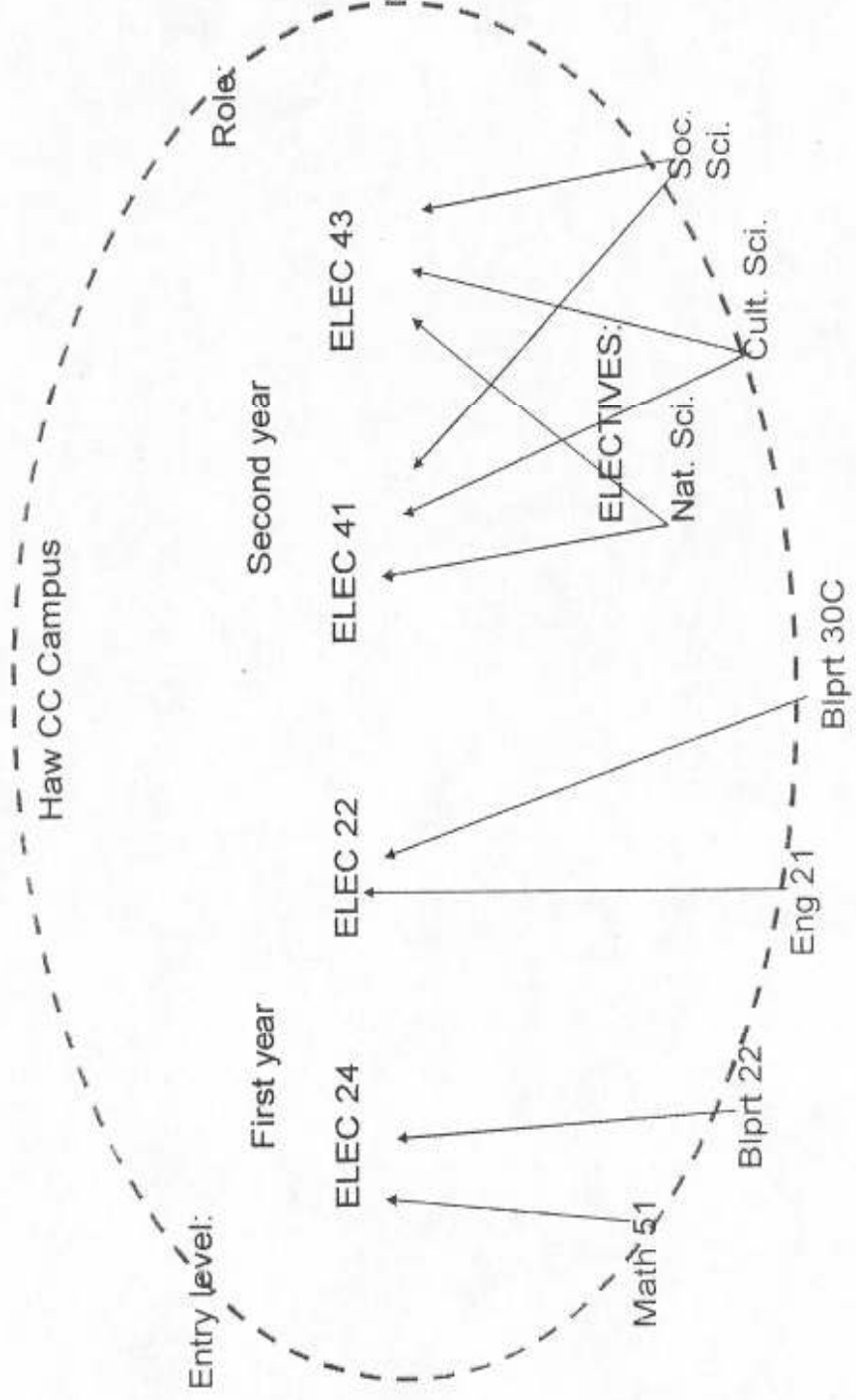
- **History**

- 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.
  
- Our trade Advisory Committee helped to broaden the program's content to increase skills required for electrical installation and maintenance entry level positions. This new curriculum articulates with other community college programs and expansion of course content better meet the needs of Hawai'i Island employers and improves the employment opportunities for graduates.
  
- **Other Data**
  - The EIMT Program uses the Applied Technical Education Divisions' standard evaluation forms for course evaluations. The EIMT Program have discussed various ways to initiate student satisfaction surveys for the program and are now carefully determining questions and outcomes of the surveys.
  
  - The EIMT Program is required to submit Program Health Indicator reports to the system level because of Perkins monies received. The report data includes data and narratives to justify monies or equipment procured including the following data:
    - Program Demand/Centrality - Student enrollment, SSH, and classes taught.
  
    - Program Efficiency - Average class size, SSH per Faculty, class size.
  
    - Program Outcomes - Credits earned ratio, Graduation, Employment.
  
    - Plan of Action - Ideas, changes, for the next PHI.

- **Summary**

- The EIMT Program is part of the Construction Trades Department in the Applied Technical Education Division. The Construction Trades Department has a unique and exceptional capstone project that is used as an assessment tool. This project is the collaboration of State and County Agencies, Community Partners, Hawai'i Community College, and the Department of Hawaiian Home Lands. This forty-year old partnership for a four bedroom residential dwelling involves the planning, designing, obtaining proper electrical permits for County of Hawai'i, material take-off, roughing-in, and trimming-out.
- There is a need for all programs participating in this capstone project to meet as a committee to overhaul their respective curriculum to make it possible to benefit all programs. The project is tailored for some programs. Historically, it does not fit in the EIMT Program. The second-year fourth semester lessons were always interrupted and disrupted, due to work that was done on the capstone project. By the time lessons resumed, the students lost their train-of-thought. Lessons had to be taught all over and repeated, which wasted precious teaching and learning time. Due to time running out at the ending of the semester, important lessons could not be taught. The result is, concerned students complain about the curriculum not being delivered.
- Unfortunately, with liability issues concerning Instructors using personal State of Hawai'i Electrical Journeyman & Electrical Contractors' Licenses for obtaining County of Hawai'i electrical permits, the EIMT Program is no longer involved with the aforementioned capstone project. The EIMT Program will reassess its Capstone goals before the next Program Review.
- For this Program Review period, the EIMT Program was rated a healthy program in all aspects of the indicators and a notable factor for all CTE programs are the employment rate. The EIMT Program has had employment offers from various electrical installations, electrical maintenance, electrical construction, and various utility companies asking for graduates to apply to respective firms. Any student wanting to work had an opportunity to apply. The EIMT Program could not fill all the employment offers.



- **Roles**

CA Degree

- Assistant Duct Installer
- Grounds Person
- Electrical Apprentice
- Electrical Maintenance Person
- Material Warehouse Person
- Electrical Sales Person
- Appliance Repair Person
- Electrician Laborer

AAS Degree

- Electrician Apprentice
- Lineman Apprentice
- HVAC Apprentice
- Electrical Estimator
- Maintenance Electrician
- Cable Installer
- Fiber Optic Installer
- Electrician Laborer
- Appliance Repairer
- Electric Motor Technician

With Experience and Licenses

- Electrical Contractor / Inside and Outside
- Electrical Contractor / Pole and Line
- Electrical Contractor / Communications
- Electrician Foreman
- Electrician Supervisor
- Electrician Journey Worker
- Electrical Inspector
- Professional Engineer / Electrical Designer
- Educator

**Table 1—List of Program Learning Outcomes**

<b>#1)</b> Demonstrates entry-level skills for accuracy in residential, commercial, and industrial electrical installation and maintenance services.
<b>#2)</b> Demonstrates competence in work attitude and attendance.
<b>#3)</b> Demonstrates competence in practicing safety always, and recognizing potential hazards that needs to be corrected.
<b>#4)</b> Demonstrates competence in understanding and interpreting the National Electrical Code NFPA 70 book.
<b>#5)</b> Demonstrates competence in blueprint reading and drafting.
<b>#6)</b> Demonstrates competence in material take-off and layout on new and existing projects.
<b>#7)</b> Demonstrates competence in recognizing related building parts and materials in carpentry, masonry, plumbing, and HVAC systems.
<b>#8)</b> Demonstrates computation, communication, critical thinking, research, and problem solving skills as well as an appreciation for the diversity of cultures, community, and the environment.
<b>#9)</b> Maintain physical and mental fitness and a drug-free lifestyle.
<b>#10)</b> Take pride in the quality of projects and performance, possess responsible work ethics and standards, and model attitudes of professionalism and appearance.

**Table 2—Program Learning Outcomes by Courses**

	<b>#1</b>	<b>#2</b>	<b>#3</b>	<b>#4</b>	<b>#5</b>	<b>#6</b>	<b>#7</b>	<b>#8</b>	<b>#9</b>	<b>#10</b>
<b>ELEC 22</b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>
<b>ELEC 24</b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>
<b>ELEC 41</b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>
<b>ELEC 43</b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>

**Table 3—Levels of Implementation of PLO Assessment**

	<b>A</b>	<b>D</b>	<b>P</b>	<b>SCQI</b>	<b>Assessment Strategy</b>
<b>PLO #1</b>	X				
<b>PLO #2</b>	X				
<b>PLO #3</b>	X				
<b>PLO #4</b>	X				
<b>PLO #5</b>	X				
<b>PLO #6</b>	X				
<b>PLO #7</b>	X				
<b>PLO #8</b>	X				
<b>PLO #9</b>	X				
<b>PLO #10</b>	X				

Key (reference: Barbara Beno’s letter, 9-12-07; ACCJC’s evaluation of Institutional effectiveness, rubric III): A=Awareness, D=Development, P=Proficiency, SCQI=Sustainable Continuous Quality Improvement

**Table 4A—Percentage of Program Courses with SLO’s**

<b>100% of Program courses with SLO’s</b>	<b>Of these, 100% are being assessed</b>
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**Table 4B—Percentage of Program Courses Reviewed within the Previous 5 Years**

**0%**



- **Quantitative Data Analysis**
  - Item #3/Number of Majors illustrates a significant gain which indicates a healthy program.
  - Items #4, #6/Total Student Semester Hours All Programs and item #7/FTE Program Enrollment dipped slightly in AY 06-07 due to students applying and being hired at various electrical companies. Job placements indicate a high demand in the electrical field.
  - Item #20/Number of Degrees Earned (annually) and item #21/Number of Certificates Earned (annually) are normal due to student job placements.
  - Item #10/Average Class Size illustrates a healthy program which indicates a high demand in the electrical field and the interest of traditional and non-traditional students in the electrical field.
  - Item #12/FTE of BOR Appointed Program Faculty and item #32/Number of FTE Faculty based on contact hours (21), are a constant and should not change in the near future.
  - Item #13/Student Faculty Ratio illustrates a rise which indicates the popularity of the EIMT Program
  - Items #15/Program Budget Allocation illustrates a dropped in AY 05-07 which indicates the need to increase the budget due to the rising cost of material and equipment.
  
- **Program Strengths (S1, etc.) and Weaknesses (W1, etc.)**
  - **Strengths**
    - S1-** Program Demand
    - S2-** Program Efficiency
    - S3-** Program Outcomes
    - S4-** Recruitment Efforts
  - **Weaknesses**
    - W1-** Low Program Budget (supplies & equipment)
    - W2-** Outdated Tools & Equipment
    - W3-** Program Upgrading

## B. Action Plan including Budget Request

**Table 5—Top 6 Non-Cost Items (Including SLO & PLO completion, and assessment)**

Task:	Academic year	Who is responsible	Best Fits which ADP Goal	Addresses which strength or weakness
1) Continue recruitment efforts.	2007-08	Instructor	A, B	S1
2) Continue developing a priority list of equipment upgrades and replacements.	2007-08	Instructor	A, B, C, D, E	W1, W2
3) Hold an Advisory Council meeting.	2007-08	Instructor	C, D, E	S1, S2, S3, W3
4) Finalize PLO's.	2007-08	Instructor	A, B, C, D, E	S1, S2, S3, S4, W1, W2, W3
5) Implement a "Sustainable Energy" course in the Spring semesters.	2007-08	Instructor	A, B, C, D, E	S1, S2, S3, W3

**Key to abbreviations:**

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

**Strengths/Weaknesses are numbered (S1, S2... W1, W2...--from A.3.)**

- ***Efforts in implementing a "Sustainable Energy" course into the fourth semester are in progress. The EIMT Program is currently pursuing grants to purchase a "Photovoltaic System" and to train the Instructors. The system will be used as a tool to assess SLO's. One instructor will visit Maui Community College through the WO Faculty Exchange Grant.***
  - ***The objective of the exchange is to gain knowledge in photovoltaic system designs to assist in proposing a similar course during the spring semesters as a module in the EIMT Program.***
  - ***The expected outcomes of the visit are to use the ideas and knowledge to develop a curriculum to teach basic photovoltaic applications and to design an actual working photovoltaic system for students' hands-on applications.***

**Table 6A. —Top 6 Cost Items**

<b>Task:</b>	<b>Academic Yr.</b>	<b>Who is responsible</b>	<b>\$ amount &amp; budget category Except R/M</b>	<b>Best fits which ADP Goal</b>	<b>Supported by ADP Resource Requirement? Y/N</b>	<b>Addresses which strength or weakness</b>
<b>(1)</b> see chart 1 below	2008-2009	Program Coordinator	\$975K Eq	<b>A, B, C, D, E</b>		<b>S2, S3, W1, W2, W3</b>
<b>(2)</b> see chart 1 below	2008-2009	Program Coordinator	\$150K Eq	<b>A, B, C, D, E</b>		<b>S2, S3, W1, W2, W3</b>
<b>(3)</b> see chart 1 below	2008-2009	Program Coordinator	\$58K Eq	<b>A, B, C, D, E</b>		<b>S2, S3, W1, W2, W3</b>
<b>(4)</b> see chart 1 below	2008-2009	Program Coordinator	\$400K Eq	<b>A, B, C, D, E</b>		<b>S2, S3, W1, W2, W3</b>

**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)**

### CHART 1: PHYSICAL FACILITIES ASSIGNED TO PROGRAM

Task No.	List Bldng/Rm/Lab/Shop	Describe Renovation/Repair Needed	Estimated Cost
(1)	Building 391/17 Laboratory	-increase square footage to provide efficient working space for student workstations -replace light fixtures -improve electrical -repair exhaust fans -replace racking systems -repair hoist system -replace air compressor system -upgrade air-conditioning system	\$ 975,000.00
(2)	Building 391/18, 22 Faculty Offices	-install separate phone lines -replace furniture -replace all light fixtures -replace ceiling tiles -upgrade electrical outlets -improve internet cable layout -upgrade air-conditioning system	\$ 150,000.00
(3)	Building 391/23, 24 Lecture Rooms	-replace louvers -replace furniture -replace light fixtures -replace ceiling tiles -install fixed projection system -provide additional internet lines -upgrade air conditioning system	\$58,000.00
(4)	Building 391/12, 13, 14, 15, 16, 20, 21 Storage / Tool Rooms	-replace light fixtures -replace ceiling tiles -replace racking systems -improve electrical	\$ 400,000.00

**Table 6B.--Repair and Maintenance**

Nature of Problem	Describe Location: e.g. Building(s) & Room(s)
***SEE CHART ONE ABOVE***	

**Table 7—Equipment Depreciation, if applicable**

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
(2007) 4" EMT Bender	E	2012	\$20,000.00
(2007) Fluke Kit	CP	2008	\$2,500.00
(2005) Power MIG	CP	2010	\$2,300.00
(2005) Thermal Dynamics Plasma Cutter	CP	2010	\$2,700.00
(1999) Bender	CP	2004	\$3,500.00
(1992) Motor Control Center	E	1993	\$7,500.00
(2004) Dell Computer	CP	2005	\$3,000.00
(2002) Computer PDC	CP	2003	\$3,000.00
(2007) Plate Compactor	CP	2012	\$2,500.00
(1994) Chevrolet Truck	E	1999	\$45,000.00
(1985) Van Dodge	E	1990	\$30,000.00
(2003) Threader Machine	CP	2008	\$4,500.00

**Key to abbreviations:**

**CP=Controlled Property w/item value \$1K-\$5K**

**E=equipment w/item value >\$5K;**

**C. Table 8—Data Elements**

	AY 04-05	AY 05-06	AY 06-07
1. Annual new and replacement positions in the State	<b>2834</b>	<b>2834</b>	<b>2834</b>
2. Annual new and replacement positions in the County	<b>61</b>	<b>61</b>	<b>61</b>
3. Number of majors	<b>57</b>	<b>76</b>	<b>80</b>
4. Student Semester Hours for program majors in all program classes	<b>432</b>	<b>432</b>	<b>384</b>
5. Student Semester Hours for non-program majors in all program classes	<b>0</b>	<b>0</b>	<b>0</b>
6. Student Semester Hours all program classes	<b>432</b>	<b>432</b>	<b>384</b>
7. FTE program enrollment	<b>28.8</b>	<b>28.8</b>	<b>25.6</b>
8. Number of classes taught	<b>2</b>	<b>2</b>	<b>2</b>
9. Determination of program's health based on demand (Healthy, Cautionary, or Unhealthy)	<b>Healthy</b>	<b>Healthy</b>	<b>Healthy</b>
10. Average class size	<b>18</b>	<b>18</b>	<b>16</b>
11. Class fill rate	<b>90%</b>	<b>90%</b>	<b>80%</b>
12. FTE of BOR appointed program faculty	<b>2</b>	<b>2</b>	<b>2</b>
13. Student/Faculty ratio	<b>28.5:1</b>	<b>38:1</b>	<b>40:1</b>
14. Number of Majors per FTE faculty	<b>35.63</b>	<b>47.5</b>	<b>50</b>
15. Program Budget Allocation (Personnel, supplies and services, equipment)	<b>\$82,506.00</b>	<b>\$82,140.00</b>	<b>\$81,852.00</b>
16. Cost per Student Semester Hour	<b>\$190.99</b>	<b>\$190.14</b>	<b>\$213.16</b>
17. Number of classes that enroll less than ten students	<b>0</b>	<b>0</b>	<b>0</b>
18. Determination of program's health based on Efficiency (Healthy, Cautionary, or Unhealthy)	<b>Healthy</b>	<b>Healthy</b>	<b>Healthy</b>
19. Persistence of majors fall to spring	<b>75.44%</b>	<b>63.16%</b>	<b>80%</b>
20. Number of degrees earned (annual)	<b>10</b>	<b>10</b>	<b>9</b>
21. Number of certificates earned (annual)	<b>10</b>	<b>10</b>	<b>2</b>
22. Number of students transferred (enrolled) to a four-year institution	<b>0</b>	<b>0</b>	<b>0</b>
23. Perkins core indicator: Academic Attainment (1P1)	<b>90.00%</b>	<b>90.91%</b>	<b>86.96%</b>
24. Perkins core indicator: Technical Skill Attainment (1P2)	<b>5.00%</b>	<b>100.00%</b>	<b>92.00%</b>
25. Perkins core indicator: Completion Rate (2P1)	<b>70.00%</b>	<b>56.52%</b>	<b>40.00%</b>
26. Perkins core indicator: Placement in Employment, Education, and Military (3P1)	<b>84.62%</b>	<b>64.29%</b>	<b>76.92%</b>
27. Perkins core indicator: Retention in Employment (3P2)	<b>81.82%</b>	<b>77.78%</b>	<b>80.00%</b>
28. Perkins core indicator: Non Traditional Participation (4P1)	<b>7.02%</b>	<b>13.46%</b>	<b>13.33%</b>
29. Perkins core indicator: Non Traditional Completion (4P2)	<b>7.14%</b>	<b>14.29%</b>	<b>16.67%</b>
30. Determination of program's health based on effectiveness (Healthy, Cautionary, or Unhealthy)	<b>Healthy</b>	<b>Healthy</b>	<b>Healthy</b>
31. Determination of program's overall health (Healthy, Cautionary, or Unhealthy)	<b>Healthy</b>	<b>Healthy</b>	<b>Healthy</b>
32. Number of FTE faculty	<b>2</b>	<b>2</b>	<b>2</b>

Note: Items 9 & 18, 30 & 31 are determined by writer. Items 23-29 use Perkins data from previous year  
Approved 10/25/07

