

# **HAWAI`I COMMUNITY COLLEGE PROGRAM REVIEW REPORT**

## **ELECTRICAL INSTALLATION AND MAINTENANCE TECHNOLOGY PROGRAM**

**December 2, 2009**

**Assessment Period: July 1, 2006 to June 30, 2009**

**Initiator: Clyde Kojiro, Dept. Chairperson  
Writer: Patrick C. Pajo, Assistant Professor**

*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.*

# HAWAII COMMUNITY COLLEGE ELECTRICAL INSTALLATION & MAINTENANCE TECHNOLOGY

## A. Program Effectiveness

1. Write a brief narrative describing the program and how it supports the College's mission and imperatives.

- **HawCC Mission**

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

- **Program's Mission**

The EIMT Program endeavors 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, cultural awareness, and sound work ethics; in alignment with UHCC's and HawCC's mission to serve all segments of our Hawaii Island Community.

Workforce Development is the crux of the EIMT Program. Its Advisory Council comprised of industry representatives who helped to broaden the program's content to increase skills required for electrical installation and maintenance entry level positions. The current skills taught, expands the course content better and meets the needs of Hawaii Island employers and improves the employment opportunities for graduates.

Attach a current Program Map as **Appendix A**.

2. Attach the program's current Assessment Plan as **Appendix B**.

3. As a result of a review of the program (eg courses, curricula, and assessment plan results, economic impacts, community needs etc.) (attach **Appendix C** – Assessment Results Template) summarize what changes have been made and why.

4. Program Strengths and Weaknesses

Briefly describe the program's strengths and weaknesses to include:

- a) An analysis of data elements (see **Table 5**)--demand, efficiency, and effectiveness;
- b) Perceptions of the use of the program's assessment results of Program Learning Outcomes (PLO's)
- c) Other pertinent information.

**Program Strengths (S1, etc.) and Weaknesses (W1, etc.)**

Enumerate, do not rank, the top strengths and the worst weaknesses (3 each is recommended).



➤ **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

**OVERALL PROGRAM HEALTH: Rated as *Cautionary***

**Demand Indicators: *Cautionary***

There are 88 majors with 18 New and Replacement Positions (County prorated); a ratio of 4.89 majors to each New and Replacement position. More positions are needed to rise to a Healthy score because the maximum number of students enrolled in the EIMT program is 40, divided into first and second year. More majors would mean more students waiting to get into the program.

The EIMT Program researched demands of electricians in the State of Hawai'i. EIMT graduates are highly qualified to be employed in many related companies in both Private and Government workplaces. The Occupation Profile of Hawai'i Trends Employment Period between 2006 and 2016:

- Electricians/80 openings
- Electrical Power-Line Installers and Repairers/20 openings
- Power Plant Operators/10 openings
- Heating, Air Conditioning, Refrigeration Mechanics and Installers/20 openings
- Maintenance and Repair Workers/70 openings
- Helpers-Installation, Maintenance, and Repair Workers/20 openings
- Elevator Installers and Repairers/10 openings
- Telecommunications Equipment Installers and Repairers, Except Line Installers/20 openings
- Electrical Engineers/20 openings

“Grade A” apprentices that were hired in the Electrical Industry. Graduates fulfilled employment vacancies at Electrical Maintenance, Electrical construction, and various Utility Companies such as Power Utilities and Communication Utilities. Every graduate wanting to work had an opportunity to apply. Graduates from the EIMT Program fulfilled

the majority of the positions that were available. Graduates compete with applicants who did not graduate from the EIMT Program. The collaboration of both the EIMT Program and the Advisory Council is the key to employment of graduates. Graduates and employers report to the EIMT Program about their employments.

**Efficiency Indicators: *Healthy***

The EIMT program continues to be a sought after program and have realized high fill rates. Majors to FTE BOR Appointed Faculty is 43.8 which indicates the program could use another instructor. However, the program has been operating efficiently with two faculty by accepting new students only once a year in the fall semester.

**Effectiveness Indicators: *Cautionary***

The Cautionary score of the Effectiveness Indicators is the result of the 73% Persistence rate. The students are told of the importance of acquiring EIMT Program AAS Degree or Certificate of Achievement instead of taking the EIMT courses just for learning the skills only. Acquiring an AAS Degree or a CA in the EIMT Program is an incentive for the graduate since it automatically qualifies them in taking the “State of Hawai’i Maintenance Electricians License.” In addition, an AAS Degree in EIMT is required for an applicant to qualify to take the License Exam. Granted EIMT is a rigorous program and students must be disciplined and focused; however students do not persist due to a variety of reasons, many are personal issues.

Unduplicated Certificates/Degrees awarded in relation to majors is 17.05% (15/88), a Cautionary score. It must be noted that only 40 students are in the program at a time.

Unduplicated Certificates/Degrees awarded in relation to New and Replacement Jobs (prorated County) is .83, a healthy score.

In spite of the downturn in construction, graduates filled employment vacancies at electrical maintenance, electrical construction, and various utility companies such as power utilities and communication utilities. Every graduate wanting to work had an opportunity to apply and graduates from the EIMT Program filled the majority of the positions that were available. The collaboration between the EIMT Program and the Advisory Council is the key to employment of graduates. Graduates and employers report to the EIMT Program about their employments.

Two out of six Perkins IV Core Indicators were not met. More females are entering the program and are performing well. An effort to recruit females will be an action item for the program.

The Assessment Team members were very pleased with the artifact that was presented to them for the Fall 2008 and Spring 2009 Assessment Plans to assess PLO#7 (old) “Demonstrates competence in recognizing related building parts and materials in carpentry, masonry, plumbing, and HVAC systems” and PLO#3 “Interpret and comply with the National Electrical Code NFPA 70 book and local codes.” The results reflect industry needs.

PLO#7 (old) “Demonstrates competence in recognizing related building parts and materials in carpentry, masonry, plumbing, and HVAC systems”

Implications:

1. Students are made aware that other trade skills and knowledge are necessary in the electrical trade.
2. Students understand the process of laying out and installing electrical junction boxes and conduits.
3. Students experience the process of preparing the concrete form work involved.

Planned Actions:

1. Students will be introduced to related trade skills such as carpentry, masonry, and steel work.
2. Students will be taught several methods of laying out and installing electrical parts.
3. Students will be taught to perform the role of a Carpenter and Steel Worker by actually laying out and preparing the concrete form and later lay-out and install the electrical parts in preparation for the concrete pour.

PLO#3 “Interpret and comply with the National Electrical Code NFPA 70 book and local codes.”

Implications:

1. Students need to build their skills in crucial areas, i.e. communication, research, computation, critical thinking, and problem solving.
2. Students need to understand the processes of designing and drafting intricate motor control circuits.
3. Students need to build and energize the controller that they design. By doing so, they will be more confident in their troubleshooting skills.

Planned Action:

1. Students will be taught to design and draft intricate motor control circuits.
2. Students will be taught several troubleshooting skills.
3. Students will be encouraged to use critical thinking in developing their own unique troubleshooting methods.
4. Students will interpret and comply with the National Electrical Code NFPA 70.

5. **Discuss the progress the program has made in** meeting the goals set in the last Comprehensive Program Review.

<b>Action Items</b>	<b>Status</b>
Articulate with HonoluluCC EIMT Program	Articulation between HonCC EIMT Program and HawCC EIMT Program is not compatible. We have consulted with HonCC about articulation at PCC meetings and it was concluded that the demand of types of Electricians differ between the Island of Hawai‘i and the Island of Oahu. Oahu is heavier in Industrial/Manufacturer Applications. The Island of Hawai‘i is heavier in Commercial and Residential Applications.
Modify EIMT curriculum to replace participation in the Model Home as its capstone project	Curriculum has been altered to include as the capstone goal of the program preparation of students to acquire the “State of Hawai‘i Maintenance Electricians License.” Graduates of the EIMT Program automatically qualify to take the exam with an AAS Degree in EIMT. Students who obtain Electrical Licenses can be tracked through the State of Hawai‘i DCCA Website and Out of State
Complete Program/Course modification and submit to CRC	The EIMT Program is in the process of Modifying the Program: <ul style="list-style-type: none"> <li>-- to prevent confusion between the Electrical Program and the Electronics Program.</li> <li>-- to streamline course descriptions that are required as an entry-level Apprentice Electrician.</li> <li>-- to remove course descriptions that are not required as an entry-level Apprentice Electrician. These jobs are practiced in another level of electricians that is for Specialty Electricians. However, they still need the basic knowledge and training taught in the EIMT Program.</li> <li>-- to introduce new Photovoltaic Technology to students and to prepare students to be employable for the renewable energy market. This course will teach students basic and intermediate levels of installation and maintenance of PV systems. In industry, electrical</li> </ul>

Action Items	Status
	<p>contractors install and maintain PV systems. Some students may decide to continue their education and become PV Engineers who design systems. This course will bring continuity between Electrical Power Generation and Controls which is practiced in the construction industry. This modification will need funding from grants such as the Perkins Grant for expenses such as Train-the-Trainer; Instructors pay; and an actual Grid-Tie/Off-Grid system for hands-on training.</p>

6. What are the program’s goals/plans for the next Comprehensive Review period? What evidence supports these goals/plans?

- Continue recruitment efforts.
- Continue developing a priority list of equipment upgrades and replacements through funding that becomes available.
- Hold an Advisory Council meeting once a year.
- Produce and complete a 4 year Assessment Plan with Rubrics.
- Continue requesting for a new replacement van through Division Chair and Vice Chancellor.
- Continue to pursue HawCC Auxiliary to post “No Smoking”, “Speed Limit”, and “No Loud Music” signs on campus at strategic areas. This is a health, safety, and learning concern which come from students and instructors. Interruptions and distractions greatly affect the learning outcome of each student. Security guards on campus must enforce these areas for a healthier and safer environment. These are violations of the UH/Hawai’i Community College Campus Policies.
- Continue to modify course for fourth semester to implement Photovoltaic Installation and Maintenance Technology. Efforts on implementing a “Sustainable Energy” course into the fourth semester are in progress. The EIMT Program is currently pursuing grants to purchase a “Photovoltaic Training System.” The “PV Training System” will be used as a tool to assess SLO’s.
- Search for individuals who are willing to assist in acquiring funds for “PV Training Systems” and instructors’ salary.
- Continue program modifications to streamline all four courses which includes changing course alphas, numbers, and titles; and adding Co-requisites to help students graduate within two years.
- Continue to solicit donations from industry.

- Survey graduates to assess number taking and passing electrical licenses as well as to use results to revise program.

**B. Action Plan for Program Improvement**  
**Complete Tables 1-4 to provide justification for program budget requests**

**Table 1—Top 6 Non-Cost Items** (add rows as needed; examples given)

<b>Task:</b>	<b>Academic yr.</b>	<b>Who is responsible</b>	<b>Best Fits which ADP Goal*</b>	<b>Addresses which strength or weakness</b>
1) Implement a “Sustainable Energy” course in the Spring semesters.	2010	Program Coordinator	<b>A, B, C, D, E</b>	<b>S1, S2, S3, W1, W2, W3</b>
2) Survey graduates who obtain Electrical Licenses	Spring 2009-Fall 2013	Program Coordinator	<b>A, B, C, D, E</b>	<b>S1, S2, S3, S4, W1, W3</b>
3) Use survey results to revise Program Learning Outcomes	Spring 2009-Fall 2013	Program Coordinator	<b>A, B, C, D, E</b>	<b>S1, S2, S3, S4, W1, W3</b>

**Key to abbreviations:**

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

**Strengths/Weaknesses are numbered (S1, S2... W1, W2...--from A.4.**

**Table 2 —Top 6 Cost Items** (add rows as needed; examples given)

<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>Addresses which strength or weakness</b>
1) Photovoltaic System and Instructors	2010	Program Coordinator	\$100,000.00	<b>A, B, C, D, E</b>	<b>S1, S2, S3, W1, W2, W3</b>
2) 10 Passenger Van	2010	Program Coordinator	\$50,000.00	<b>A, B, C</b>	<b>S3, S4, W1, W2, W3</b>
3) Air Compressor for jack hammer and accessories	2010	Program Coordinator	\$25,000.00	<b>A, B, C, D</b>	<b>S1, S2, S3, S4, W1, W2, W3</b>
4) Pick-up Truck Crew Cab	2010	Program Coordinator	\$50,000.00	<b>A, B, C</b>	



5) Visual Presenter(ELMO)	2010	Program Coordinator	\$3,000.00	A, B, C, D	S1, S2, S3, W1, W2, W3
6) Computers and Specific Lab Programs for Student Lab	2010	Program Coordinator	\$50,000.00	A, B, C, D	S1, S2, S3, W1, W2, 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.4)

**Table 3.--Repair and Maintenance**

<b><i>Nature of Problem</i></b>	<b><i>Describe Location: e.g. Building(s) &amp; Room(s)</i></b>
<ul style="list-style-type: none"> <li>-increase square footage to provide efficient working space for student workstations</li> <li>-replace light fixtures</li> <li>-upgrade trolley power receptacle system</li> <li>-repair rooftop exhaust fans</li> <li>-replace storage rack systems</li> <li>-replace pipe/conduit racks</li> <li>-repair hoist system</li> <li>-replace air compressor system</li> <li>-replace doors and locks</li> </ul>	Building 391/17 Laboratory
<ul style="list-style-type: none"> <li>-upgrade phone lines and catv cables</li> <li>-replace office furniture</li> <li>-replace all light fixtures</li> <li>-replace ceiling tiles</li> <li>-upgrade electrical power outlets</li> <li>-improve internet cable layout</li> <li>-replace floor tiles</li> <li>-replace doors and locks</li> </ul>	Building 391/18, 22 Faculty Offices
<ul style="list-style-type: none"> <li>-replace louvers</li> <li>-replace furniture</li> <li>-replace light fixtures</li> <li>-replace ceiling tiles</li> <li>- upgrade electrical power outlets</li> <li>-replace floor tiles</li> <li>-replace doors and locks</li> </ul>	Building 391/23, 24 Lecture Rooms
<ul style="list-style-type: none"> <li>-replace light fixtures</li> <li>-replace ceiling tiles</li> <li>-replace racking systems</li> <li>-improve electrical</li> <li>-replace floor tiles</li> <li>-replace doors and locks</li> </ul>	Building 391/12, 13, 14, 15, 16, 20, 21 Storage / Tool Rooms

**Table 4—Equipment Depreciation, if applicable**

<b>Program Assigned Equipment (E) and Controlled Property (CP) (List in order of chronological depreciation date)</b>	<b>Category: CP or E</b>	<b>Expected Depreciation Date</b>	<b>Estimated Replacement Cost</b>
(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
(2008) 2-1/2" thru 4" Conduit Bender	E	2013	\$15,000.00
(2007) Laser Level	CP	2012	\$4,000.00

**Key to abbreviations:**

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

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

C. Table 5—Data Elements

Annual Report of Program Data for Electrical Installation & Maintenance Tech  
Hawaii Community College Program Major(s): EIMT

<b>Overall Program Health</b>					<b>Cautionary</b>
<b>Demand Indicators</b>		<b>Academic Year</b>			<b>Demand Health Cautionary</b>
		<b>Fall 06</b>	<b>Fall 07</b>	<b>08-09</b>	
1	New & Replacement Positions (State)	63	108	99	
2	New & Replacement Positions (County Prorated)	10	20	18	
3	Number of Majors	80	83	88	
4	SSH Program Majors in Program Classes	384	444	864	
5	SSH Non-Majors in Program Classes	0	0	0	
6	SSH in All Program Classes	384	444	864	
7	FTE Enrollment in Program Classes	26	30	29	
8	Total Number of Classes Taught	2	2	4	
<b>Efficiency Indicators</b>		<b>Academic Year</b>			<b>Efficiency Health Healthy</b>
		<b>Fall 06</b>	<b>Fall 07</b>	<b>08-09</b>	
9	Average Class Size	16.0	18.5	18.0	
10	Fill Rate	80%	93%	90%	
11	FTE BOR Appointed Faculty	2.0	2.0	2.0	
12	Majors to FTE BOR Appointed Faculty	40.0	41.5	43.8	
13	Majors to Analytic FTE Faculty	50.0	51.9	49.2	
13a	Analytic FTE Faculty	n/a	n/a	1.8	
13b	Majors to Analytic FTE Faculty @12cr.	40.0	41.5	39.4	
13c	Analytic FTE Faculty @12cr.	2.0	2.0	2.2	
14	Overall Program Budget Allocation @12cr. F07, 0809	\$81,852	\$100,376	\$118,969	
14a	General Funded Budget Allocation	n/a	n/a	\$118,969	
14b	Special/Federal Budget Allocation	n/a	n/a	\$0	
15	Cost per SSH @12cr. F07, 0809	\$213.16	\$612.05	\$137.70	
16	Number of Low-Enrolled (<10) Classes	0	0	0	
<b>Effectiveness Indicators</b>		<b>Academic Year</b>			

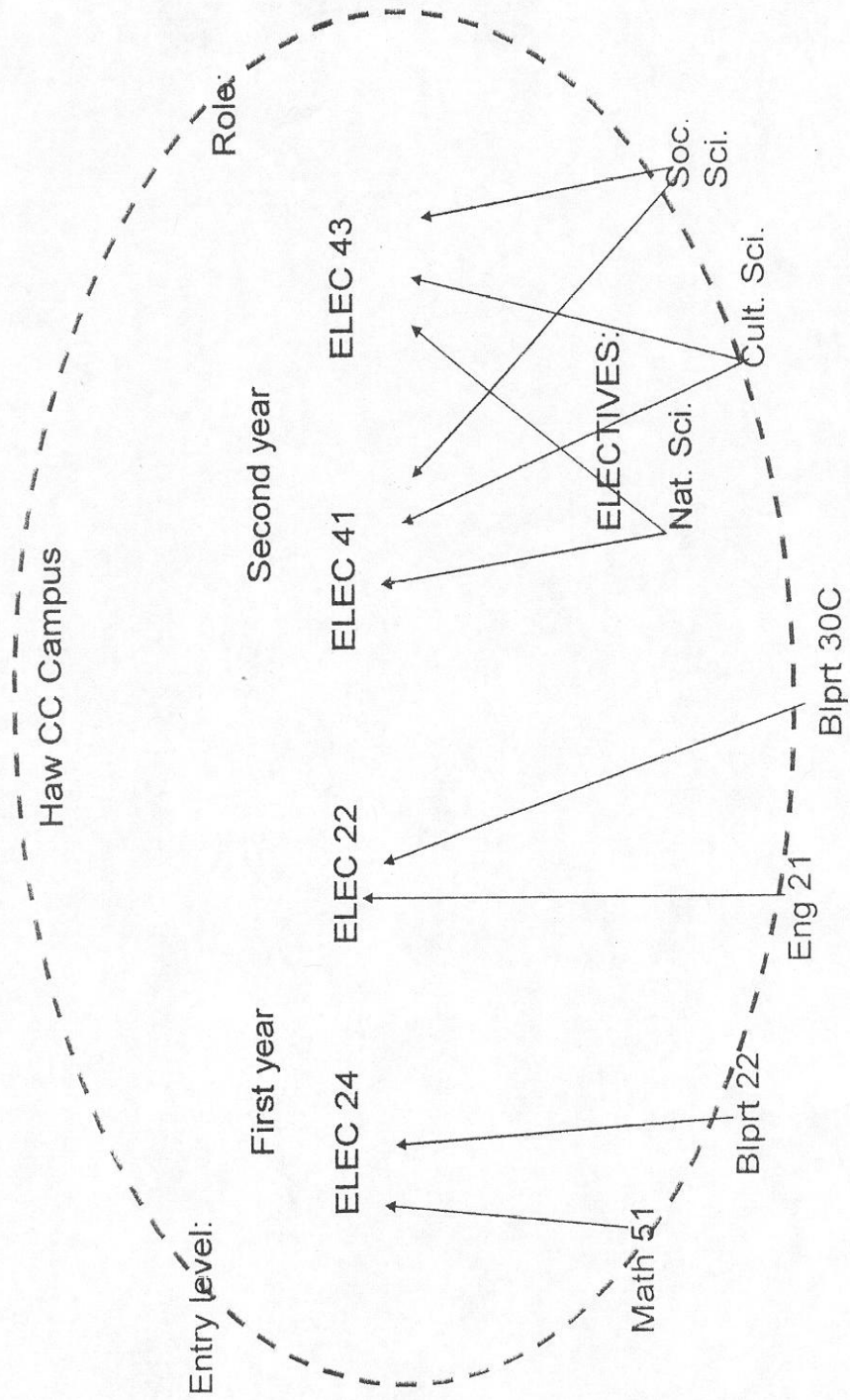
		2006	2007	08-09	Effectiveness Health Cautionary
17	Successful Completion (Equivalent C or Higher)	n/a	n/a	100%	
18	Withdrawals (Grade = W)	n/a	n/a	0	
19	Persistence (Fall to Spring)	80%	84%	73%	
20	Unduplicated Degrees/Certificates Awarded	n/a	n/a	15	
20a	Number of Degrees Awarded	10	9	15	
20b	Certificates of Achievement Awarded	10	2	9	
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	81.25	Met
30	3P1 Student Retention or Transfer	55.00	88	Met
31	4P1 Student Placement	50.00	100	Met
32	5P1 Nontraditional Participation	25.00	15.38	Did Not
33	5P2 Nontraditional Completion	25.00	13.33	Did Not

# Appendix A



**Appendix B  
Program Assessment Plan**

**Hawai'i Community College  
Instructional Program Assessment Plan For Learning Outcomes  
Associate in Applied Science – (Electricity)**

Submitted by: Patrick Pajo, Harry Takiue, December 1, 2008

Semester: **Fall 2008**

Student Learning Outcome (program level) for Assessment\* (taken from Appendix):

**PLO #7) Demonstrates competence in recognizing related building parts and materials in carpentry, masonry, plumbing, and HVAC systems.**

Step 1. Identify the artifact(s) (i.e., student work) for assessment and course(s) from which selected:

<b>Hands-on projects: Concrete Slab Rough-In Fabrication (ELEC 41)</b>

Step 2. Develop the assessment tool (e.g., rubric) to be used with 3 levels of assessment, if applicable—Level 1=does not meet expectations; Level 2=meets expectations; Level 3=exceeds expectations. **Attach the assessment tool.**

Step 3. Set the Performance Rate: **Must be done until entry-level skills are met.**

Step 4. Describe the method used to collect the artifacts:

<b>Artifacts are collected by the instructor.</b>
<b>Artifacts are assessed on a daily basis during class times.</b>

Step 5. Describe the sampling method used to collect the data:

<b>All data are randomly selected.</b>
--

Step 6. Describe the composition of the Assessment Team (AT) (add more rows as needed):

Evaluator(s):
1 <b>Faculty</b>
2 <b>Advisory committee members</b>
3 <b>Former graduates of EIMT Program who works in the Electrical field.</b>

Step 7. The Assessment Team uses the assessment tool(s) (e.g., rubric) to evaluate the data.

Step 8. The Program will summarize and interpret the results, and determine the implications for program improvement. Note: a summary will be included in the comprehensive program review.

\*note: one form will be submitted for each student learning outcome that is assessed

Assessment Plan to be sent electronically to the Vice Chancellor for Academic Affairs for posting on the internet

## Appendix ELECTRICITY

### Student Learning Outcomes (program level):

<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>

**Student Learning Outcomes (program level) to be assessed for each year of the program review cycle.  
Identify the learning outcomes by number only taken from above**

Assessment Plan for	PLO	Submit Plan	Collect Artifact	Assess & Submit Report	Assessment Plan for	PLO	Submit Plan	Collect Artifact	Assess & Submit Report
F 2008	PLO #7 old	4/30/08	12/15/08	4/15/09	S 2009	PLO #3	10/30/08	5/15/09	10/30/09
F 2009	PLO #7	4/30/09	12/15/09	4/15/10	S 2010	PLO #2	10/30/09	5/15/10	10/30/10
F 2010	PLO #1	4/30/10	12/15/10	4/15/11	S 2011	PLO #4	10/30/10	5/15/11	10/30/11
F 2011	PLO #6	4/30/11	12/15/11	4/15/12	S 2012	PLO #8	10/30/11	5/15/12	10/30/12

**\*\*\*The preceding SLO is the initial plan and was done with little or no knowledge of the purpose of it. The following SLO's were improved with a lot of knowledge of the purpose of it.**

**Hawai'i Community College  
Instructional Program Assessment Plan For Learning Outcomes  
Associate in Applied Science – (Electricity)**

Submitted by: Patrick Pajo,

Semester: **Spring 2009**

Student Learning Outcome (program level) for Assessment\* (taken from Appendix):

**PLO #3)** Interpret and comply with the National Electrical Code NFPA 70 book and local codes.

Step 1. Identify the artifact(s) (i.e., student work) for assessment and course(s) from which selected:

<b>Hands-on projects: Motor Control Design and Fabrication (ELEC 43)</b>
➤ <b>Design control circuit complying with NEC NFPA 70</b>

Step 2. Develop the assessment tool (e.g., rubric) to be used with 3 levels of assessment, if applicable—Level 1=does not meet expectations; Level 2=meets expectations; Level 3=exceeds expectations. **Attach the assessment tool.**

Step 3. Set the Performance Rate: **Must be done until entry-level skills are met.**

Step 4. Describe the method used to collect the artifacts:

<b>Artifacts are collected by the instructor.</b>
<b>Artifacts are assessed on a daily basis during class times.</b>

Step 5. Describe the sampling method used to collect the data:

<b>All data are randomly selected.</b>
--

Step 6. Describe the composition of the Assessment Team (AT) (add more rows as needed):

Evaluator(s):
1 <b>Faculty</b>
2 <b>Advisory committee members</b>
3 <b>Former graduates of EIMT Program who works in the Electrical field.</b>

Step 7. The Assessment Team uses the assessment tool(s) (e.g., rubric) to evaluate the data.

Step 8. The Program will summarize and interpret the results, and determine the implications for program improvement. Note: a summary will be included in the comprehensive program review.

\*note: one form will be submitted for each student learning outcome that is assessed



Assessment Plan to be sent electronically to the Vice Chancellor for Academic Affairs for posting on the internet

## Appendix ELECTRICITY

### Student Learning Outcomes (program level):

<b>#1)</b> Accurately demonstrate entry-level skills in residential, commercial, and industrial electrical installation and maintenance.
<b>#2)</b> Practice safety on the job and recognize potential hazards.
<b>#3)</b> Interpret and comply with the National Electrical Code NFPA 70 book and local codes.
<b>#4)</b> Read and interpret all sections of blueprints and draft electrical circuits.
<b>#5)</b> Integrate carpentry, masonry, plumbing, and HVACR systems with electrical installation and maintenance.
<b>#6)</b> Produce take-off lists, perform layout and install new materials for existing and new projects.
<b>#7)</b> Think critically, do research, calculate minimum requirements, and solve problems.
<b>#8)</b> Demonstrate the qualities of an apprentice electrician: positive attitude and behavior, discipline, promptness and attendance, ability to work alone or with others, with cultural awareness and good communication skills.

**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>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>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>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>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>		

**Student Learning Outcomes (program level) to be assessed for each year of the program review cycle. Identify the learning outcomes by number only taken from above**

Assessment Plan for	PLO	Submit Plan	Collect Artifact	Assess & Submit Report	Assessment Plan for	PLO	Submit Plan	Collect Artifact	Assess & Submit Report
F 2008	PLO #7 old	4/30/08	12/15/08	4/15/09	S 2009	PLO #3	10/30/08	5/15/09	10/30/09
F 2009	PLO #7	4/30/09	12/15/09	4/15/10	S 2010	PLO #2	10/30/09	5/15/10	10/30/10
F 2010	PLO #1	4/30/10	12/15/10	4/15/11	S 2011	PLO #4	10/30/10	5/15/11	10/30/11
F 2011	PLO #6	4/30/11	12/15/11	4/15/12	S 2012	PLO #8	10/30/11	5/15/12	10/30/12

**Hawai'i Community College**  
**Instructional Program Assessment Plan For Learning Outcomes**  
**Associate in Applied Science – (Electricity)**

Submitted by: Patrick Pajo,

Semester: **Fall 2009**

Student Learning Outcome (program level) for Assessment\* (taken from Appendix):

**PLO #7) Think critically, do research, calculate minimum requirements, and solve problems.**

Step 1. Identify the artifact(s) (i.e., student work) for assessment and course(s) from which selected:

<b>Hands-on project: Concentric runs of ½” EMT into an auxiliary gutter box. (ELEC 41)</b>
➤ <b>Calculate bends and minimum support.</b>

Step 2. Develop the assessment tool (e.g., rubric) to be used with 3 levels of assessment, if applicable—Level 1=does not meet expectations; Level 2=meets expectations; Level 3=exceeds expectations. **Attach the assessment tool.**

Step 3. Set the Performance Rate: **Must be done until entry-level skills are met.**

Step 4. Describe the method used to collect the artifacts:

<b>Artifacts are collected by the instructor.</b>
<b>Artifacts are assessed on a daily basis during class times.</b>

Step 5. Describe the sampling method used to collect the data:

<b>All data are randomly selected.</b>
--

Step 6. Describe the composition of the Assessment Team (AT) (add more rows as needed):

Evaluator(s):
1 <b>Faculty</b>
2 <b>Advisory committee members</b>
3 <b>Former graduates of EIMT Program who works in the Electrical field.</b>

Step 7. The Assessment Team uses the assessment tool(s) (e.g., rubric) to evaluate the data.

Step 8. The Program will summarize and interpret the results, and determine the implications for program improvement. Note: a summary will be included in the comprehensive program review.

\*note: one form will be submitted for each student learning outcome that is assessed

Assessment Plan to be sent electronically to the Vice Chancellor for Academic Affairs for posting on the internet

**Appendix**

## ELECTRICITY

### Student Learning Outcomes (program level):

<b>#1)</b> Accurately demonstrate entry-level skills in residential, commercial, and industrial electrical installation and maintenance.
<b>#2)</b> Practice safety on the job and recognize potential hazards.
<b>#3)</b> Interpret and comply with the National Electrical Code NFPA 70 book and local codes.
<b>#4)</b> Read and interpret all sections of blueprints and draft electrical circuits.
<b>#5)</b> Integrate carpentry, masonry, plumbing, and HVACR systems with electrical installation and maintenance.
<b>#6)</b> Produce take-off lists, perform layout and install new materials for existing and new projects.
<b>#7)</b> Think critically, do research, calculate minimum requirements, and solve problems.
<b>#8)</b> Demonstrate the qualities of an apprentice electrician: positive attitude and behavior, discipline, promptness and attendance, ability to work alone or with others, with cultural awareness and good communication skills.

**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>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>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>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>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>		

**Student Learning Outcomes (program level) to be assessed for each year of the program review cycle. Identify the learning outcomes by number only taken from above**

Assessment Plan for	PLO	Submit Plan	Collect Artifact	Assess & Submit Report	Assessment Plan for	PLO	Submit Plan	Collect Artifact	Assess & Submit Report
F 2008	PLO #7 old	4/30/08	12/15/08	4/15/09	S 2009	PLO #3	10/30/08	5/15/09	10/30/09
F 2009	PLO #7	4/30/09	12/15/09	4/15/10	S 2010	PLO #2	10/30/09	5/15/10	10/30/10
F 2010	PLO #1	4/30/10	12/15/10	4/15/11	S 2011	PLO #4	10/30/10	5/15/11	10/30/11
F 2011	PLO #6	4/30/11	12/15/11	4/15/12	S 2012	PLO #8	10/30/11	5/15/12	10/30/12

**Hawai'i Community College  
Instructional Program Assessment Plan For Learning Outcomes  
Associate in Applied Science – (Electricity)**

Submitted by: Patrick Pajo,

Semester: **Spring 2010**

Student Learning Outcome (program level) for Assessment\* (taken from Appendix):

**PLO #2) Practice safety on the job and recognize potential hazards.**

Step 1. Identify the artifact(s) (i.e., student work) for assessment and course(s) from which selected:

<b>Hands-on project: Three-wire motor control two locations. (ELEC 43)</b>
➤ <b>Lockout procedure</b>
➤ <b>Safety practices</b>

Step 2. Develop the assessment tool (e.g., rubric) to be used with 3 levels of assessment, if applicable—Level 1=does not meet expectations; Level 2=meets expectations; Level 3=exceeds expectations. **Attach the assessment tool.**

Step 3. Set the Performance Rate: **Must be done until entry-level skills are met.**

Step 4. Describe the method used to collect the artifacts:

<b>Artifacts are collected by the instructor.</b>
<b>Artifacts are assessed on a daily basis during class times.</b>

Step 5. Describe the sampling method used to collect the data:

<b>All data are randomly selected.</b>
--

Step 6. Describe the composition of the Assessment Team (AT) (add more rows as needed):

Evaluator(s):
1 <b>Faculty</b>
2 <b>Advisory committee members</b>
3 <b>Former graduates of EIMT Program who works in the Electrical field.</b>

Step 7. The Assessment Team uses the assessment tool(s) (e.g., rubric) to evaluate the data.

Step 8. The Program will summarize and interpret the results, and determine the implications for program improvement. Note: a summary will be included in the comprehensive program review.

\*note: one form will be submitted for each student learning outcome that is assessed

Assessment Plan to be sent electronically to the Vice Chancellor for Academic Affairs for posting on the internet

## Appendix ELECTRICITY

### Student Learning Outcomes (program level):

<b>#1)</b> Accurately demonstrate entry-level skills in residential, commercial, and industrial electrical installation and maintenance.
<b>#2)</b> Practice safety on the job and recognize potential hazards.
<b>#3)</b> Interpret and comply with the National Electrical Code NFPA 70 book and local codes.
<b>#4)</b> Read and interpret all sections of blueprints and draft electrical circuits.
<b>#5)</b> Integrate carpentry, masonry, plumbing, and HVACR systems with electrical installation and maintenance.
<b>#6)</b> Produce take-off lists, perform layout and install new materials for existing and new projects.
<b>#7)</b> Think critically, do research, calculate minimum requirements, and solve problems.
<b>#8)</b> Demonstrate the qualities of an apprentice electrician: positive attitude and behavior, discipline, promptness and attendance, ability to work alone or with others, with cultural awareness and good communication skills.

**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>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>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>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>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>		

### Student Learning Outcomes (program level) to be assessed for each year of the program review cycle. Identify the learning outcomes by number only taken from above

Assessment Plan for	PLO	Submit Plan	Collect Artifact	Assess & Submit Report	Assessment Plan for	PLO	Submit Plan	Collect Artifact	Assess & Submit Report
F 2008	PLO #7 old	4/30/08	12/15/08	4/15/09	S 2009	PLO #3	10/30/08	5/15/09	10/30/09
F 2009	PLO #7	4/30/09	12/15/09	4/15/10	S 2010	PLO #2	10/30/09	5/15/10	10/30/10
F 2010	PLO #1	4/30/10	12/15/10	4/15/11	S 2011	PLO #4	10/30/10	5/15/11	10/30/11
F 2011	PLO #6	4/30/11	12/15/11	4/15/12	S 2012	PLO #8	10/30/11	5/15/12	10/30/12

**Hawai'i Community College  
Instructional Program Assessment Plan For Learning Outcomes  
Associate in Applied Science – (Electricity)**

Submitted by: Patrick Pajo,

Semester: **Fall 2010**

Student Learning Outcome (program level) for Assessment\* (taken from Appendix):

**PLO #1) Accurately demonstrate entry-level skills in residential, commercial, and industrial electrical installation and maintenance.**

Step 1. Identify the artifact(s) (i.e., student work) for assessment and course(s) from which selected:

<b>Hands-on project: Service Lateral (ELEC 41)</b>
➤ <b>Calculate minimum conduit cover.</b>
➤ <b>Install PVC and Pullbox</b>
➤ <b>Interpret and comply with Utilities Installation Manuals</b>

Step 2. Develop the assessment tool (e.g., rubric) to be used with 3 levels of assessment, if applicable—Level 1=does not meet expectations; Level 2=meets expectations; Level 3=exceeds expectations. **Attach the assessment tool.**

Step 3. Set the Performance Rate: **Must be done until entry-level skills are met.**

Step 4. Describe the method used to collect the artifacts:

<b>Artifacts are collected by the instructor.</b>
<b>Artifacts are assessed on a daily basis during class times.</b>

Step 5. Describe the sampling method used to collect the data:

<b>All data are randomly selected.</b>
--

Step 6. Describe the composition of the Assessment Team (AT) (add more rows as needed):

Evaluator(s):
<b>1 Faculty</b>
<b>2 Advisory committee members</b>
<b>3 Former graduates of EIMT Program who works in the Electrical field.</b>

Step 7. The Assessment Team uses the assessment tool(s) (e.g., rubric) to evaluate the data.

Step 8. The Program will summarize and interpret the results, and determine the implications for program improvement. Note: a summary will be included in the comprehensive program review.

\*note: one form will be submitted for each student learning outcome that is assessed

Assessment Plan to be sent electronically to the Vice Chancellor for Academic Affairs for posting on the internet

## Appendix ELECTRICITY

### Student Learning Outcomes (program level):

<b>#1)</b> Accurately demonstrate entry-level skills in residential, commercial, and industrial electrical installation and maintenance.
<b>#2)</b> Practice safety on the job and recognize potential hazards.
<b>#3)</b> Interpret and comply with the National Electrical Code NFPA 70 book and local codes.
<b>#4)</b> Read and interpret all sections of blueprints and draft electrical circuits.
<b>#5)</b> Integrate carpentry, masonry, plumbing, and HVACR systems with electrical installation and maintenance.
<b>#6)</b> Produce take-off lists, perform layout and install new materials for existing and new projects.
<b>#7)</b> Think critically, do research, calculate minimum requirements, and solve problems.
<b>#8)</b> Demonstrate the qualities of an apprentice electrician: positive attitude and behavior, discipline, promptness and attendance, ability to work alone or with others, with cultural awareness and good communication skills.

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

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

### Student Learning Outcomes (program level) to be assessed for each year of the program review cycle. Identify the learning outcomes by number only taken from above

Assessment Plan for	PLO	Submit Plan	Collect Artifact	Assess & Submit Report	Assessment Plan for	PLO	Submit Plan	Collect Artifact	Assess & Submit Report
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F 2010	PLO #1	4/30/10	12/15/10	4/15/11	S 2011	PLO #4	10/30/10	5/15/11	10/30/11
F 2011	PLO #6	4/30/11	12/15/11	4/15/12	S 2012	PLO #8	10/30/11	5/15/12	10/30/12

**Hawai'i Community College  
Instructional Program Assessment Plan For Learning Outcomes  
Associate in Applied Science – (Electricity)**

Submitted by: Patrick Pajo,

Semester: **Spring 2011**

Student Learning Outcome (program level) for Assessment\* (taken from Appendix):

**PLO #4) Read and interpret all sections of blueprints and draft electrical circuits.**

Step 1. Identify the artifact(s) (i.e., student work) for assessment and course(s) from which selected:

<b>Hands-on project: Limit switch (ELEC 43)</b>
➤ <b>Read control schematic</b>
➤ <b>Draft circuitry</b>

Step 2. Develop the assessment tool (e.g., rubric) to be used with 3 levels of assessment, if applicable—Level 1=does not meet expectations; Level 2=meets expectations; Level 3=exceeds expectations. **Attach the assessment tool.**

Step 3. Set the Performance Rate: **Must be done until entry-level skills are met.**

Step 4. Describe the method used to collect the artifacts:

<b>Artifacts are collected by the instructor.</b>
<b>Artifacts are assessed on a daily basis during class times.</b>

Step 5. Describe the sampling method used to collect the data:

<b>All data are randomly selected.</b>
--

Step 6. Describe the composition of the Assessment Team (AT) (add more rows as needed):

Evaluator(s):
1 <b>Faculty</b>
2 <b>Advisory committee members</b>
3 <b>Former graduates of EIMT Program who works in the Electrical field.</b>

Step 7. The Assessment Team uses the assessment tool(s) (e.g., rubric) to evaluate the data.

Step 8. The Program will summarize and interpret the results, and determine the implications for program improvement. Note: a summary will be included in the comprehensive program review.

\*note: one form will be submitted for each student learning outcome that is assessed

Assessment Plan to be sent electronically to the Vice Chancellor for Academic Affairs for posting on the internet



## Appendix ELECTRICITY

### Student Learning Outcomes (program level):

<b>#1)</b> Accurately demonstrate entry-level skills in residential, commercial, and industrial electrical installation and maintenance.
<b>#2)</b> Practice safety on the job and recognize potential hazards.
<b>#3)</b> Interpret and comply with the National Electrical Code NFPA 70 book and local codes.
<b>#4)</b> Read and interpret all sections of blueprints and draft electrical circuits.
<b>#5)</b> Integrate carpentry, masonry, plumbing, and HVACR systems with electrical installation and maintenance.
<b>#6)</b> Produce take-off lists, perform layout and install new materials for existing and new projects.
<b>#7)</b> Think critically, do research, calculate minimum requirements, and solve problems.
<b>#8)</b> Demonstrate the qualities of an apprentice electrician: positive attitude and behavior, discipline, promptness and attendance, ability to work alone or with others, with cultural awareness and good communication skills.

**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>ELEC 22</b>	X	X	X	X	X	X	X	X		
<b>ELEC 24</b>	X	X	X	X	X	X	X	X		
<b>ELEC 41</b>	X	X	X	X	X	X	X	X		
<b>ELEC 43</b>	X	X	X	X	X	X	X	X		

### Student Learning Outcomes (program level) to be assessed for each year of the program review cycle. Identify the learning outcomes by number only taken from above

Assessment Plan for	PLO	Submit Plan	Collect Artifact	Assess & Submit Report	Assessment Plan for	PLO	Submit Plan	Collect Artifact	Assess & Submit Report
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F 2011	PLO #6	4/30/11	12/15/11	4/15/12	S 2012	PLO #8	10/30/11	5/15/12	10/30/12

**Hawai'i Community College  
Instructional Program Assessment Plan For Learning Outcomes  
Associate in Applied Science – (Electricity)**

Submitted by: Patrick Pajo,

Semester: **Fall 2011**

Student Learning Outcome (program level) for Assessment\* (taken from Appendix):

**PLO #6) Produce take-off lists, perform layout and install new materials for existing and new projects.**

Step 1. Identify the artifact(s) (i.e., student work) for assessment and course(s) from which selected:

<b>Hands-on project: Install conduits on trapeze system (ELEC 41)</b>
➤ <b>Material take-off</b>
➤ <b>Methods of installation</b>

Step 2. Develop the assessment tool (e.g., rubric) to be used with 3 levels of assessment, if applicable—Level 1=does not meet expectations; Level 2=meets expectations; Level 3=exceeds expectations. **Attach the assessment tool.**

Step 3. Set the Performance Rate: **Must be done until entry-level skills are met.**

Step 4. Describe the method used to collect the artifacts:

<b>Artifacts are collected by the instructor.</b>
<b>Artifacts are assessed on a daily basis during class times.</b>

Step 5. Describe the sampling method used to collect the data:

<b>All data are randomly selected.</b>
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Step 6. Describe the composition of the Assessment Team (AT) (add more rows as needed):

Evaluator(s):
1 <b>Faculty</b>
2 <b>Advisory committee members</b>
3 <b>Former graduates of EIMT Program who works in the Electrical field.</b>

Step 7. The Assessment Team uses the assessment tool(s) (e.g., rubric) to evaluate the data.

Step 8. The Program will summarize and interpret the results, and determine the implications for program improvement. Note: a summary will be included in the comprehensive program review.

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Assessment Plan to be sent electronically to the Vice Chancellor for Academic Affairs for posting on the internet

## Appendix ELECTRICITY

### Student Learning Outcomes (program level):

<b>#1)</b> Accurately demonstrate entry-level skills in residential, commercial, and industrial electrical installation and maintenance.
<b>#2)</b> Practice safety on the job and recognize potential hazards.
<b>#3)</b> Interpret and comply with the National Electrical Code NFPA 70 book and local codes.
<b>#4)</b> Read and interpret all sections of blueprints and draft electrical circuits.
<b>#5)</b> Integrate carpentry, masonry, plumbing, and HVACR systems with electrical installation and maintenance.
<b>#6)</b> Produce take-off lists, perform layout and install new materials for existing and new projects.
<b>#7)</b> Think critically, do research, calculate minimum requirements, and solve problems.
<b>#8)</b> Demonstrate the qualities of an apprentice electrician: positive attitude and behavior, discipline, promptness and attendance, ability to work alone or with others, with cultural awareness and good communication skills.

**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>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>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>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>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>		

### Student Learning Outcomes (program level) to be assessed for each year of the program review cycle. Identify the learning outcomes by number only taken from above

Assessment Plan for	PLO	Submit Plan	Collect Artifact	Assess & Submit Report	Assessment Plan for	PLO	Submit Plan	Collect Artifact	Assess & Submit Report
F 2008	PLO #7 old	4/30/08	12/15/08	4/15/09	S 2009	PLO #3	10/30/08	5/15/09	10/30/09
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F 2010	PLO #1	4/30/10	12/15/10	4/15/11	S 2011	PLO #4	10/30/10	5/15/11	10/30/11
F 2011	PLO #6	4/30/11	12/15/11	4/15/12	S 2012	PLO #8	10/30/11	5/15/12	10/30/12

**Hawai'i Community College**  
**Instructional Program Assessment Plan For Learning Outcomes**  
**Associate in Applied Science – (Electricity)**

Submitted by: Patrick Pajo,

Semester: **Spring 2012**

Student Learning Outcome (program level) for Assessment\* (taken from Appendix):

**PLO #8) Demonstrate the qualities of an apprentice electrician: positive attitude and behavior, discipline, promptness and attendance, ability to work alone or with others, with cultural awareness and good communication skills.**

Step 1. Identify the artifact(s) (i.e., student work) for assessment and course(s) from which selected:

<b>Hands-on project: Conveyor Belt System (ELEC 43)</b>
➤ <b>Communicate well with others while testing equipment.</b>
➤ <b>Works alone.</b>

Step 2. Develop the assessment tool (e.g., rubric) to be used with 3 levels of assessment, if applicable—Level 1=does not meet expectations; Level 2=meets expectations; Level 3=exceeds expectations. **Attach the assessment tool.**

Step 3. Set the Performance Rate: **Must be done until entry-level skills are met.**

Step 4. Describe the method used to collect the artifacts:

<b>Artifacts are collected by the instructor.</b>
<b>Artifacts are assessed on a daily basis during class times.</b>

Step 5. Describe the sampling method used to collect the data:

<b>All data are randomly selected.</b>
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Step 6. Describe the composition of the Assessment Team (AT) (add more rows as needed):

Evaluator(s):
1 <b>Faculty</b>
2 <b>Advisory committee members</b>
3 <b>Former graduates of EIMT Program who works in the Electrical field.</b>

Step 7. The Assessment Team uses the assessment tool(s) (e.g., rubric) to evaluate the data.

Step 8. The Program will summarize and interpret the results, and determine the implications for program improvement. Note: a summary will be included in the comprehensive program review.

\*note: one form will be submitted for each student learning outcome that is assessed

Assessment Plan to be sent electronically to the Vice Chancellor for Academic Affairs for posting on the internet

## Appendix ELECTRICITY

### Student Learning Outcomes (program level):

<b>#1)</b> Accurately demonstrate entry-level skills in residential, commercial, and industrial electrical installation and maintenance.
<b>#2)</b> Practice safety on the job and recognize potential hazards.
<b>#3)</b> Interpret and comply with the National Electrical Code NFPA 70 book and local codes.
<b>#4)</b> Read and interpret all sections of blueprints and draft electrical circuits.
<b>#5)</b> Integrate carpentry, masonry, plumbing, and HVACR systems with electrical installation and maintenance.
<b>#6)</b> Produce take-off lists, perform layout and install new materials for existing and new projects.
<b>#7)</b> Think critically, do research, calculate minimum requirements, and solve problems.
<b>#8)</b> Demonstrate the qualities of an apprentice electrician: positive attitude and behavior, discipline, promptness and attendance, ability to work alone or with others, with cultural awareness and good communication skills.

**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>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>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>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>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>		

### Student Learning Outcomes (program level) to be assessed for each year of the program review cycle. Identify the learning outcomes by number only taken from above

Assessment Plan for	PLO	Submit Plan	Collect Artifact	Assess & Submit Report	Assessment Plan for	PLO	Submit Plan	Collect Artifact	Assess & Submit Report
F 2008	PLO #7 old	4/30/08	12/15/08	4/15/09	S 2009	PLO #3	10/30/08	5/15/09	10/30/09
F 2009	PLO #7	4/30/09	12/15/09	4/15/10	S 2010	PLO #2	10/30/09	5/15/10	10/30/10
F 2010	PLO #1	4/30/10	12/15/10	4/15/11	S 2011	PLO #4	10/30/10	5/15/11	10/30/11
F 2011	PLO #6	4/30/11	12/15/11	4/15/12	S 2012	PLO #8	10/30/11	5/15/12	10/30/12

**Appendix C**  
**Learning Outcomes Assessment Results**

**ASSESSMENT TEAM ARTIFACT ASSESSMENT RESULTS**

EIMT Program Assessment Rubric for SLO:

PLO#7 (old): Demonstrates competence in recognizing related building parts and materials in carpentry, masonry, plumbing, and HVAC systems.

Name of Artifact: **ELEC 41**---Concrete Slab Rough-In Fabrication

Number of student artifacts reviewed: One artifact was produced by a group of students.

Results:

The Advisory Council members were very pleased with the artifact that was presented to them. The EIMT Program constantly keeps in touch with the construction industry about the present technologies and methods which are taught to the students. The results reflect industry needs. The assessment team was made up of 3 people from industry and one electricity instructor. The team assessed the concrete slab rough-in fabrication against a rubric. 100% of all tasks met industry standards.

Implications:

3. Students are made aware that other trade skills and knowledge are necessary in the electrical trade.
4. Students understand the process of laying out and installing electrical junction boxes and conduits.
3. Students experience the process of preparing the concrete form work involved.

Planned Action:

1. Students will be introduced to related trade skills such as carpentry, masonry, and steel work.
2. Students will be taught several methods of laying out and installing electrical parts.
3. Students will be taught to perform the role of a Carpenter and Steel Worker by actually laying out and preparing the concrete form and later lay-out and install the electrical parts in preparation for the concrete pour.

**Appendix C**  
**Learning Outcomes Assessment Results**

**ASSESSMENT TEAM ARTIFACT ASSESSMENT RESULTS**  
**Spring 2009**

EIMT Program Assessment Rubric for SLO:

**PLO #3)** Interpret and comply with the National Electrical Code NFPA 70 book and local codes.

Name of Artifact: **ELEC 43**---Motor Control

Number of student artifacts reviewed: 18

Results:

The Advisory Council members were very pleased with the artifact that was presented to them. The EIMT Program constantly keeps in touch with the construction industry about the present technologies and methods which are taught to the students. The results reflect industry needs.

Implications:

1. Students need to build their skills in crucial areas, i.e. communication, research, computation, critical thinking, and problem solving.
2. Students need to understand the processes of designing and drafting intricate motor control circuits.
3. Students need to build and energize the controller that they design. By doing so, they will be more confident in their troubleshooting skills.

Planned Action:

1. Students will be taught to design and draft intricate motor control circuits.
2. Students will be taught several troubleshooting skills.
3. Students will be encouraged to use critical thinking in developing their own unique troubleshooting methods.
4. Students will interpret and comply with the National Electrical Code NFPA 70.