

Electrical Installation and Maintenance Technology

ANNUAL
REPORT OF PROGRAM DATA
2023



UNIVERSITY of HAWAI'I
KAUA'I
COMMUNITY COLLEGE



2023 Annual Report of Program Data

Electrical Installation and Maintenance Technology

1. Program or Unit Mission

The Electrical Installation and Maintenance Technology (EIMT) mission is to provide Kaua'i employers with a trained workforce having entry-level electrical installation and maintenance skills. To provide Students with a certificate or degree that fulfills education requirements of HRS 448E of the State of Hawaii the Hawai'i Department of Commerce and Consumer Affairs: Professional & Vocational Licensing.

Electrical Installation and Maintenance fulfills its and the college's mission by incorporating the following practices. The Program:

- Makes classes available through credit/non-credit to meet State licensure requirements
- Delivers classes for entry level, working apprentice adults and experienced journey-people in small classes that meet the island population size
- Provides a valuable program that contributes to the island's workforce and community needs
- Prepares and supports electrical students by providing training that otherwise would not be available except by traveling to the mainland or other islands
- Encourages students to stay and work on the island of Kaua'i to provide economic growth to the community.

What is the target student or service population? The island of Kaua'i.

The Building Construction proposal was abandoned since the last APRU and reviewed during the EIMT 2022 CPR. The decision was based on the increased enrollment and the needs of trained employees for the island employers. During the last three (3) years the program has been strong and has continued to grow.

The decision was made in 2021 to consolidate the Electro-Mechanical CO of FENG with the EIMT program and the Facility Maintenance CO combined with the Carpentry and keep the two programs separate. The Facilities Engineering program was closed to future enrollment and has been stopped out as of spring 2023. We are still working on trying to match Maui's courses as closely as possible so that articulation agreements can be made for a pathway for those wanting to continue their education with Maui College and West Oahu in Construction Management.

Part I.	Program Description
Date of Last Comprehensive Review	11/17/2022
Date Website Last Reviewed/Updated	9/11/2023
Target Student Population	Current Kaua'i DOE High School Seniors and 20 to 40-year old looking to change occupations to learn a construction trade.

Part I.	Program Description
External Factor(s) that Affected the Program or Unit	Non-credit Courses offered through KCC OCET. 39 students from Kaua'i and Hawai'i islands where taught through this program by the EIMT Instructor. Ten IBEW students attend OCET program to complete the legislative requirement for education for State of Hawai'i licensure.

2. Program Student Learning Outcomes or Unit/Service Outcomes

After the program was redirected, the PSLO's for AY 2022-23 reverted back to the approved 9/17/2014 PSLO by the Assessment Committee and the Building Construction PSLO's were discontinued. The EIMT Program last assessed with the below PLSO's was in AY2022-23.

EIMT	Instructions: Indicate all ISLOs (column C) that apply to each PSLO. More than 1 may be listed.	
	Link to refer to ISLOs (use the number associated with the ISLO that applies to each PSLO)	
PSLO #	PSLO - approved 09/17/2014	ISLO #(s)
1	Read and understand blueprints sufficiently to use them to plan a project.	3, 5, 6
2	Select materials properly for a given project that comply with published codes and deliver energy efficient outcomes.	4, 5, 6
3	Maintain and care for the tools required in the electrical industry.	7
4	Utilize Occupational Safety and Health Administration (OSHA) and State safety regulations to minimize risk and protect self and others.	5, 6, 9
5	Communicate successfully orally and in writing using computer technology.	1, 2
6	Demonstrate the craftsmanship standards of dependability, punctuality, and quality.	4, 8, 9
	Completed	10/3/2022

The last completed Assessment data that was gathered after the revision is listed below using the AY2022 – 2023 data:

PSLO	Assessed During APRU Cycle 2023 (Y or N)	Findings Documentation gathered by Instructors through recording scores and Lualima LMS.	Improvements Implemented	Next Assessment Date
Read and understand blueprints sufficiently to use them to plan a project.	Yes	All students passed with 70%	Work on "Just in Time" Math and implemented the QM course for Trades. Students are in the third year of the course offerings and we are continuing to evaluate the results. Students who have completed the course have improved in program completion.	Annually
Select materials properly for a given project that comply with published codes and deliver energy efficient outcomes.	Yes	All students passed with 80%	Work on identifying proper building materials. Students are required to select and calculate the proper amount of materials	Annually

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PSLO	Assessed During APRU Cycle 2023 (Y or N)	Findings Documentation gathered by Instructors through recording scores and Lailima LMS.	Improvements Implemented	Next Assessment Date
			needed per projects. This has cut down on waste materials and decreased the need to purchase additional materials.	
Maintain and care for the tools required in the electrical industry.	Yes	All students passed with 90%	Students can improve on maintaining basic hand tools more efficiently. Broken or worn out equipment has been tagged and taken out of service and the next step is to implement a preventive maintenance program.	Annually
Utilize Occupational Safety and Health Administration (OSHA) and State safety regulations to minimize risk and protect self and others.	Yes	All students passed with 90%	Additional Training and PPE Equipment required in the shop area. This is to eliminate accidents in the lab area. OSHA and lab rules will now be enforced for all students in the lab area. Students are now aware of the job requirements for safety. Equipment required in the shop area. Constant monitoring, students are evaluated and graded on the application of working in a neat and workman like manner. This eliminates bad habits and improves the learning environment.	Evaluated on a daily basis
Communicate successfully orally and in writing using computer technology.	Yes	All students passed with 70%	Students are required to write a weekly log. This is to help increase communication skills and to handle the completion of workorders and billing materials. This also creates documentation for the work done. Also, students need to validate their work experience for their EJ license for five years.	Annually
Demonstrate the craftsmanship standards of dependability, punctuality, and quality.	Yes	All students passed with 80%	Students are required to make up for tardiness after class, cleaning up and only allowed in the lab area if they have proper PPE on. The skills in the classroom will mimic what the students will do on the job. This prepares students to be successful on the job. Students were evaluated with on campus instructor evaluation on job site. We gauge how students are on the jobsite outside of the classroom and how they interact with other workers and how they complete assigned tasks.	Weekly

3. Analysis of the Program/Unit

This year report is located and shared at the following url:

<https://uhcc.hawaii.edu/varpd/index.php?y=2023&c=KAU&t=CTE&p=2836>

Demand Indicators:

During the five-year cycle, the IBEW 1186 has graduated 9 Journey-person Electricians and have hired 10 electricians in Kaua'i County into their 2nd Year program. These students were taught by the OCET and by the instructors in the EIMT Program. Unfortunately, they did not hire any students from the EIMT credit program that are in the current NJATC apprenticeship program. The IBEW local 1186 has been on the slow side during the last five years with large commercial building jobs down on the island. They try to start a new group of apprentices every four to five years. Because the union jobs are required to train through University of Hawaii of Community College (UHCC) Office of Continuing Education and Training (OCET) Apprenticeships using National Joint Apprentice Training Center (NJATC) Curriculum this will lower the students available for the Credit Program. AAS and CA Graduates are not given preferential treatment but are given credit for their first year of schooling that is required by the NJATC Training Alliance.

Because of the economic climate, Non-union residential jobs positions have increased over the past three years with new jobs being created in remodeling during the Covid-19 shutdown. With the photovoltaic solar systems reaching the end of life from the initial installation push of the 2008, newer battery backup systems are now being installed and employees have been in demand. Higher interest rates have also caused new residential building construction to decline. More employers doing smaller maintenance and troubleshooting jobs than in non-union new residential construction. A few down years with new Replacement County positions an overall flat level by one less position, but does not include our largest solar employer, Rising Sun Solar and Nathen Wood Construction. We have placed students with them and they are also offering internships to our students. The number of related trades is not considered with the number of jobs available. Therefore, the program produces more majors than New and Replacement positions available for journey-person electricians. We are seeing an increase in maintenance electricians at the Hospitality Industry as tourism has picked up this year. An increase and working with OCET with Credit/Noncredit classes and the faculty has been involved in teaching the majority of classes for Kaua'i and the other islands. There are 39 students enrolled in classes this year with 11 of those from Kaua'i.

The EIMT Employer Advisory Team has not with met since 9/18/2022 when the IBEW 1186 met with the EIMT faculty and OCET Instructors. The other advisory team members have not attended because of Covid-19 post pandemic issues. Individual support has been given and meetings held as need. The program has been advised to hold an Advisory Team meeting as soon as possible when all members can attend be for the end of the academic year.

During the last year, the number of majors has decreased slightly at 22. The data also shows a substantial number of full-time students have increased from 46% to 80% with this year with more students are now coming full time. While the number of part-time students has fell from 54% to 20% as more CTE students are coming full time. This is because of stability in the faculty teaching courses and the classes being offered on a two-year cycle consistently and an increase of DOE students coming into the program. The number of SSH Program Majors in Program Classes have been up during the five-year cycle with an influx of new students during the initial startup, with a

high of 418 and a low of 210 but is estimated to level off during next year at 361. FTE Enrollment in Program Classes peaked in AY21-22 at 467 and are trending to stay high at approximately 393 over the next five years. Non-majors have been taking classes during the last five year as adults and have been attending courses to get promotions at work by increasing their skill level. The total number of classes taught has increased to 9 this year, mainly due creating a standard two-year pathway asked for by the administration. Demand for the EIMT Program in 2023 is considered strong by the Program Coordinator during the five years due to the five-year hiring cycle of IBEW jobs and increase in solar jobs and more non-union jobs on the island and less workers coming from Oahu to work for NECA contractors because of Covid-19. Demand Indicators for the EIMT Program for 2022-2023 is on track and improvements are being considered as needed.

Efficiency Indicators:

The Average Class size for the EIMT Program has increased from 9 to 14 over the last five years, and hopefully shows an average of twelve (12) students per class. The 1st year courses were at maximum this fall with some on a waitlist. A relocation of class to CARP 108 allowed those students to attend. The Fill Rate increased over last five year cycle to 87.8% from 48.6% and now has decreased to 68% as we are now offering more courses. As OCET offered electrical apprenticeship courses numbers has still increased even though OCET taught 10 NJATC apprentices last year and 39 ETP EJ (240 Hours) students with an EIMT instructor helping with this training. Last year six working maintenance electricians or ETP EM completed taking classes through EIMT on Tuesday-Thursday nights. FTE BOR Appointed faculty remains at one, and Majors to Analytic FTE Faculty has stayed steady over the last five years. Additional Adjunct faculty has been used to cover classes because more program course are offered than the FTE faculty can teach per year. Several sections of data were not provided in the past three years under budget allocation. It should be noted that the FTE was teaching FENG 130 & 140 courses as part of his teaching assignment. An lecturer faculty has now been hired for these courses.

The number of Low-Enrolled classes has increased back to 3. The EIMT 170 and FENG 130 Solar and HVAC classes are smaller than 10 to allow students to pick a specialization in the trade that will make them job marketable. Both trades are hiring and are looking for employees, but having students choosing one course over the other does decrease these class sizes. We have tried to increase recruitment rates by offering tours and speaking at the Construction Academy classes at the High Schools. The number of entry level courses has been limited to fall semester and students must now start then to begin the cycle. The last two (2) academic years have had full classes to start the fall semester. The number of students taking EIMT on Kauai's is at 5.0 per ten thousand people while it is at 0.65 on Oahu and 1.75 for the Big Island. Efficiency Indicators for the EIMT Program for 2022-2023 is on track and improvements are being considered as needed.

Effectiveness Indicators:

In 2022-23 shows that the Successful Completion has increased slightly to 99%, which is average during the last 5 years .from the highest of 99% and low of 87% in the past five years. Withdrawals have also been low overall with five (5) during the five-year cycle and decreased to zero (0) last year. Persistence fall to spring indicates an upward trend from 61% to 86% once again over last year, although the Persistence fall to fall has stayed steady from 41% to 57% with a big jump to 82%. While the number of Unduplicated Degree/Certificates Awarded and Degree Awarded

decreased, an increase is expected because of the additional classes taught that allow students to complete in four semesters instead of five. Five students are completing at the end of Fall semesters that had to stay an extra semester for the class offering. This is due to faculty intervention for students to complete and achieve an AAS. More students started the sequence this last year with some still needing to complete General Education Classes. Students this year more students are interested in the CA certificate and forgoing the AAS Degree to get into the job market faster.

The data on the Certificates of Achievement Awarded is also related to those students who were contacted. The number of Transfers with and without credential from the program is nonexistent; and is not a measured positive outcome for this CTE program that has historically been a terminal degree. Effectiveness Indicators for the EIMT Program for 2022-2023 is on track and improvements are being considered as needed.

Distance Education

(Completely On-line Classes) The EIMT program does not offer Distance Learning at the current time.

Perkins Core Indicators

The EIMT Program met the Perkins Core Indicators for Postsecondary Placement, Earned Recognized Credential, and Nontraditional Program Concentration. 1P1 goal was 33% with 86% actual achievement. 2P1 goal was 34% with 67% actual achievement. 3P1 goal was 11% with 11% actual achievement. Nontraditional students have enrolled in the program and one student is graduating this semester and two students are currently enrolled. Nontraditional Participation and Completion has been a priority in the EIMT Program. We have had our new Trades Tracking Coordinator working with students to stay on track to graduate. The instructor contacted all students who completed the EIMT courses and three students have returned this semester.

Performance Indicators

The EIMT Program shows slow steady growth in the Number of Degrees and Certificates and Number of Degrees and Certificates Native Hawaiians. The slight dip in numbers for AY 2022-23 is because of the fewer classes offered and it is taking an extra semester for students to complete. Six additional students are on track to complete this fall semester which will affect Fall to Spring above. The number of Pell Recipients has fluctuated over the past five years, perhaps due to the stronger economy and in direct relation to part-time students funding their own education. The overall cost of the OCET course is the number one reason given for not taking the licensure classes, but had 15 students complete the ETP EJ (240 Hour) course in 2022. The number of Transfers to UH 4-year was at zero as expected with most student entering the work force.

4. Action Plan

The EIMT Program will continue with the current courses and program outline through spring 2024 to allow students from the EIMT program complete their program certificates and degrees. The instructors feel that moving some students to the Carpentry Program will help with those that are struggling with the program. The Early College (EC) trades courses will also help with recruitment and job placement as the economy recovers from the pandemic. The FTE Instructor has announced

his retirement and the program will be in transition as a new instructor is brought into take over the training.

The majority of courses should be taught by tenure track salaried faculty with lectures teaching Early College Trades programs and specialty courses of HVAC and Solar. The potential for part time night students was evaluated and courses are being offered to allow returning adults seeking an occupational change or a work promotion. Most EIMT first year classes are offered in the afternoon and evenings. With second year students attending in the morning hours. KauCC is the only source of training for Kaua'i residents to update their skills in the Hospitality Maintenance Industry and offering that course at a time when employees can attend is being evaluated each semester.

In setting goals for the future of the Electrical Installation and Maintenance Program the program will need to update its curriculum and training for the new technology that electricians are now required to install. Energy management and wireless controls are becoming a major component for the residential installation. New NFPE 70 National Electrical Code requirements include Surge Suppression, Renewable Energy, and the requirements for Electric Vehicle (EV) charging are now required.

To keep the program in a healthy status it will be important to continue to recruit from the DOE graduates for those seeking to enter the job market and stay on the island. As students' progress through their first year we should encourage students to complete QM 108 Math, ENG 108 English and physics to gain a foundation to be successful. As students complete the program, we have a great school to job developed by having potential employers come and visit students and take applications from them.

5. Resource Implications

One full time tenure track instructor to meet the needs of EIMT courses and additional courses that are currently taught by an EIMT instructor and with two (2) lecturers to help when needed. This is a request for AY 2023-2024. Lectures were not listed in the budget or previous request. Although this request is for fall 2023 it is important to replace these positions that were eliminated by budget cuts and retirement if the program is expected to continue as is.

In order to improve student learning outcomes and prepare students for the workforce, adequate and updated equipment is essential for the program to progress and produce quality students. State of the Art training simulators are vital to student success by modernizing and replacing aged and inoperable equipment. These were approved with replacement funds in three previous Academic Years. Unfortunately, fiscal and the UHCC System was unable to make the purchases of trainers as requested.

Program Goal	Increase student hands-on-training in HVAC and Split Systems
Resource Requested*	T7130 Residential Mini-Split Heat Pump Learning System R-410a
Cost and Vendor	\$28,185.00 plus \$3,500 Shipping, \$1,500.00 Taxes Amatrol (Klein Educational Supplies)

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Annual Recurring Cost	\$500.00 Replacement Refrigerant
Useful Life of Resource	20 Years
Person(s) Responsible and Collaborators	Jim Andrews
Timeline	2024: 6-month delivery time

Program Goal	Increase student hands-on-training in HVAC and Split Systems
Resource Requested*	T7032 Refrigerant Recovery and Charging Learning System for R-410a
Cost and Vendor	\$11,991.00 plus \$3,500 Shipping, \$550.00 Taxes Amatrol (Kline Educational Supplies)
Annual Recurring Cost	\$500.00 Replacement Refrigerant
Useful Life of Resource	20 Years
Person(s) Responsible and Collaborators	Jim Andrews
Timeline	2024: 6-month delivery time

I am NOT requesting additional resources for my program/unit.