

University of Hawai'i Community Colleges Comprehensive Program Review

Electrical Installation and Maintenance Technology Program

UNIVERSITY of HAWAII*
KAUA'I
COMMUNITY COLLEGE



Kaua'i Community College

Assessment Period: FY2011-2012 through FY2017-2018

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Kauai Community College

Comprehensive Program Review

Program Name: Electrical Installation and Maintenance Technology

Assessment Period: FY2011-2012 through FY2017-2018

College Mission Statement:

Kaua'i Community College is a kahua that inspires, engages, and empowers learners and educators to enrich our community and our world.

Ke kū nei ke Kulanui Kaiāulu ma Kaua'i ma ke 'ano he kahua e ho'oulu, ho'ā, a ho'oikaika 'ia ai ka 'ike a me ka na'auao o nā kānaka a'o aku a a'o mai no ka ho'owaiwai 'ana i ke kaiāulu a me ka honua.

'O ke kahua ma mua, ma hope ke kūkulu.
First comes the foundation, then comes the building.
('Ōlelo No'eau, number 2459)

Kaua'i Community College fulfills its mission by incorporating the following practices. The College:

- Provides open access, affordable education;
- Welcomes and values diversity;
- Delivers educational opportunities on campus in small classes, in the community, internationally, and through distance learning;
- Provides programs that address workforce and community needs;
- Prepares and supports students individually and collectively to succeed in academic endeavors and engage in life-long learning;
- Encourages innovation and promotes sustainability while perpetuating the unique history and culture of Kaua'i.

Program Mission Statement:

The Electrical Installation and Maintenance Technology 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 mission by incorporating the following practices. The Program:

- Making 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 islands 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.

Comparing Kaua'i CC and the EIMT Program Mission Statements the program goal is to educate and train students to be eligible for licensure as an electrician after working the hours required by the State of Hawaii. Emphasis is placed on the State of Hawaii's DCCA requirement for education.

Part I. Executive Summary of Program Status

There were no formal responses found or previous program review recommendations. The last scheduled five year review in 2012 was not done because the program was inactive.

Part II. Program Description

History

The Electrical Installation and Maintenance Technology (EIMT) program is comprehensive, fulfilling the requirements for entry level positions in the many job opportunities in the electrical field; providing technical knowledge needed as well as the essential hands-on skills that meet the condition for achieving success in the electrical field at an entry level. The EIMT Program is a Career Technical Education (CTE) program. Emphasis is placed on wiring in accordance with both the provisions contained in the National Electrical Code and the energy conservation codes. Successful completion of the Electrical Installation and Maintenance Technology program, will prepare an individual to take the State of Hawai'i DCCA HRS-448E Electrician License exam upon completion of the required experience (working hours) in the trade.

The Electrical Installation and Maintenance Technology (EIMT) was a full time program during the 1990's until the main instructor's retirement. It was decided to inactivate the program by the administration at the time. This continued through the last records on file in FY2004-05 through FY2011-12. The only courses offered were ELEC 20 Electrical Fundamentals and ELEC 22 Wiring Materials, Methods and NEC Codes for the Facility Engineering Program (FENG) using lectures as instructors. Beginning in FY2012-13 the program was reestablished under the direction of Robert Conti, the Construction Academy Director, using the old class room and materials that were in storage, donations received by local electrical wholesalers, or by grants received for renewable energy or solar photovoltaic instruction. The program was modeled after the EIMT program at Honolulu Community College with more emphases in residential and commercial wiring and less in industrial wiring and solid state controls. This decision was made because of the strong rural presence and multi-dwelling units or tourism type buildings on the island.

The following is a list of credit classes that have been taught during the last five year cycle:

Table 1- EIMT Courses FY2012-13 through Fall 2017

Alpha	Num	Banner Name	Cr	Alpha	Num	Banner Name	Cr
ELEC	20	Elec Fundamtl	3	ELEC	42	Elec Install Lab II	6
ELEC	22	Wiring Materials, Method & NEC	3	ELEC	46	AC-DC Systems and Equipment	6
ELEC	30	Elec Install Theory I	4	ELEC	70	Renewable Energy PV I	3
ELEC	32	Elec Install Lab I	6	ELEC	75	Renewable Energy Adv PV	3
ELEC	40	Elec Install Theory II	4	ELEC	99V	Special Studies	1
ELEC	41	Indus Motor Controls I	3				

In 2013 the working relationship between the EIMT program and the local IBEW 1186 was strained from previous unlicensed work and training provided to non-union trainees on campus. With the electrical union being the largest employer of electricians on the island the faculty felt that it was important to repair this relationship. After the recession and as the construction rebounded many of the islands electricians had moved, started non-union companies or retired. This left a need for entry-level positions that we currently train students for. As one of program coordinator's main duties is to help graduates find employment it was imperative to work together and provide them with needed employees. Currently we have placed four students working for the union with additional students interested in the application process.

Program Goals and Occupations

Electricians are highly paid skilled craftsmen that learn about construction and maintenance environments, bending conduit, running wire, installing electrical devices, servicing, and distributing equipment. The student begins with the fundamentals of electricity and wiring of simple circuits, then progresses to residential

interior wiring, commercial interior wiring, three phase AC power, and wiring of motor controls and photovoltaic renewable power. Electrical safety is required as an essential part of each individual task. This job field is currently in very high demand nationwide as the current workforce is nearing retirement.

This program prepares students for employment with electrical, facility maintenance, communication, utility companies, electrical construction, and maintenance companies. Learning will center on designing, blueprint reading, constructing, installing, and maintaining electrical wiring and equipment.

Journey-Person Electrician CIP Code 46.0302 is the one used for all documentation for EIMT. The following are six occupations are associated with the EIMT program and possible employment opportunities on Kaua'i:

1. Linemen and Utility Engineers
2. Journey-Person Electrician
3. Security, Fire and Telecommunication Installer Technicians
4. Residential Wiremen
5. Solar Installation Technician
6. Maintenance Electricians and Facility Engineers

The EIMT program was developed to meet the preparatory needs of individuals who are not yet employed or currently working in the field. The Electrical Installation and Maintenance Technology offer an (AAS) Associate of Applied Science degree, Certificate of Achievement (CA), and Certificate of Achievement (CO) in Solar Energy Technology to allow high school and adult students to gain knowledge and hands-on experience with the addition of lifelong skills needed throughout life. These degrees and certificates lead students to apprenticeship training in Electrical Installation and Maintenance and Solar Energy Technology before entering entry level employment with additional educational programs or working environment.

Program Student Learning Outcomes (PSLOs)

On completion of the Electrical Industrial Maintenance Technology program a graduate must demonstrate the following:

Table 2- Electrical Installation and Maintenance Program Student Learning Outcomes

Electrical Industrial Maintenance Technology PSLO's through Spring 2018
1. The ability to read a blueprint and negotiate through the drawings to layout a project.
2. The proper selection of materials that comply with published codes and deliver energy efficient outcomes
3. The ability to maintain and care for the tools required in the electrical industry.
4. The safety procedures necessary to assess a task for hazards and the steps required to meet OSHA and State safety regulations.
5. The ability to communicate successfully in writing, orally and with computer technology.
6. The commitment to craftsmanship including the use of energy efficient practices, dependability and punctuality, and pride in accomplishments.

Admission Requirements

Kaua'i Community College maintains an open-door admission policy. A student may be granted admission to the college as a high school graduate, or has earned a General Equivalency Diploma (GED), or if the applicant is 18 years or older, and can benefit from instruction at the college.

There are no barriers to entry in the EIMT program; however, students are encouraged to strive for the A.A.S. degree, which includes 100 level General Education course offerings. Program certificates allow students seeking short-term educational goals the opportunity to ladder upwards to a Certificate of Achievement or higher.

During the five years prior admission requirements were changed to allow changes in the English and Math courses offered. The following are the current entry requirement:

Table 3- Electrical Installation and Maintenance Program Admission Requirements

FY2016-2017	
1.	Qualified for ENG 100X or ENG 106 and Qualified for MATH 82X or higher or concurrent enrollment in MATH 75X or higher;
2.	Approval of instructor.
3.	A GPA of 2.0 or higher for all courses applicable toward the certificate or degree is needed to meet graduation requirements.

Credentials, Licensures Offered

The Associate in Applied Science (A.A.S.) is a 2-year technical-occupational-professional degree, consisting of 62 semester credit hours, which provides students with skills and competencies for gainful employment. This degree is not intended nor designed for transfer directly into a baccalaureate program; however, A.A.S. programs provide students the ability to prepare for baccalaureate-level transferability by offering selective General Education courses that meet transfer guidelines. The issuance of an A.A.S. in Electrical Installation and Maintenance Technology requires that the student must earn a GPA of 2.0 or better for all courses applicable toward the degree.

The Certificate of Achievement (C.A.) is a college credential for students who have successfully completed designated medium-length-technical-occupational-professional education credit course sequences which provide them with entry-level skills or job upgrading. These course sequences shall be at least 24 credit hours, but may not exceed 45 credit hours (unless external employment requirements exceed this number*). The issuance of a C.A. in Electrical Installation and Maintenance Technology requires that the student earn a GPA of 2.0 or better for all courses required in the certificate.

The Certificates of Competence (C.O.) is a college credential for students who have successfully completed designated short-term credit courses, which may provide them with professional development, job enhancement, or entry-level skills. Credit course sequences shall not exceed 23 credit hours. The issuance of a C.O. requires that the student's work has been evaluated and determined to be satisfactory. In credit course sequences, the student must earn a GPA of 2.0 or better for all courses required in the certificate.

Table 4- Electrical Installation and Maintenance Program Degree, Certificates offered

Certificate Name	Type of Degree or Certificate	Number of Credits
Discontinued Degree or Certificate		
Electrical Installation and Maintenance	Certificate of Completion	12 Credits
FY2016-2017		
Solar Energy Technology/Technician	Certificate of Completion	14 Credits
Electrical Installation and Maintenance	Certificate of Completion	15 Credits
Electrical Installation and Maintenance	Certificate of Achievement	47 Credits*
Electrical Installation and Maintenance	Associate in Applied Science Degree	62 credits

Apprentice Electricians in the State of Hawaii are not required to be licensed but are required to be under direct supervision of a licensed journeyman at all times. Depending on the type of license must show verification of completion of electrical academic coursework conducted at or accepted by a University of Hawaii Community College. Applicants shall apply, be qualified by the Board of Electricians and Plumbers, and attain a passing score on Hawaii's licensure examination. Pursuant to 448E-5(b), all journey worker & maintenance electrician classifications are subject to an educational component. This means that a Hawaii Community College System must review and deem an electrician's electrical coursework for the appropriate electrician classification as equivalent to that being taught by Kaua'i Community College for those employees on the island.

For Journey Worker Electrician categories, earning an Electrical Installation and Maintenance Associate in Applied Science Degree of 62 Credits, Electrical Installation and Maintenance Certificate of Achievement of 47 Credits is equivalent to the appropriate program of study, of 240 hours of electrical academic coursework.

For the Maintenance Electrician earning at least a Certificate of Completion in Electrical Installation and Maintenance will require the employee to work 1 year or 2,000 hours of supervised electrical maintenance work. For the Maintenance Electrician earning at least Certificate of Achievement in Electrical Installation and Maintenance will require the employee to work 6 months or 1,000 hours of supervised electrical maintenance work.

Faculty and Staff

In Spring 2014 a full time CC-2 Instructor 9MO TT/Electrical Installation and Maintenance probationary faculty was hired to teach and work as Program Coordinator over the EIMT Program. Until then lectures were hired to teach all courses offered. The Construction Academy Coordinator led the Program until this position was hired. He also taught as a lecture prior to this time. The following taught in various capacities in the program the last five years:

Table 5- Faculty at kua'i Community College- Electrical Installation and Maintenance Technology

Name	Position	Experience	Status with College	Year
R Edwards	Lecturer	Electrician	Not Employed	2012
Ray Smith	Lecturer	Electrical Contractor	Not Employed	2012
R Miyazaki	Lecturer	Electrical Contractor	Not Employed	2013
Robert Conti	Lecturer	Construction Academy	Not Employed	2007-2016
James Andrews	CC2 9MO Instructor	Electrician/Instructor	Current	2014-Present
Daniel Erickson	Lecturer	Sustainability/Renewable Energy	Current	2017-Present

Resources

The EIMT Program is supported by the library, which along with access to a book collection of 60,000+ volumes, also provides intra-system loan (ISL) from the entire University of Hawai'i Library System. Desk copies of EIMT textbooks are kept in CARP 109 Classroom of the Carpentry Building. Various online resources, books, journals, and magazines are accessible to students at the library.

There is a computer at each training station located in CARP 109, which contains a total of 24 PCs, 18 in the main lecture room and 6 in the lab area and one for each Motor Control Station. Each side of the split classroom uses a smart board with a 60" LCD TV for multi-media presentations. Industry software programs are available for the students to use during their studies. Update to the software was given during the FY2016-2017 from the APRU process. Computer Services took over maintaining and servicing the current computers and network in FY2014-2015 that was purchased with grant money through Renewable Energy Grant and installed by others. 25 New lab chairs were purchased from APRU funds in FY2015-2016 and assembled during spring break 2017 by the instructor.

The old scenery from a KCC play has been used as residential wiring labs for the ELEC 22 Course in the parking lot. Students in Spring 2014 began building six Motor Control Stations to support the Electrical Installation and Maintenance program. In Spring 2017 the college through APRU provided \$6,000 in funding for additional materials for the motor controls stations used in training. In Spring 2017 a Perkins Grant was applied for to provide materials to finish the project to provide Residential Wiring and Conduit Bending to the labs. At the time of this document the remaining materials are in the purchasing phase of the project.

Articulation agreements

During the Fall 2016 EIMT PCC held November 4, 2016 at Honolulu Community College meeting it was decided that all campuses in the UHCC system had different objectives and goals. Alpha/Numeric changes were made to align with UHCC Course Alignment and Teaching Equivalencies (T.E.s) Implementation Timeline memo dated 12/29/2016 from John Morton. Each program at the Community College level offering these courses met to discuss the needs of each island. Each campus has decided to list the courses separately because of credit hours, CSLO's and PSLO's are different. Program changes also address needs of local employers. During that meeting the decision was made not to create an articulation agreement.

Community Connections, Advisory Committees, Internships, Coops, DOE Connections

The EIMT Program main partnership is the International Brotherhood of Electrical Workers (IBEW) 1186 and the National Joint Apprenticeship Training Council (NJATC) Training Alliance that provides opportunities for faculty and student involvement and job placement. Currently Courses are offered through Office of Continuing Education and Training (OCET) and are supported through the EIMT Program by providing labs, computers and instructor support. The independent electrical contractors on the island need their employees trained but offer little to the success of the program other than job placement. A few maintenance and union partnerships provide property tours, guest speakers, media materials, and employment for our majors.

One of the major additional duties the EIMT Program Coordinator is being a liaison and instructor for the Independent Electrical Program taught through the Office of Continuing Education and Training (OCET) to providing instruction, course development, and labs and/or mentoring for non IBEW 1186 working electricians that are required to take state approved 240 hour course. Curriculum development is shared with Maui College and Hawaii Community College OCET programs to help facilitate this program. The program has completed two 240 hour courses and planning a third beginning January 2018.

Distance Delivered/Off Campus Programs

Currently no distant learning courses are being taught. Some of the curriculum however is being delivered through a blended learning system.

Part III. Quantitative Indicators for Program Review

Overall Program Health

Overall EIMT Program Health: Cautionary

Majors Included: EIMT Program CIP: 47.0101

12-13	13-14	14-15	15-16	16-17
Unhealthy	Cautionary	Cautionary	Cautionary	Cautionary

Demand Indicators

Majors Included: EIMT Program CIP: 47.0101

Demand Indicators		12-13	13-14	14-15	15-16	16-17
1	New & Replacement Positions (State)	61	285	274	253	288
2	*New & Replacement Positions (County Prorated)	1	8	8	4	7
3	*Number of Majors	14.5	21	20	24	22
3a	Number of Majors Native Hawaiian	5	8	5	7	8
3b	Fall Full-Time	38%	38%	58%	42%	54%
3c	Fall Part-Time	63%	63%	42%	58%	46%
3d	Fall Part-Time who are Full-Time in System	0%	0%	0%	4%	0%
3e	Spring Full-Time	46%	42%	65%	30%	65%
3f	Spring Part-Time	54%	58%	35%	70%	35%
3g	Spring Part-Time who are Full-Time in System	0%	0%	0%	0%	5%
4	SSH Program Majors in Program Classes	69	117	271	160	237
5	SSH Non-Majors in Program Classes	25	49	21	25	40
6	SSH in All Program Classes	94	166	292	185	277
7	FTE Enrollment in Program Classes	3	6	10	6	9

8	Total Number of Classes Taught	3	4	5	6	9
		Unhealthy	Healthy	Unhealthy	Unhealthy	Healthy

Efficiency Indicators

Majors Included: EIMT Program CIP: 47.0101

	Efficiency Indicators	12-13	13-14	14-15	15-16	16-17
9	Average Class Size	7.3	9.8	12.8	7.5	7.8
10	*Fill Rate	48.8%	65%	85.3%	50%	51.8%
11	FTE BOR Appointed Faculty	0	0	1	1	1
12	*Majors to FTE BOR Appointed Faculty	0	0	19.5	23.5	22
13	Majors to Analytic FTE Faculty	30.1	29.8	22.9	25.4	15.6
13a	Analytic FTE Faculty	0.5	0.7	0.9	0.9	1.4
14	Overall Program Budget Allocation	Not Reported	\$58,455	\$111,898	Not Reported	Not Yet Reported
14a	General Funded Budget Allocation	Not Reported	\$57,000	\$5,700	Not Reported	Not Yet Reported
14b	Special/Federal Budget Allocation	Not Reported	\$0	\$103,698	Not Reported	Not Yet Reported
14c	Tuition and Fees	Not Reported	\$1,455	\$2,500	Not Reported	Not Yet Reported
15	Cost per SSH	Not Reported	\$352	\$383	Not Reported	Not Yet Reported
16	Number of Low-Enrolled (<10) Classes	3	3	0	4	7
		Unhealthy	Cautionary	Healthy	Cautionary	Cautionary
	*Data element used in health call calculation	10/3/2013	1/25/2015	10/7/2015	1/18/2017	10/29/2017

Effectiveness Indicators

Majors Included: EIMT Program CIP: 47.0101

	Effectiveness Indicators	12-13	13-14	14-15	15-16	16-17
17	Successful Completion (Equivalent C or Higher)	100%	100%	92%	91%	96%
18	Withdrawals (Grade= W)	0	0	1	0	2
19	*Persistence Fall to Spring	50%	66.6%	78.9%	66.6%	73.9%
19a	Persistence Fall to Fall	37.5%	41.6%	68.4%	52.3%	47.6%
20	*Unduplicated Degrees/Certificates Awarded	0	0	3	7	5
20a	Degrees Awarded	0	0	0	0	4
20b	Certificates of Achievement Awarded	0	0	1	6	3
20c	Advanced Professional Certificates Awarded	0	0	0	0	0
20d	Other Certificates Awarded	0	0	3	4	2
21	External Licensing Exams Passed	Not Reported	Not Reported	Not Reported	Not Reported	N/A
22	Transfers to UH 4-yr	0	0	0	0	0
22a	Transfers with credential from program	0	0	0	0	0
22b	Transfers without credential from program	0	0	0	0	0
		Unhealthy	Unhealthy	Healthy	Healthy	Cautionary

Distance Education (Completely Online Classes)

Majors Included: EIMT Program CIP: 47.0101

	Distance Education: Completely On-line Classes	12-13	13-14	14-15	15-16	16-17
23	Number of Distance Education Classes Taught	0	0	0	0	0
24	Enrollments Distance Education Classes	N/A	N/A	N/A	N/A	N/A
25	Fill Rate	N/A	N/A	N/A	N/A	N/A
26	Successful Completion (Equivalent C or Higher)	N/A	N/A	N/A	N/A	N/A

27	Withdrawals (Grade= W)	N/A	N/A	N/A	N/A	N/A
28	Persistence (Fall to Spring Not Limited to Distance Education)	N/A	N/A	N/A	N/A	N/A

Performance Funding

Performance Funding		12-13	13-14	14-15	15-16	16-17
35	Number of Degrees and Certificates	0	0	1	10	7
36	Number of Degrees and Certificates Native Hawaiian	0	0	0	5	1
37	Number of Degrees and Certificates STEM	Not STEM	Not STEM	Not STEM	Not STEM	Not STEM
38	Number of Pell Recipients	6	12	9	13	4
39	Number of Transfers to UH 4-yr	0	0	0	0	0
*Data element used in health call calculation		10/3/2013	1/25/2015	10/7/2015	1/18/2017	10/4/2017

Perkins Core Indicators (CTE Programs Only)

Perkins IV Core Indicators 2012-2013		Goal 2012-13	Actual 2012-13	Met	Goal 2013-14	Actual 2013-14	Met	Goal 2014-15	Actual 2014-15	Met	Goal 2015-16	Actual 2015-16	Met
29	1P1 Technical Skills Attainment	90.00	100.00	Met	91.00	100.00	Met	91.00	100.00	Met	92.00	100.00	Met
30	2P1 Completion	55.00	0.00	Not Met	47.00	0.00	Not Met	50.30	0.00	Not Met	51.00	50.00	Not Met
31	3P1 Student Retention or Transfer	74.50	87.50	Met	75.21	72.73	Not Met	76.72	85.71	Met	81.00	58.82	Not Met
32	4P1 Student Placement	65.00	0.00	Not Met	68.92	0.00	Not Met	69.00	100.00	Met	63.87	100.00	Met
33	5P1 Nontraditional Participation	17.25	5.88	Not Met	17.50	4.17	Not Met	19.69	0.00	Not Met	22.00	4.17	Not Met
34	5P2 Nontraditional Completion	15.55	0.00	Not Met	0	0	Met	19.36	0.00	Not Met	22.00	0.00	Not Met

Part IV. Analysis of the Program

Overall EIMT Program Health: **Cautionary**

Demand Indicators

Overall, the number of majors has increased over the past five years, yet, the program numbers are lower than most other Trades programs to date. This is due to some of the union jobs are required to train through UHCC OCET Apprenticeships using NJATC curriculum. Because of economic climate, industry positions have decreased slowly over the past five years with a few down years with New/Replacement County positions losing overall by one position. The related number of related trades is not taken into account with the number of jobs available. Therefore, the program produces more majors than New and Replacement positions available for Journey-Person Electrician. The IBEW local 1186 has been on the slow side during the last two years with large commercial building jobs down on the island. In Fall 2015 the IBEW hired 10 Apprentice Electricians to begin a five year cycle. The next apprenticeship class is expected to be later this year to begin in Spring 2018 with an additional 10 job openings. Two to three EIMT graduates are generally hired during this cycle. Graduates are not given preferential treatment, but are given credit for their first year of schooling that is required by the NJATC Training Alliance. The data also shows a substantial number of full-time students have increased while the numbers of part-time students have decreased substantially. This is because of stability in the faculty teaching courses and the classes being offered on a two year cycle consistently. The number of SSH Program Majors in Program Classes been up and down during the five year cycle with influx of new students during the initial startup, but is estimated to level off during the future. FTE Enrollment in Program Classes peaked in 14-15 and is trending to level off over the next five years, but increased over the past two years. The total number of classes taught has increased each year, mainly due creating a standard two year pathway asked for by the administration. Demand for the EIMT Program in 2016 is Healthy; however, the Program has wavered between Unhealthy and Healthy over the past five years due to the demand of jobs in the non-union job market on the island.

Efficiency Indicators

The Average Class size for the EIMT Program has decreased over last two years, and hopefully shows a future upward trend with the combining the credit/non credit courses. The Fill Rate been flat over last two years at 50.0%. As OCET courses are offered the enrollment in EIMT does go down. FTE BOR Appointed faculty remains at one, and Majors to Analytic FTE Faculty has decreased over last five years. Several sections of data were not provided in this past three years under budget allocation.

The number of Low-Enrolled classes has increased substantially by trying to increase graduation rates by offering second year courses with low numbers below ten. The number of entry level courses has been limited to fall semester and students must now start then to begin the cycle. The amount of students taking EIMT on Kaua'i is at 5.0 per ten thousand people while it is at 0.65 on Oahu and 1.75 for the Big Island. Health Efficiency for the EIMT Program for 2017 is Cautionary.

Effectiveness Indicators

In 2017 it shows that the Successful Completion has decreased slightly to 96%, which is up from the lowest of 91% in the past five years. Withdrawals have also been low overall with two during the five year cycle. One student received a job offer in the trade and began an apprenticeship and the other decided that they did not like working at heights and changed programs. Persistence Fall to Spring indicates an upward trend once again over last year, although the Persistence Fall to Fall has decreased from 14-15, part of that may be attributed to high number of students starting that year trying to get into the IBEW. While the number of Unduplicated Degree/Certificates Awarded and Degree Awarded rose is to the fact that the faculty contacted students that were one to three credits short to see what we could do to help them finish, respectively, the numbers relatively climbed over the past five years. The data on the Certificates of Achievement Awarded is also related to those who were contacted. Students have been found to have completed the EIMT Certificates, but failed to change their declared major from FENG after starting. The number of Other Certificates Awarded has also increased significantly. A PAR change to Building Construction Technology in Fall 2017 will address this issue of low enrollment, and will allow students to select from other course offerings. 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 a degree.

Distance Education (Completely On-line Classes)

The EIMT program does not offer Distance Learning at the current time.

Performance Funding

The EIMT Program shows positive upward growth in the Number of Degrees and Certificates and Number of Degrees and Certificates Native Hawaiians. 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. With the addition of the credit/noncredit courses in FY2018-2019 the number of Pell Recipients may increase. The overall cost of the OCET course is the number one reason given for not taking the licensure classes. Creating a credit/non credit (CO) that has financial aid available will help draw more students to the program. The number of Transfers to UH 4-year was at zero as expected.

Perkins Core Indicators

The EIMT Program met the Technical Skills Attainment, and Student Retention/Transfer. However, Completion, Student Retention/Transfer and Student Placement goals have not; however, it is difficult to ascertain as the data provided is incomplete. Nontraditional Participation and Completion has been a priority in the EIMT Program. Each class had one woman in the class and has been actively involved with the labs. One woman did drop out of the program when she discovered she was afraid of heights and could not climb the ladders. Also it shows no completions during the five year cycle when in 2015 our first graduate was a woman, Crystal Cruz, who is now part of the faculty with the Construction Academy.

Expected Level of Achievement

The benchmarks for the program assessments are set at 70% for quizzes, exams and graded assignments given in class. The skill benchmark is Pass/Fail within three attempts. Projects with measurements must be within

1/16" inch and projects that are wired must meet NFPA 70 National Electrical Code and work when completed. This is the same standard that most states use for licensure throughout the United States.

Course Assessment Results

The EIMT Program has completed 100% of course assessments for all courses from January 2014 to the present. Prior to Spring 2014 the CARD Assessments' were completed, the prior instructor had done them, but he did not pass them along. Records of previous CARD Assessment that were completed could not be found in time for this document. From Fall 2014 through Spring 2016 CARs were completed and turned into the Assessment Coordinator and copies were kept and evaluated by the EIMT Program Coordinator. During the Fall 2016 LiveText was used for Assessment. With it being the first time using the software a lot of learning curve was needed. After completion it was noted that some of the data did not record and was inaccurate. The original data is available in the department that was missing in LiveText. After Spring 2017 the program coordinator volunteered to be one of the first to use viaLiveText training and EIMT Spring 2017 assessments were completed August 2017 after training was complete.

Assessment Strategy/Instrument

A variety of methods are utilized to assess PSLOs for all ELEC/EIMT alpha courses. These include, but are not limited to quizzes and exams (multiple choice, essay questions, fill-in-the-blanks, and terminology), comprehensive projects and presentations, and/or written assignments, and most importantly skills exams of the electrical trade applications. All exams and quizzes are made using Examview and the program has over 4,000 question in the data base to choose from. The following assessment methods types are tied to the CSLO's and PSLO's:

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| 1. Collaborative Project | 2. Exam or Quiz / Embedded Questions |
| 3. In-class Activity | 4. Instructor Observation |
| 5. Oral Presentation(s) | 6. Portfolio |
| 7. Practical Project or Examination | 8. Self Assessments / Peer Assessments |
| 9. Skills Tests / Demonstrations | 10. Written Products |

Assessment Results for PSLOs

Table 5- EIMT Program Student Learning Outcomes Assessment Outcomes

Electrical Industrial and Maintenance Technology PSLO's through Spring 2018	Type of Assessment: List of the Program Student Learning Outcomes and assessment used	Met Benchmark: Assessment findings	Changes that have been made as a result of the assessment findings
1. The ability to read a blueprint and negotiate through the drawings to layout a project.	<ol style="list-style-type: none"> Follow Blueprints in building lab projects Use blueprints to complete load calculation from NEC Select materials for a given job from blueprints 	70% Minimum: All students completed the assessment above the minimum standard in the 70% to 95% Range	New blueprint reading software was requested in Perkins Grant from CMH Software to improve residential and motor control diagrams
2. The proper selection of materials that comply with published codes and deliver energy efficient outcomes	<ol style="list-style-type: none"> Assignment to take of material list and receive pricing and the purchase materials for on campus projects. Install materials accordance to the NEC Code and local county ordinances 	Pass/Fail and 70% Minimum: Installation and hands-on or instructor evaluation are evaluated daily during lab time.	Student are now required to understand materials, cost and procurement procedures for the college. More student projects needed. Labs to be built to accommodate when jobs on campus are not available.
3. The ability to maintain and care for the tools required in the electrical industry.	<ol style="list-style-type: none"> Student must pick out the tools need to perform projects and demonstrate their proper use. Cleanup and care for tools and equipment. Wear proper PPE when performing task. 	Pass/Fail and 70% Minimum: Students are docked points for unsafe conditions and for not using or properly taking care of tools and cleaning	Students are given a tool list at the beginning of ELEC 30 and must provide their own hand tools so that they will learn to take care of them. School will only

		up PPE during class.	provide necessary power tools.
4. The safety procedures necessary to assess a task for hazards and the steps required to meet OSHA and State safety regulations.	<ol style="list-style-type: none"> All students must pass the safety exam at the beginning of each class before participating in labs. As a new task is given each student is required to demonstrate the proper and safe way to complete the task. Students are not allowed to next task without completing safety requirements. 	Pass/Fail and 70% Minimum: Students are docked points for unsafe conditions and for not using properly taking care of PPE during class.	More stringent safety procedures are required during class and students are not allowed to participate if not wear safety PPE. Addition safety training is given in every course.
5. The ability to communicate successfully in writing, orally and with computer technology.	<ol style="list-style-type: none"> Students are given written exams on each topic with a midterm and final at the end of the semester. Include are MC, TF, fill in the blank, short essay, and one long essay question. National Electrical Code questions are open book in line with the national standard of being able to answer any questions within three minutes. Many of the assessment are given on the computer system and require students to be computer literate. 	All quizzes and exams are at 70% minimum. Students who fail the exam are allowed to retake the exam within one week. Skills exam are pass/fail, the project must work. Students are allowed to retake skills exams three times.	The software used in the program was owned by the instructor and during the last APRU the program purchased updated software licenses making all software used legal. Computer services have taken over the update and maintenance of the computer system.
6. The commitment to craftsmanship including the use of energy efficient practices, dependability and punctuality, and pride in accomplishments.	<ol style="list-style-type: none"> Students are required to be in class. Three absents are allowed per semester with 30% of grade based on attendance All projects done on campus are expected to be in a professional and workman like manner as according to the NEC and the NECA. 	Pass/Fail and 70% Minimum: Three absents are allowed per semester with 30% of grade based on attendance. All assignments, quizzes and exams are required to be completed. Participation in Lab must be done with assigned skills completed.	Labs that cover the tasked covered in the course material are important to make sure all skills are accomplished. Completing projects on campus are important; but must not take the place of classroom studies.

Throughout the electrical industry and the National Electrical Contractors Association (NECA) has listed the following common Skills Tests / Demonstrations that are practiced in the trade and each student should have mastered each task. Specific procedures can vary with each task, but it is considered to make a person qualified in the trade. The skill benchmark is Pass/Fail within three attempts. The Perkins funding and APRU were requested for the FY 2017-2018 is to make sure labs are available for students to complete these skills.

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| 1. Splicing Conductors | 13. Installing a Raceway Support System |
| 2. Installing a Duplex Receptacle | 14. Threading GRC Conduit |
| 3. Installing a Single Pole and Three-Way Switches | 15. Installing Flexible Conduit |
| 4. Installing a Switched Duplex Receptacle | 16. Installing AC or MC Cables |
| 5. Proper Device Installation Techniques, GFCI Rough-In | 17. Installing "Recessed Can" Luminaire |
| 6. Using Anchors to Install a Metal Enclosure | 18. Installing Fluorescent Luminaire |
| 7. Installing a Retrofit "Old Work" Electrical Box | 19. Wire Pulling Techniques |
| 8. Using a Hacksaw | 20. Terminating Category 5e Networking Cable |
| 9. Lifting and Carrying Conduit | 21. Labeling and Marking Wire and Electrical Devices |
| 10. Erecting an Extension Ladder | 22. Trimming Out an Electrical Panel |
| 11. Hand Bending Conduit | 23. Exothermic Welding Of Copper Conductors |
| 12. Cutting a Hole in a Metal Enclosure for an EMT Connector | 24. Connecting a Three-Phase or Single Phase Motor |

Part V. Curriculum Revision and Review

The EIMT Program was activated starting in FY2012-2013 with ELEC 20 and ELEC 22 being offered. In subsequent semesters additional courses were added to the offerings. The first major PAR revision was requested

in Fall 2013. The EIMT Program was revised to update its graduation requirements for the AAS degree to address the ACCJC recommendations with 100-level or higher courses in all General Education areas. MATH 100 and PHYS 101 (to be proposed) replaced MATH 50 and PHYS 50. ENG 21, ENG 22, and SP 20 were removed from the Written and Oral Communication requirements. ELEC 20 was replaced with ETRO 18 as a program requirement to facilitate ETRO, FENG, ELEC, and AMT small class sizes.

In FY2013-2014 the EIMT program was revised to remove ELEC 44 and add ELEC 70 and ELEC 75 Renewable Energy PV courses as program requirements. Also to meet the UHCC directive of fall 2014, Certificates of Completion (CC) will no longer be awarded throughout the UH system, and all CCs will be converted to Certificates of Competence (CO).

The EIMT program was revised in Fall 2014 to add an additional CO (Certificate of Competence) in Solar Energy Technology. The CO (Certificate of Competence) was to allow students that are attending Kauai Community College to receive a 15 Semester Hour Certificate in Renewable Energy under the EIMT Program. The focus of their training will be Photovoltaic Systems and Solar Thermal Systems. The course ELEC 85 Renewable Energy Technical Sales PV was added to the list of classes for CO Renewable Energy, CA EIMT and AAS EIMT. FENG 26 Plumbing Basic and Repair has been added for the CO Renewable Energy. ELEC75 Renewable Energy Advanced PV or ELEC 85 Renewable Energy Technical Sales PV will be chosen with the student selecting which course is best in their career choice in the CA and AAS in EIMT. It was also discovered that the ELEC 20 course was still listed as a prerequisite for entry into the program and into many courses, this mistake was fixed.

Courses that were revised included ELEC 20 Electrical Fundamentals was inactivated and ELEC 22 Wiring Methods, Materials, and NEC Codes and ELEC 41 Industrial Motor Controls I were modified and sent for their five year review.

On November 4, 2016 the EIMT PCC committee met and Alpha/Numeric changes are made to align with UHCC Course Alignment and Teaching Equivalencies (T.E.s) Implementation Timeline memo dated 12/29/2016 from John Morton. Each EIMT Program that offers these courses met to discuss the needs of each island. Every one of the colleges has decided to list the courses separately because of credit hours, CSLO's and PSLO's are different. Program changes also address needs of local employers. The rest of the EIMT courses are on their five year review so all courses went to the Curriculum Committee on 9/22/2017. All CSLO's were revised and they are listed in. Alpha, numeric, title and CSLO's were updated; course description, syllabus, and week class outlines remained the same.

Part VI. Survey results

The Occupational Placement in jobs and the Employer satisfaction data is not available. This will be an action item that will need to be corrected by administration and the Institutional Researcher to assist the EIMT Program with feasible surveys to collect data. Informally, it is evident that students are employed in the industry; however, tracking students upon graduation is difficult and there are no mechanisms in place to track their progress.

No information on Graduate surveys has been obtained for the years 2012-2017. This is an area that will require assistance from the Institutional Researcher and the Division Counselor. This is definitely an area that requires assistance and improvement.

Part VII. Analysis of Program

The Kaua'i Community College is the sole source of training of electrical technical workers on the island of Kaua'i, but the program splits those students with OCET. The EIMT program provides the only training for the non working or entry level students. Without this program all training would be through Office of Continuing Education and Training (OCET) for those "working in the trade" adults that are legislative mandated for the University of Hawaii Community College system to offer. Although we only use one CIP Code for data purposes it should be noted the six major occupations on the island would be affected by cutting the program. Kaua'i entry level

students will need to relocate or move to a different island to complete the EIMT program taking away its most important resource, its young people.

Working as an electrician in the island state of Hawaii is a popular career choice as the Islands continues to see major commercial and residential development as more retirees relocate here. The US Bureau of Labor Statistics has projected an 13.8% job growth rate for electricians in Hawaii during the ten-year period leading up to 2024. Electricians in Hawaii earned the 3rd highest average salary in the country as of 2015 according to the US Bureau of Labor Statistics. In addition, electricians in the rural area of Hawaii/Maui/Kauai earned the 3rd highest average salary of electricians in any rural part of the country.

In the County of Kaua'i it is estimated to have 340 working journey person electricians with a mean average wage of \$34.11 or \$70,960 annual income. This makes the electrical trade one of the highest occupations available to a student at Kauai Community College after working five years of employment. This also means that the rigorous training and curriculum is used to eliminate those not dedicated to a lifelong career path or willing to put the 10,000 hours work experience in to gain journey person status. This leads to a higher than normal withdrawal or redirect of students to other programs that are not as in demand.

In the Fall 2016 the Kauai Community College administration was concerned that the program along with the Carpentry and Facility Engineering were not meeting the minimum of 10 graduates per year in each program that is required. The suggestion of consolidation of the Carpentry, Electrical Installation and Maintenance, Facility Engineering, and Welding into a Building Construction Technology Program would help the college justify the building trades on the island of Kauai by making it possible to meet the minimum numbers required by the University of Hawaii Board of Regents Executive Policy 5.229- (Programs with Low Number of Degrees Conferred). The decision was made to modify the existing Carpentry AAS and discontinue the EIMT AAS. This action will require Board of Regents approval.

The employer teams of EIMT, Carpentry and Facility Engineering was against the combining of the programs and was concerned that this would lead to the discontinuation of the programs that they had worked so hard to restore just five years prior. It was felt by employers that if the standard of number of graduates by the Board of Regents was the same on Kaua'i as Oahu that would lead to unfair training requirements on our small island.

It was felt by the employers that if the programs could produce the needed numbers that the contractors on the island could not put that many people to work. It was felt that a better marketing effort to the secondary students at the local high schools would lead them to the training offered at Kauai Community College. After a joint meeting of employer teams and visits to the Contractors Association of Kaua'i it was determined by administration to continue with the consolidation of the programs beginning in Fall 2018.

The present Solar Energy Technology CO has not had any students enroll. It was requested by the EIMT Employer Advisory Team to keep ELEC 70 (EIMT 70) and ELEC 75 (EIMT 75) as the occupation is still seeing growth in the off-grid battery systems and inactivate ELEC 85 as residential sales has dropped. It was also determined to discontinue the Solar Energy Technology CO because most employees are looking to also have a Journey person Electrical license to maintain work load through the year. This will happen in Fall 2018.

Part VIII. Status Report for the Prior Year Requests

2014-2015 Container Home UH Foundation Funds

Program Goal & Campus Strategic Goal or Priority Alignment	Create an affordable home with a storage container and construction materials under \$75,000 dollars. Give the EIMT students an actual residential project to design, wire, and construct within a strict budget.
Action Item	Students completed rough-in, finish work, with service, feeders, and branch circuits. They also applied NFPA 70 NEC Codes in building the container home and wired so

	that it could be used by either a residential home or for commercial offices on campus.
Resource acquired	Materials were found in the storage areas in the carpentry shop or were purchased locally through Home Depot using the supply money from EIMT budget during the Fall 2014 and Spring 2015. Power was not supplied to the home through KIUC and uses a portable generator when needed.
Outcome(s)	Students for the semester were given a great opportunity to learn firsthand residential and commercial NEC rules as we wired the building for multiple uses. They performed many of the skills required by journeyman electricians.
Outcome(s) Evaluation (Improvements made to program based on assessment data)	Students assessed on workmanship and completion of assigned competencies and the final assessment was the fact that we completed the project under budget and on schedule.
Action plan if outcome was not met	Action Plan was met. EIMT Solar Students would like to install a standalone solar battery system on the building to provide permanent power to the building in the future. The planning and design of the system is already part of the current ELEC 70 Course curriculum.

2016-2017 Solar Shed Addition to Carpentry Shop

Program Goal & Campus Strategic Goal or Priority Alignment	Complete wiring installation for Solar Shed project attached to the Carpentry Building from Solar Grant Funds requested and purchased by Robert Conti. All electrical work required to be done by currently enrolled students.
Action Item	Students have completed rough-in wiring of feeders and branch circuit using PVC Schedule 40 conduit, EMT Conduit wiring methods and installed wire for all circuits. Installed Transformer, panelboard, overcurrent devices, disconnect, boxes and fittings. Installed finish work of GFI outlets, light fixtures, security lighting and additional finish work has been completed. All work installed to the NFPA 70 NEC Codes and supervised by the EIMT Instructor.
Resource acquired	The majority of the materials were purchased prior to the job starting by the grant PI. Approximately \$20,000. Additional items that were needed to complete the job were purchased from local vendors through the EIMT semester supply budget.
Outcome(s)	Installation of materials and work was closely monitored and any work that was substandard was required to be redone by the same students. As the commercial project proceeded, students were trained in the skills needed and the appropriate code covered at the time of installation. Students were given the opportunity to begin and follow a commercial project from start to finish. At the time of this document the students are in the commissioning phase of turning on the power and checking their work. Electrically the project is 95% completed.
Outcome(s) Evaluation (Improvements made to program based on assessment data)	Students were evaluated daily on performance, attendance, and safety during the project. Individual assignments and tasks were given and students were graded upon those responsibilities. Emphases were given to safety and skills developed during the two year project. Assessment data was recorded in the ELEC course that students were enrolled in at the time of the project.
Action plan if outcome was not met	Action Plan was met by student completing all of the electrical work. 95% of the work is complete and the additional work will be evaluated and completed by the end of the semester Fall 2018. The final connections and terminations of the feeder circuit require additional time and skills. Because of NFPA 70E Electrical Safety rules, students will not be allowed to complete this part of the project, but the instructor completes the work during the winter break. At that time the work will be turned

	over to the maintenance and operations.
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EIMT APRU 2016 Lab Chairs

Program Goal & Campus Strategic Goal or Priority Alignment	Replace aging and unsafe 4 legged Lab Chairs in CARP 109 that are broken and un repairable.
Action Item	Purchase 25 Lab Chairs on APRU 2016
Resource acquired	Purchased 25 Lab Chairs from Office Depot on APRU 2017
Outcome(s)	Lab Chairs were assembled and installed over Spring Break by the Instructor.
Outcome(s) Evaluation (Improvements made to program based on assessment data)	Student complaints and unsatisfactory comments in Instructor ecafé surveys have ended
Action plan if outcome was not met	Action Plan was met

EIMT APRU 2016 Software Purchase

Program Goal & Campus Strategic Goal or Priority Alignment	Purchase and install electrical training software in CARP 109 used in EIMT curriculum and assessment.
Action Item	Purchase Software with APRU Funds for FY 2016-17
Resource acquired	<p>\$6,998.00 was used to purchase unlimited site licenses for 9 software packages from Koldwater Software for use in EIMT 41,40, and 46. Including the following software: The CLXTrainer; The PLCTrainer; The LogixTrainer; The LogixPro Simulator; The MCTrainer: DeviceNet Tutor-Level 1; The ViewTrainer; The VFDTrainer; TheFluidPowerTrainer.</p> <p>\$2,290.00 was used to purchase unlimited site licenses for 10 software packages at \$229.00 each from ETCAI Software for use in EIMT 20, 22, 30, 41, 42. Licenses can also be used in Electronics. Basic Circuits Challenge V5.1; DC Circuits Challenge V5.1; AC Circuits Challenge V5.1; Digital Challenge V5.1; Solid State ChallengeV5.1; Op Amp Challenge V5.1; Power Supply Challenge V5.1; Ohmmeter Challenge V5.1; Voltmeter Challenge V5.1; Trigonometry Challenge V5.</p>
Outcome(s)	Software was purchased 6/2017 and installed by the instructor at the 8/2017 in CARP 109 and is now supported by Computer Services. Backup copies located in Computer Services and in the Classroom. Software purchased was a site license for the campus and other departments on the main campus may also use it.
Outcome(s) Evaluation (Improvements made to program based on assessment data)	Software is Windows 10 compatible and each on has assessment data available for instructor to download as students complete. Students now have up to date training methods used at other campuses in EIMT.
Action plan if outcome was not met	Action Plan was met. However, UH computer Services does not allow server space to store data. All data must be retrieved and hand copied into the LMS system. All data is lost if machines are turned off at night because of the Deep Freeze program installed on machines.

EIMT APRU 2016 Lab Materials Purchase

Program Goal & Campus Strategic Goal or Priority Alignment	Purchase materials to complete six lab trainers that students were building before Spring 2014.
Action Item	\$6,000.00 was requested to purchase the materials for 6 trainers at \$1000.00 each

	<p>trainer CARP109 Lab area. Grainger awarded the bid and materials were delivered 6/2017. Original quote for all materials was for \$24,000 dollars, \$18,000 of items was cut from the equipment list and only the motors and control items were ordered. The rest of the funds to complete were requested on a Perkins Grant. Order # 1292469651 Date Ordered: 06/01/2017 Total Cost \$7,277.33</p>
Resource acquired	<ol style="list-style-type: none"> 1. 3ea. Control Transformer, 500VA VA Rating, 240/480VAC Input Voltage, 120VAC Output Voltage 2. 6ea. 1/4 HP General Purpose Motor,3-Phase,1725 Nameplate RPM,Voltage 208-230/460,Frame 48 3. 6 ea. 1/3 HP General Purpose Motor, Capacitor-Start/Run,1725 Nameplate RPM, Voltage 115/208-230,Frame 48 4. 6 ea. Control Transformer, 100VA VA Rating, 208/277VAC Input Voltage, 120VAC Output Voltage 5. 6ea. 120VAC IEC Magnetic Contactor; No. of Poles 3, Reversing: No, 9 Full Load Amps-Inductive 6. 6ea. 120VAC IEC Magnetic Contactor; No. of Poles 3, Reversing: Yes, 9 Full Load Amps-Inductive 7. 12 ea. Push Button Control Station, 1NO/1NC Contact Form, Number of Operators: 2 8. 6 ea. Push Button Control Station, 2NO/3NC Contact Form, Number of Operators: 3 9. 6ea. Clear Cover, For Use With 6YH91 terminal strip
Outcome(s)	<p>Students are installing items into the labs during the Fall 2107 & Spring 2018 semesters and will use during the Spring 2017 ELEC 41 Course for training. Manufacturing of the labs is currently being done with a completion of 5/2018.</p>
Outcome(s) Evaluation (Improvements made to program based on assessment data)	<p>The motors and transformers will allow students to install and monitor actual electrical equipment as in the field and to control their actions from realistic motor control circuits and software. Manufacturing of the labs is currently being done with a completion of 5/2018.</p>
Action plan if outcome was not met	<p>Assessment data will be gathered at the end of Spring 2018 and reported on FY2018-19 APRU.</p>

EIMT 2017 Perkins Grant

Program Goal & Campus Strategic Goal or Priority Alignment	<p>Maintaining Currency In The EIMT Program Through Laboratory Up To Date Technology</p>
Action Item	<p>New Electrical Drawing Software for both residential and commercial/industrial is being purchased along with training software for electric motor controls and residential switch wiring. Building materials are being purchased to provide labs for conduit bending, residential wiring including service, feeders and branch circuits. Additional will include single pole, three-way and four-way switching also GFI and Arc-fault protection included.</p>
Resource acquired	<p>The following items are in the purchasing process and are out for a super-quote: CMH-1-SiteU Constructor 13.0 Site License Update from 6.0 - 12.0 CMH-2-Site Residential Wire Pro 4.0 - Site License CMH-3-Site Instructor Teaches Motor Control Site License MH-4 Residential Wiring 101 (Switches and Receptacles) Site License Software to be installed for Spring 2018 Semester. Materials to complete the lab are to be placed on super-quote at the beginning of November with items purchased by the end of the year. Students will begin building the trainers Spring 2018.</p>

Outcome(s)	Software will be installed during Winter break to be used Spring 2018. Students are installing the labs during the Spring 2018 semesters and will use during the Spring 2017 courses for training. Manufacturing of the labs is currently being done with a completion of 5/2018.
Outcome(s) Evaluation (Improvements made to program based on assessment data)	The software will make PSLO 1 more attainable and give students a modern method to complete schematic and line diagram drawing for blueprints. The residential wiring ELEC 30 uses the software to take materials, perform load calculations, and prepare drawings for submittal to the County Planning Commission.
Action plan if outcome was not met	Assessment will be done on classes during Spring 2018 and reported during FY 2018-19 APRU.

Part IX. Action Items, Resource Request, and Budget Implications

Faculty wages and lecture needs are now constant from year to year, and no assigned time has been requested for the EIMT Program Coordinator. The FTE faculty has been in overload since beginning in Fall 2014 trying to provide the number of classes needed and the OCET demand for noncredit classes to complete as many students as possible. When the previous lecturer became sick in Fall 2016 the FTE faculty took over teaching ELEC 70 and ELEC 75 courses for the remainder of the year exceeded the maximum credits per instructor. Currently to lower those numbers and to cover those courses the program coordinator has been team teaching the ELEC 70 course with a lecturer from the Sustainability Program. Program enrollment, number of courses offered, and demand dictate the time the instructor must dedicate to the student success. The faculty workload has been over 33 credits per academic year, and no assigned time has been requested. Based on the number of course offerings, enrollment, and demand, one additional lecturers may be necessary to eliminate the overload problem.

The following is the current semester budget for EIMT:

- Supplies and Consumables Budget: \$2250.00 per semester

In the Fall 2016 the Kauai Community College administration was concerned that the program was not meeting the minimum of 10 graduates per year in the program that is required. The suggestion of consolidation of the Carpentry, Electrical Installation and Maintenance, Facility Engineering, and Welding into a Building Construction Technology Program would help the college justify the building trades on the island of Kauai by making it possible to meet the minimum numbers required by the University of Hawaii Board of Regents Executive Policy 5.229- (Programs with Low Number of Degrees Conferred). The decision was made to modify the existing Carpentry AAS and discontinue the EIMT AAS. This action still requires the Board of Regents approval. The creation of the Building Construction Technology Program is the action item results of those low enrollment numbers submitted to the Curriculum Committee on 9/22/2017.

Table 6- Kaua`i Community College- Small Programs- Enrollment by Major and Degrees Awarded Undergraduate programs with fewer than 10 graduates (3 year average) FY 2017

Kaua`i Community College																	
Major Description	Major Code		Enrollment by Major - Fall							Degrees Awarded-FY					FY 3 Year		Avg Class Size
Degree Level		Outcome	2011	2012	2013	2014	2015	2016	2017	2013	2014	2015	2016	2017	2014-16	2015-17	2012-16
Certificate																	
Electrical Install & Maint Tech	EIMT	CA	*	2	1	2	5	3	n/a	*	*	1	6	3	2.3	3.3	8.3
Associate																	
Electrical Install & Maint Tech	EIMT	AAS	*	13	19	15	19	19	18	*	*	*	4	4	1.3	2.7	8.3

*Program Inactive prior to this data

Action Plan and New Resource Request

EIMT Low Enrollment Action Plan

Program Goal & Campus Strategic Goal or Priority Alignment	University of Hawaii Board of Regents Executive Policy 5.229- (Programs with Low Number of Degrees Conferred) Raise enrollment to 10 per class in all first and second semester (Efficiency Indicators- Line 9) classes and Completers to 10 per year (Effectiveness Indicators- Line 20). Kaua'i Community College fulfills its mission by incorporating the following practices. The College: <ul style="list-style-type: none"> • Delivers educational opportunities on campus in small classes, in the community, internationally, and through distance learning; • Provides programs that address workforce and community needs;
Action Item	Increase number of enrollments, certificates and degree during the next five years by an average of one to two students per year. Combine Electrical Installation and Maintenance, Carpentry, Facility Engineer, Welding and Computer Aided Design in to one program called Building Construction Technology.
Resource(s) Request	Marketing materials, new web page design, DOE Secondary School Visits and marketing through Construction Academy, Approval of Curriculum and Assessment Committees.
Person(s) Responsible and Collaborators	James Andrews, Justin Carvalho, Gary Ellwood, Web Master, Construction Academy Faculty, Curriculum Committee, Assessment Committee
Timeline	9/2017 Building Construction PAR submitted to Curriculum Committee and to Assessment Committee. 2/2018 Design new web page and marketing Materials 5/2018 Visit and recruit at each DOE Secondary School on the Island 8/2018 Track student enrollment and contact those interested on Spring visit. 12/2018 Track continuation of students from semester to semester and determine why any students left the program and why.
Indicator of Improvement	Increased enrollment beginning 8/2018 into the building Construction Program. Increase student enrollment at the beginning of each year.
PSLO Impacted	1, 2, 3, 4, 5, 6, 7
Current Status	Building Construction Technology PAR and EIMT Courses changes have been submitted to Curriculum Committee and Assessment Committee.

EIMT Persistence Fall to Fall in Effectiveness Indicators

Program Goal & Campus Strategic Goal or Priority Alignment	Under Effectiveness Indicators the program needs to increase Persistence in Fall to Fall (Effectiveness Indicator 19a) by retention of students and increase 2 year completers.
Action Item	Gaining new students is more difficult than retaining students that are at Kauai Community College already. Determine who did not return and the reasons why. Quantify if students changed majors, found employment, or had negative personal impacts that can be addressed by Student Counseling and tracked through Student Services Software.
Resource(s) Request	Resources should already be available at the College Counseling and use of the software may require addition professional development to train faculty.

Person(s) Responsible and Collaborators	James Andrews, Justin Carvalho, Student Counseling and tracked through Student Services Software.
Timeline	1/2018 Evaluate retention of student from Fall to Spring classes. See if students are still following suggested completion schedule. 5/2018 Recommend to students when important dates and registration is open for Fall 2018 5/2018 Encourage students to apply for scholarships and financial aid to complete school 8/2018 Track 2 nd Year student enrollment and contact those who did not return and verify reason
Indicator of Improvement	Increased enrollment in second year courses ELEC 70 and ELEC 40 & 42 beginning 8/2018
PSLO Impacted	1, 2, 3, 4, 5, 6, 7
Current Status	Minimal Professional Development has been given in tracking students. Additional help from the counselor over the program, financial aid counselors, institutional researcher providing data and starfish software to achieve goal are needed. It would help if these people would get out into the programs and see the students. Student who are in need do not visit the One Stop Center. They are in the classrooms when on campus.

EIMT Perkins Indicators Not Met

Program Goal & Campus Strategic Goal or Priority Alignment	2P1 Completion; 3P1 Student Retention or Transfer; 5P1 Nontraditional Participation; 5P2 Nontraditional Participation have on average not been met
Action Item	Completion of the previous action plan for Persistence in Fall to Fall (Effectiveness Indicator 19a) will take care of 2P1 and 3P1 Perkins Indicators. 5P1 and 5P2 Nontraditional Enrollments needs to be addressed. Increase marketing in our web page and marketing materials to include Woman in the Trades. During the future Apprenticeship Day in Spring 2018 a Woman in the Trades table should be set up and sponsored by the Trades Division.
Resource(s) Request	Marketing materials, new web page design, Guest Speaker Crystal Cruz from Construction Academy to promote Women in the Trades, Many of classes that have women can also be asked to speak at the show.
Person(s) Responsible and Collaborators	James Andrews, Justin Carvalho, Crystal Cruz, Gordon Talbo, OCET Staff
Timeline	2/2018 Design new web page and marketing Materials 5/2018 Visit and recruit at each DOE Secondary School on the Island 5/2018 Women in the Trades table at apprenticeship day. 12/2018 Track continuation of women in the EIMT Program from semester to semester and determine why they left the program and why.
Indicator of Improvement	Increased enrollment of woman from an average of one to two per semester beginning 8/2018 into the building Construction Program.
PSLO Impacted	1, 2, 3, 4, 5, 6, 7
Current Status	Many of classes of EIMT have women involved. Continued support and tracking to completion is needed. Counseling should also be given to those who redirect to other trades after beginning.

EIMT Sustainability and Green Technology Project: Wire Recycling

Program Goal & Campus Strategic Goal or Priority Alignment	Kaua'i Community College fulfills its mission by incorporating the following practices. The College: <ul style="list-style-type: none"> Encourages innovation and promotes sustainability while perpetuating the unique history and culture of Kaua'i.
Action Item	The EIMT program creates a lot of electrical wire that can be recycled every year that must be replaced in its consumable supplies. The price for Cu doubles if it can be stripped and separated from the insulation. By recycling the program can then use the money to pay for replacement wire lowering the budget needed. Sustainability is also part of the curriculum in each course.
Resource(s) Request	Purchase a wire stripper and recycling machine to encourage students to be sustainable. StripMeister E250 Electric Automatic Wire Stripping Machine \$699.00 plus shipping, extra blade, and lubrication fluid.
Person(s) Responsible and Collaborators	James Andrews, Gordon Talbo, Georgeanne Purvinis
Timeline	12/2017 Purchase wire stripping machine 5/2018 Recycle wire in the EIMT Program
Indicator of Improvement	Decreased boxes of used wire in each department and cost refunded to cover wire stripper and future wire purchased.
PSLO Impacted	2, 3, 4, 6,
Current Status	In the developmental and planning stage.

EIMT Replace Apple MiniMac computers and CP4005dn HP Printer in CARP 109

Program Goal & Campus Strategic Goal or Priority Alignment	The current 32 computers and one CP4005dn printer were purchased in 2008 with grant money through a Solar Grant. The computer hard drives are starting to fail. The computer system was turned over to Computer Services (CS) in 2014. Printer was not repairable and can only print B/W. Students are not able to print their projects. The printer will not work without all usable cartridges installed. Replacement of computers needed within the next two years. Many course objectives use computer based training. Turn future and replacement and repair over to Computer Support.
Action Item	Replace 32 Minimac computers with a ThinkCentre M910 Tiny Computers in CARP109 as current computer have hardware problems. Replace CP4005dn printer and ink cartridges are not within the current budget limit. Turn future and replacement and repair over to Computer Support.
Resource(s) Request	Purchase 32 Computers with Windows 10 and load electrical software on each. 18 ea. - Main Classroom Student WorkStation 6 ea. - Lab room Desk with NIDA Trainers 6 ea. - Lab Stations with Trainers 2 ea. - Teaching Stations with Smart Board 1 ea. - Network Printer HP equivalent to CP4005dn
Person(s) Responsible and Collaborators	James Andrews, Computer Support
Timeline	12/2017 to 4/2018 Purchase Computers 9/2018 Install Computers and Software for Fall 2018 classes 12/2025 Replace computers with next generation available by Computer Support

Indicator of Improvement	Less down time and increased use of educational software. More online assessments taken by students.
PSLO Impacted	1, 2, 3, 4, 5, 6, 7
Current Status	Replacements parts have been taken out of old units as they go bad. Computer Support is current out of replacement parts and two student stations do not computers.

EIMT Tiny House Power and Wiring

Program Goal & Campus Strategic Goal or Priority Alignment	In cooperation with the sustainability program the EIMT students provide wiring and installation of the residential style Tiny Home. The EIMT 70 and 75 courses provide renewable energy power to the home. Project is being used to demonstrate sustainable living styles in Kaua'i. Kaua'i Community College fulfills its mission by incorporating the following practices. The College: <ul style="list-style-type: none"> • Encourages innovation and promotes sustainability while perpetuating the unique history and culture of Kaua'i.
Action Item	Purchase materials to provide training opportunities to EIMT students in the program.
Resource(s) Request	Solar Panels, Inverters, Hardware, wiring materials and cable. Underground Cable and trenching.
Person(s) Responsible and Collaborators	James Andrews, Justin Carvalho, Daniel Erickson, Duke Lang
Timeline	11/2017 Design plan and develop load calculations for the structure. 12/2017 Purchase materials for the project 1/2018 Install underground service laterals to Tiny Home 2/2018 Complete rough-in electrical and service entrance. 4/2018 Install renewable energy electrical sources.
Indicator of Improvement	Improved assessment data of all PSLO's and CSLO's for course during the time of construction.
PSLO Impacted	1, 2, 3, 4, 5, 6, 7
Current Status	Carpentry Students are currently working on the rough-in construction and should be ready for EIMT to begin wiring this semester.

EIMT Solar Project on Container Home

Program Goal & Campus Strategic Goal or Priority Alignment	Student currently use the container home on the farm for Solar Design in the ELEC 70 & 75 Course. EIMT would like to install PV renewable energy source on the container home to provide permanent power to the structure so that it can be used by the college. Kaua'i Community College fulfills its mission by incorporating the following practices. The College: <ul style="list-style-type: none"> • Encourages innovation and promotes sustainability while perpetuating the unique history and culture of Kaua'i.
Action Item	Provide a training project for EIMT students to apply PV Renewable energy skills by installing a standalone, battery backup system for the container home located on the KCC farm. Students will complete all installation and commissioning of the

	permanent system.
Resource(s) Request	Purchase materials for the container home project so that EIMT students can use it as a lab project.
Person(s) Responsible and Collaborators	James Andrews, Justin Carvalho, Daniel Erickson, Duke Lang
Timeline	1/2018 Design plan and develop load calculations for the structure. 3/2018 Purchase materials for the project 3/2018 to 11-2018 Install PV grid to the roof of the container home. 12/2018 Install Inverter, battery system, DC combiner and charging hardware to container home 3/2019 Commission the system and turn over to the College.
Indicator of Improvement	Improved assessment data of all PSLO's and CSLO's for course during the time of construction.
PSLO Impacted	1, 2, 3, 4, 5, 6, 7
Current Status	EIMT and Carpentry students completed the electrical and various trades in the container home. Permanent power was never installed from KIUC to the home leaving it unusable. EIMT students would like to finish the electrical installation by providing Sole source renewable energy to the home and making the building usable for the college. EIMT students have used the structure for design purposes in current ELEC 70 course.

EIMT Solar Project on Solar Shed Garage

Program Goal & Campus Strategic Goal or Priority Alignment	Students are currently finishing the Solar Shed electrical project. EIMT would like to install PV renewable energy source on the Solar Shed to provide a renewable power to the structure so that it can be used by the college and disconnect it from the KIUC power. This will provide training to the lab to the students of the ELEC and ELEC 75 Courses. Kaua'i Community College fulfills its mission by incorporating the following practices. The College: <ul style="list-style-type: none"> • Encourages innovation and promotes sustainability while perpetuating the unique history and culture of Kaua'i.
Action Item	Provide a training project for EIMT students to apply PV Renewable energy skills by installing a standalone, battery backup system for the Solar Shed located on the Carpentry Building south side. Students will complete all installation and commissioning of the permanent system.
Resource(s) Request	Purchase materials for the Solar Shed project so that EIMT students can use it as a lab project.
Person(s) Responsible and Collaborators	James Andrews, Justin Carvalho, Daniel Erickson, Duke Lang
Timeline	1/2018 Design plan and develop load calculations for the structure. 3/2018 Purchase materials for the project 3/2018 to 11-2018 Install PV grid to the roof of the Solar Shed. 12/2018 Install Inverter, battery system, DC combiner and charging hardware to Solar Shed and connect it to the existing electrical system 3/2019 Commission the system and turn over to the College.
Indicator of Improvement	Improved assessment data of all PSLO's and CSLO's for course during the time of

	construction.
PSLO Impacted	1, 2, 3, 4, 5, 6, 7
Current Status	EIMT and Carpentry students completed the electrical and various trades in the Solar Shed that was financed through a solar grant. Permanent power is provided through the existing electrical system. EIMT students would like to finish the electrical installation by providing Sole source renewable energy to the addition and making the building sustainable for the college. EIMT students have used the structure for design purposes in current ELEC 70 course.

EIMT EV Power Stations on Solar Shed Garage

Program Goal & Campus Strategic Goal or Priority Alignment	Provide 3 EV charging stations in the Trades area for AMT Electric Vehicle Program to charge their cars. Kaua'i Community College fulfills its mission by incorporating the following practices. The College: <ul style="list-style-type: none"> • Encourages innovation and promotes sustainability while perpetuating the unique history and culture of Kaua'i.
Action Item	Provide a training project for EIMT students to apply PV Renewable energy skills and installing EV Charging stations to be used by the Trades programs. Installing a EV Charging System that is hooked to the above PV Renewable Energy project on Solar Shed located on the Carpentry Building south side. This will eliminate the cost of providing power for EV charging. Students will complete all installation and commissioning of the permanent system. The show students how the college can become more sustainable and reduce the college carbon footprint.
Resource(s) Request	3ea. EVR40-B25Leviton Charging stations. Evr-Green e40 Electric Vehicle Charging Station, 40A, 208-240VAC, 9.6kW Output, NEMA Type 3R Enclosure, 25' Charging Cable, Hardwired. Electrical Wire, conduit and fittings as needed. \$699.00 ea. \$300.00 for electrical materials to wire.
Person(s) Responsible and Collaborators	James Andrews, Justin Carvalho, Daniel Erickson, Duke Lang
Timeline	1/2018 Design plan and develop load calculations for the structure. 3/2018 Purchase materials for the project 3/2018 to 11-2018 Install PV grid to the roof of the Solar Shed. 12/2018 Install Inverter, battery system, DC combiner and charging hardware to Solar Shed and connect it to the existing electrical system 3/2019 Commission the system and turn over to the College.
Indicator of Improvement	Improved assessment data of all PSLO's and CSLO's for course during the time of construction.
PSLO Impacted	1, 2, 3, 4, 5, 6, 7
Current Status	Electrical system in Solar Shed is installation is 95% complete. Solar panels and systems materials are requested above. Design is in the beginning stages, no additional electrical resources are needed.

EIMT Portable Lab Walls in Solar Shed East Garage

Program Goal & Campus Strategic Goal or Priority Alignment	Provide the location in the Solar Shed East Bay for student to complete electrical labs of conduit bending, wiring walls, and performing assessment skills exam for tasks are not appropriate in the classroom. The center section will be used for education equipment storage.
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Action Item	Allow the Solar Shed East Bay for EIMT student to complete electrical skills exam for tasks that are not appropriate in the classroom. Allow the instructor to construct movable walls that can be attached permanently and moved out of the way of the main floor area. Install storage racks in the center storage area from maintenance surplus.
Resource(s) Request	Using supply and Perkins budgets to purchase materials to construct training walls for 10 students. Allow EIMT to use the Solar Shed area for training and storage.
Person(s) Responsible and Collaborators	James Andrews, Duke Lang
Timeline	12/2017 Design training walls to be built. 2/2018 Purchase materials 5/2018 Complete assemble and manufacturing of training walls 12/2018 Assess students use of the trainers and evaluate their use.
Indicator of Improvement	Improved assessment data of all PSLO's and CSLO's for course during the time of construction and after completion.
PSLO Impacted	1, 2, 3, 4, 5, 6, 7
Current Status	Current Electrical Project in the Solar Shed 95% complete and ready to be occupied. Review with Carpentry what additional work needs to be done on the Solar Shed. Designing the walls is in the beginning stages, and Perkins money is available to purchase materials. No additional electrical resources will be needed.

Resource Implications

RESOURCES NEEDED			OUTCOMES
Initial Acquisition Cost	Annual Recurring Cost	Useful Life	(Identify and Quantify)
N/A	N/A	N/A	Low Enrollment Action Plan Marketing Materials
N/A	N/A	N/A	Persistence Fall to Fall in Effectiveness Indicators
N/A	N/A	N/A	Perkins Indicators not met
\$899.00	\$60.00 Replacement Blades and Lubricant	10 Years	Sustainability and Green Technology Project for EIMT: Wire Recycling
ThinkCentre M910 Tiny 128GB SSP @\$789.00 each Total \$25,248.00 Printer \$1200.00 plus \$300.00 for Cartridges Total <u>\$26,748.00</u>	Replacement Cartridges \$75.00 each four needed	7 Years	Replace Apple MiniMac computers with ThinkCentre M910 Tiny 128GB SSP Replace CP4005dn HP printer in CARP 109 (APRU Request)
\$3,000 for Materials	N/A	N/A	Tiny House Power and Wiring (UH Foundation Request)
\$10,000 for Materials	N/A	20 Years	Solar Project on Container Home

\$20,000 for Materials	N/A	20 Years	Solar Project on Solar Shed Garage
\$3x699.00 for Charges and \$300.00 for Electrical Supplies	N/A	10 Years	EV Power Stations on Solar Shed Garage
\$3,000 for Materials	\$200.00 for replacement studs, plywood and sheetrock	10 Years	Portable Lab Walls in Solar Shed East Garage (2017 Perkins Grant Request)

Part X. Program Student Learning Outcomes and Assessment

Evidence that PSLOs are aligned with industry needs is evidenced through the review by the NJATC/Alliance Training Coordinator and the fact that various industry partners provide information through our Employer Advisory Board. The EIMT Employer Advisory Board committee has now combined with the Building Construction Program and last met together on 04/11/2017. The Building Construction Technology AAS degree was approved by the Combined Employer Advisory Board and concentrates on the courses that an employer would require of potential building or construction management personnel

The benchmarks for the program assessments are set at 70% for quizzes, exams and graded assignments given in class. The skill benchmark is Pass/Fail within three attempts. Projects with measurements must be within 1/16" inch and projects that are wired must meet NFPA 70 National Electrical Code and work when completed. The exact number of assessment were not recorded or the dates those assessments were completed. The grade books for each class have the documented assignments scores and were then recorded in the KCC Card System using those assignments assigned to a CSLO and averaged under each heading. The LiveText or the ViaLiveText system was not set up properly to record this data either.

A problem discovered while reviewing the assessment data is the connection with the PSLO's from the course SLO's. Many were lacking in the measurement needed. Many courses had the exact same SLO's as other courses, even though the course was complexly different. This year all of the courses for EIMT CSLO's were rewritten and submitted as part of the five year curriculum review on 9/22/2017. Also lacking is the tie into PSLO's and then the ISLO's and the type of assessment tool used to verify competency. Recording of dates, number of assessments given per CSLO's, types of assessments used, the tie to PSLO's and the ISLO's are all issues that need to be addressed in the future. This is a major action plan and high priority that must be attended to.

All courses since the program coordinator arrival have been assessed and the system in place at the time used to track documentation. As mentioned in Section IV assessments have been evaluated and analyze with procedures put in place to improve the program in the future.

Table 7- Electrical Installation and Maintenance Program Student Learning Outcomes

Electrical Industrial and Maintenance Technology PSLO's through Spring 2018
1. The ability to read a blueprint and negotiate through the drawings to layout a project.
2. The proper selection of materials that comply with published codes and deliver energy efficient outcomes
3. The ability to maintain and care for the tools required in the electrical industry.
4. The safety procedures necessary to assess a task for hazards and the steps required to meet OSHA and State safety regulations.
5. The ability to communicate successfully in writing, orally and with computer technology.
6. The commitment to craftsmanship including the use of energy efficient practices, dependability and punctuality, and pride in accomplishments.

Part XI. Summary

The Electrical Installation and Maintenance Program is a valuable asset for the residents and students of Kaua'i. Without it many of the highest pay jobs on the island would not be available to its residents or students who attend Kaua'i Community College. If the program disappeared the IBEW and local independent journeyman

electricians would still need to be trained through the legislative mandates of the UHCC System. But many of the associated electrical jobs would need to be hired from people who are off island and taking away potentially the uppermost paying trade jobs from the local people. Kaua'i economy would be drastically affected by the elimination of the trades from Kaua'i Community College.