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University of Hawaii Community Colleges Annual Report of Program Data Analysis Preview

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PREVIEW

College: Kauai Community College Program: Electrical Installation & Maintenance Technology

The last comprehensive review for this program can be viewed at:

<http://info.kauai.hawaii.edu/admin/prapru.htm#apru>

Program Description

Program Description

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. 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 Electrician License test upon completion of the required experience (working hours) in the trade.

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.

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

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 Associate of Applied Science degree and allows high school and adult students to gain knowledge and hands-on experience with the addition of lifelong skills needed throughout life. The Certificate of Achievements in Electrical Installation and Maintenance and Solar Energy Technology before entering an apprenticeship program or working environment.

Program Mission: The program mission is to provide employers with a trained workforce having superior entry-level electrical installation and maintenance skills. Provide a conduit to help high school and adult students decide if the electrical trades are the right pathway for them. 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.

Part I. Quantitative Indicators

Overall Program Health: **Cautionary**

Majors Included: EIMT Program CIP: 46.0302

Demand Indicators		Program Year			Demand Health Call
		12-13	13-14	14-15	
1	New & Replacement Positions (State)	61	285	274	Unhealthy
2	*New & Replacement Positions (County Prorated)	1	8	8	
3	*Number of Majors	15	21	20	
3a	Number of Majors Native Hawaiian	5	8	5	
3b	Fall Full-Time	38%	38%	58%	
3c	Fall Part-Time	63%	63%	42%	
3d	Fall Part-Time who are Full-Time in System	0%	0%	0%	
3e	Spring Full-Time	46%	42%	65%	
3f	Spring Part-Time	54%	58%	35%	
3g	Spring Part-Time who are Full-Time in System	0%	0%	0%	
4	SSH Program Majors in Program Classes	69	117	271	
5	SSH Non-Majors in Program Classes	25	49	21	
6	SSH in All Program Classes	94	166	292	
7	FTE Enrollment in Program Classes	3	6	10	
8	Total Number of Classes Taught	3	4	5	

Efficiency Indicators		Program Year			Efficiency Health Call
		12-13	13-14	14-15	
9	Average Class Size	7.3	9.8	12.8	Healthy
10	*Fill Rate	48.8%	65%	85.3%	
11	FTE BOR Appointed Faculty	0	0	1	
12	*Majors to FTE BOR Appointed Faculty	0	0	19.5	
13	Majors to Analytic FTE Faculty	30.1	29.8	22.9	
13a	Analytic FTE Faculty	0.5	0.7	0.9	
14	Overall Program Budget Allocation	Not Reported	\$58,455	\$111,898	
14a	General Funded Budget Allocation	Not Reported	\$57,000	\$5,700	
14b	Special/Federal Budget Allocation	Not Reported	\$0	\$103,698	
14c	Tuition and Fees	Not Reported	\$1,455	\$2,500	
15	Cost per SSH	Not Reported	\$352	\$383	
16	Number of Low-Enrolled (<10) Classes	3	3	0	

*Data element used in health call calculation

Last Updated: October 7, 2015

Effectiveness Indicators		Program Year			Effectiveness Health Call
		12-13	13-14	14-15	
17	Successful Completion (Equivalent C or Higher)	100%	100%	92%	Healthy
18	Withdrawals (Grade = W)	0	0	1	
19	*Persistence Fall to Spring	50%	66.6%	78.9%	
19a	Persistence Fall to Fall	37.5%	41.6%	68.4%	
20	*Unduplicated Degrees/Certificates Awarded	0	0	3	

20a	Degrees Awarded	0	0	0
20b	Certificates of Achievement Awarded	0	0	1
20c	Advanced Professional Certificates Awarded	0	0	0
20d	Other Certificates Awarded	0	0	3
21	External Licensing Exams Passed	Not Reported	Not Reported	N/A
22	Transfers to UH 4-yr	0	0	0
22a	Transfers with credential from program	0	0	0
22b	Transfers without credential from program	0	0	0

Distance Education: Completely On-line Classes		Program Year		
		12-13	13-14	14-15
23	Number of Distance Education Classes Taught	0	0	0
24	Enrollments Distance Education Classes	N/A	N/A	N/A
25	Fill Rate	N/A	N/A	N/A
26	Successful Completion (Equivalent C or Higher)	N/A	N/A	N/A
27	Withdrawals (Grade = W)	N/A	N/A	N/A
28	Persistence (Fall to Spring Not Limited to Distance Education)	N/A	N/A	N/A

Perkins IV Core Indicators 2013-2014		Goal	Actual	Met
29	1P1 Technical Skills Attainment	91.00	100.00	Met
30	2P1 Completion	47.00	0.00	Not Met
31	3P1 Student Retention or Transfer	75.21	72.73	Not Met
32	4P1 Student Placement	68.92	0.00	Not Met
33	5P1 Nontraditional Participation	17.50	4.17	Not Met
34	5P2 Nontraditional Completion	0	0	Met

Performance Funding		Program Year		
		12-13	13-14	14-15
35	Number of Degrees and Certificates	0	0	1
36	Number of Degrees and Certificates Native Hawaiian	0	0	0
37	Number of Degrees and Certificates STEM	Not STEM	Not STEM	Not STEM
38	Number of Pell Recipients	6	12	9
39	Number of Transfers to UH 4-yr	0	0	0

*Data element used in health call calculation

Last Updated: October 7, 2015

[Glossary](#) | [Health Call Scoring Rubric](#)

Part II. Analysis of the Program

Overall Health -- Cautionary

Demand -- Unhealthy

The overall demand for electricians in the State of Hawai'i has steadily increased during the reestablishment of the EIMT Program. Building construction and the recent developments on the island have increased the demand for electricians with 10 local hires through the local IBEW, with 1 employed from the program and 4 from the OCET Electrical Program. With increased demands 70 potential students are now interviewing for available apprenticeship positions on Kaua'i. Residential electricians are seeing an increase in remodeling and troubleshooting work. The State of Hawai'i now requires 5 years but not less than 10,000 hours in residential or commercial wiring and satisfactory completion accepted by a University of Hawaii Community College offering an appropriate program of study of 240 hours of

electrical academic coursework. The EIMT programs both CA and AAS degree are approved to substitute this requirement for graduates of the program.

The demand for maintenance electricians in the Hotel and Tourism is increasing with the requirement that 1 year electrical maintenance wiring and satisfactory completion accepted by a University of Hawai'i Community College offering an appropriate program of study of 80 hours of electrical academic coursework or 2 years of schooling in the trade with not less than 1,000 hours of hands-on lab exercises.

On October 9, 2014 Hawai'i Department of Commerce and Consumer Affairs: Professional & Vocational Licensing approved all Hawai'i Community College EIMT Certificate of Achievement/EIMT Associates of Applied Science degree to count as the approve schools and hours to obtain all Electrical Licensing in Hawai'i. The KCC Office of Continuing Education & Lifelong Learning is also approved to provide training to those apprenticeship and working in the trade adults. The first course was held in the year 2015 with 12 beginning and nine completing on October 31, 2015. Courses were taught using the EIMT faculty and using the rooms and lab from the EIMT Program on Tuesday, Thursday nights and Saturdays during the day. The IBEW and NJATC are using our facilities, but are using their own teachers and curriculum for their apprenticeship students through OCET.

Efficiency -- Healthy

EIMT is a popular program that is now at partial capacity of 9 students for fall semester in the end rotation of the two year cycle and are eligible for graduation. Students entering the program are at 16 for the Fall 2015 semester. We also offer our students an opportunity to start spring semester then work into the classes of the discipline as they are available. The FENG (Facilities Engineering) requires their students to take ELEC22 and seven of those students have taken class the last year. During the last year a number of students completed the Renewable PV courses and during the last semester and upcoming year the amount of students prepared to take these courses is minimal. Our students have a variety of different type of electrical related job options upon successful completion of the AAS and CA programs. With the implementation of a Solar Energy Technology CA we can now prepare students for other careers that are related to the electrical trade. During the semester a few students were offered jobs and will be transferring to the IBEW apprenticeship also additional students were offered jobs in the PV industry on the island.

Effectiveness -- Healthy

With initial appointment to EIMT during Spring 2014 there were students on course for graduation and they are still enrolled completing non program classes toward a CA certificate or AAS degree in EIMT. Some students were placed into employment and are gainfully employed. We are now encouraging students to complete training to make them better employees for the future. We are now keeping track of students who transfer to other training and programs within the College.

Perkins IV Core Indicators

There was no nontraditional participation.

Part III. Action Plan

The EIMT program's educational effectiveness is maintained through the instructors experience and introduction of the new methods and technologies in teaching their respective fields. Along with providing the ability for students to be exposed to the new materials being developed and the ability to gain insight into the understanding and exposure of how to utilize the new technologies being offered, both instructors in the program are working electricians or have spent many years teaching in their respective fields. This combination provides the students with an industry-based experience that combines the classroom learning, hands-on practical application and problem solving techniques that are industry relevant.

The program's goals with respect to working students are to offer a path for completion of the required schooling and to prepare to take the licensing exam for the State of Hawai'i. Offering objectives that will increase the value of new hires to an employer. In addition, the program offers individual paths for those that desire additional training in specific disciplines found in electrical maintenance, installation, motor and building controls, and other areas of study offered at Kauai Community College.

This will be accomplished through building of relationships with the industries that are involved with the program's course content. The island has a direct need for personnel in both construction projects and the maintaining of these facilities. The program offers education and training that will assist these Kauai industries to involve local companies to help with the growth of these industries in the areas of new and

emerging technologies, both Green and Sustainable Construction and Alternative Energy, the projected growth indicates a need for trained individuals.

Goal Alignment UH System Goals, Kaua'i Community College Goals, and Strategic Goals	Program Goals
UH Goal 1: Educational Effectiveness and Student Success KCC Goal 1: Access & KCC Goal 2: Learning and Teaching	To Provide the necessary training and education in the areas of electricity that is important for positions in both the construction trades as well as the maintenance industry.
Strategic Goals: Student Recruitment, Retention and Success of All Students and Particularly <ul style="list-style-type: none"> • Native Hawaiian students • Increase success of Remedial/Developmental Students, focusing particularly on reading • Non-traditional Students in Career and Technical Programs • Increased Completion of Degrees, Certificates, and Licensure • Increase outreach to k-12 to improve college preparation and to ensure that students are aware of specific opportunities that KCC provides, recognizing that outreach must not be limited to high schools 	Our EIMT through the Construction Academy program is actively involved in bringing to the high schools as well as the middle schools the assistance to the DOE in preparing and exposing the students to the career paths of building trades and building design.
Relevant Curriculum Development <ul style="list-style-type: none"> • Sustainability/Green Jobs/Effectiveness and Sustainability of the KCC environment • Health and/or Safety Issues • DOE-KCC English Alignment • Improve the quality of distance education by addressing student readiness, the course development process, diversity of offerings, assessment and delivery methods (mobile learning) • Increase overall retention and persistence to graduation or transfer (identify goals and track by disaggregated groups), with an additional focus on STEM degrees and certificates • Improve the facilitation of integrative/critical thinking in courses • Completion of • Course and Program Student Learning Outcomes (SLOs) • Course Action Forms (CAFs) • Assessment Activities and Analysis 	The EIMT program has imbedded both sustainable and green building methods and techniques by supporting the professional development of our instructors along with the introduction of new technologies in renewable energy and energy efficiency. In assessment of our curriculum, endorsement from industry is an extremely effective indicator. The building of your EIMT advisory board in Spring 2015 will examine where we are at now and where we want to be in the future. Making courses more accessible to students via flexible course scheduling and competency based training.
UH Goal 2: A Learning, Research and Service Network KCC Goal 3: Workforce Development & KCC Goal 5: Community Development Strategic Goals: Increased Job Placement and/or Performance through <ul style="list-style-type: none"> • Revised or New Curriculum • Better Coordination with Business and Industry 	Creation of an advisory board, we look to develop new partnerships with the construction industry and unions to help promote and validate our program.

Action Plan(s)

Program Goal & Campus

Strategic

Priority or Goal

Action Item

Resources Needed

Person(s) Responsible

Timeline

Indicator of Improvement

PLO impacted

Status

Student recruitment and retention.

Provide a continuing learning environment for the students

More room, to maintain this model as we expand our offerings in additional courses

James Andrews

Ongoing

Maintain and improve on current statistics.

The objective of the program is being attained through alignment with industry standards and input from our industry partners. In the future our ability to continue may be limited due to space requirements and the needs of other programs needing to utilize the same space.

Establish EIMT Advisory Board

Continue ELEC Advisory Board comprised of industry experts and stakeholders.

Time to meet and collaborate

James Andrews

Ongoing

Meet a minimum of 2 times per year.

Program will evaluate to prove accreditation standards and approve curriculum by the advisory board. The only employer to attend was the IBEW. Additional meetings to be scheduled.

Beginning budget process.

Update classroom and lab to meet current industry standards

Addition of hands on labs that allow simulation not possible

Addition of Labs to allow hands on learning that are not available through on school projects

James Andrews

Fall 2016

Increased student productivities

Program will evaluate to prove accreditation standards and approve curriculum by the advisory board. Perkins grants to be applied for where applicable. Chairs are ergonomically unsafe and have had student complaints

Update student learning simulation software current industry

Find sources of software to meet the industry standards that isw used and update

Additional Funding sources to purchase software and bring all site

James Andrews

Fall 2016

Increased student productivities

Program will evaluate to prove accreditation standards and approve curriculum by Perkins grant to be applied

standards existing software to licenses current current. versions used.

the advisory for where board. applicable.

Part IV. Resource Implications

We are currently assessing our existing program and individual course needs. Many of our courses utilize consumable material to teach the course. These materials add up very quickly. So far we have been very successful in partnering with campus initiatives to provide the materials and learning experiences for each course. To address these needs in the future we will need to secure a community partner or secure grant money to cover these expenses.

The following resources are requested in support of the action items:

Priority	Resource Item	Qty	Cost	Total	Justification
1	Chairs	30 ea	\$265 Shipping \$100	\$10950	18 Chairs for current classroom 109. 12 Chairs for lab stations in 109A. Chairs are ergonomically unsafe and student have complaints Pricing from Grainger.com
2	Lab trainers for ELEC 32 and 42. To be built by students using material list.	6 ea	\$1000.00 total for materials per station	\$6000	These courses were originally developed with no set lab structure. Lab book has been selected and trainers need to match curriculum. . Perkins grant to be applied for where applicable. Pricing from Grainger.com
3	The CLXTrainer The PLCTrainer The LogixTrainer The LogixPro Simulator The MCTrainer DeviceNet Tutor-Level 1 The ViewTrainer The VFDTrainer TheFluidPowerTrainer	1 ea	\$6998.00 total plus shipping Site License	\$6998 + tx/sh	Upgrade to current version and new training software available: Site license Koldwater Software. Perkins grant to be applied for where applicable.
4	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	1 ea	\$3000.00 total plus shipping Site License	\$3000+ tx/sh	Upgrade to current version and new training software available: Site license ETCAI Software. Perkins grant to be applied for where applicable.

	V5.1 Ohmmeter Challenge V5.1 Voltmeter Challenge V5.1 Trigonometry Challenge V5.1				
5	Labvolt Motor Control Trainer	1 ea	\$40,000 plus shipping with Curriculum	\$40000+ tx/sh	New onsite training lab for advanced motor controls. Perkins grant to be applied for where applicable.

Program Student Learning Outcomes

For the 2014-2015 program year, some or all of the following P-SLOs were reviewed by the program:

Assessed this year?	Program Student Learning Outcomes	
1 <input type="checkbox"/> Yes	Read and understand blueprints sufficiently to use them to plan a project.	
2 <input type="checkbox"/> Yes	Select materials properly for a given project that comply with published codes and deliver energy efficient outcomes.	
3 <input type="checkbox"/> Yes	Maintain and care for the tools required in the electrical industry.	
4 <input type="checkbox"/> Yes	Know and utilize Occupational Safety and Health Administration (OSHA) and State safety regulations to minimize risk and protect self and others.	
5 <input type="checkbox"/> Yes	Communicate successfully orally and in writing using computer technology.	
6 <input type="checkbox"/> Yes	Understand and demonstrate the craftsmanship standards of dependability, punctuality, and quality.	

A) Evidence of Industry Validation

A fall Advisory Board meeting was conducted with local employers to indicate that course offerings are meeting the needs and requirements of the State of Hawai'i - Department of Commerce and Consumer Affairs: Professional & Vocational Licensing. The only employer to attend was the IBEW. Additional meetings to be scheduled each semester.

B) Expected Level Achievement

PSLOS are assessed generally at 70 percent. However, PSLOs are not directly assessed but rather CSLOs and assessments are translated into PSLO assessment. Since all CSLOs were reviewed this year, and mapped to PSLOs, future years will indicate PSLO assessment.

C) Courses Assessed

All CSLOs are assessed when they are taught. ELEC 22, ELEC 40, ELEC 41, ELEC 42, ELEC 46, ELEC 70 and ELEC 75 were assessed in 2014-2015.

D) Assessment Strategy/Instrument

Demonstrations - This method will be implemented to enhance the lecture material in providing a visual as well as practical example of the equipment, tools and methods that are part of the class curriculum.

Experiments - This method will be used to assist the students in answering questions that arise in class by allowing the students to visualize the questions and formulate solutions.

Hands-on-learning - The students will be using the materials, equipment, and tools themselves to complete the assigned tasks.

Lectures and group discussions - This will be used to initially introduce the various concepts and topics, and by combining the students exposure to these topics discussions are used to access their knowledge of the topics.

Student Participation - Classroom discussions and hands-on-learning will be the start of this, along with the students input of what is to be expected as a result of the experiments and lab exercises.

Student reports and projects - These will be part of each lab assignment given, the students will develop the documentation for their lab assignments, showing their project and the results they observed.

Collaborative learning - This is accomplished by the students preparing their assignments for presentation to the class to show and answer questions regarding how and why they achieved their results.

Problem based learning - In the lab assignments as progress is made, skills in troubleshooting will be accomplished by "altering" their work, and the students are to locate the problems and make the necessary corrections. Writing and critical thinking skills will be developed as a result of the students gaining confidence in the material the class covers and their ability to convey to the class how they accomplished the task.

E) Results of Program Assessment

See item C above.

F) Other Comments

Many of the materials that the students use are from sustainability projects on campus. If future projects are unavailable lab cost will increase as students use more consumables in the class room to test hands on exam requirements.

G) Next Steps

As the new state requirements for licensing become available changes in the curriculum will need to be updated and the need for online training will need to be increased to accommodate the future training needs of the island.

The current layout of the classroom has 18 student learning stations. In the lab area 6 stations with 2 chairs each are setup to accommodate all of the students. Labs must be shared at a 3:1 ratio. As the CO's for the each course is submitted to the curriculum committee the maximum enrollment is being increased to from 15 to 18 students. The OCET courses Electrical Technology Program and the NJATC program that use the classroom and lab area are limited to 12 students maximum.

Under NFPA 70 E are not allowed to work on live circuits without the proper Personal Protective Equipment in place. It is suggested that only 12 students be allowed to work in a lab area, under instructor supervision, that have students power up their lab assignments. Currently our labs do not meet the current 2014 NFPA 70E standards.

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