

# HAWAI'I COMMUNITY COLLEGE PROGRAM COMPREHENSIVE 3-YEAR REVIEW REPORT

**Electrical Installation Maintenance Technology Program (EIMT)**

**Date: March 3, 2017**

**Review Period  
July 1, 2013 to June 30, 2016  
AY 2013-14, AY 2014-15, and AY 2015-16**

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*Program/Unit Review at Hawai'i Community College is a shared governance responsibility related to strategic planning and quality assurance. Annual and 3-year Comprehensive Reviews are important planning tools for the College's budget process. This ongoing systematic assessment process supports achievement of Program/Unit Outcomes. Evaluated through a college-wide procedure, all completed Program/Unit Reviews are available to the College and community at large to enhance communication and public accountability.*

*Please see <http://hawaii.hawaii.edu/files/program-unit-review/http://hawaii.hawaii.edu/files/program-unit-review/>  
<http://hawaii.hawaii.edu/files/program-unit-review/>*

*Please remember that this review should be written in a professional manner. Mahalo.*

**PART I: THE PROGRAM**

<b>Describe the Program</b>	
Provide the short description as listed in the current catalog.	This program prepares students for employment with electrical appliance shops, utility companies, and electrical construction, and maintenance companies. Learning will center on planning, designing, constructing, installing, and maintaining electrical wiring and equipment.
Provide and discuss the program’s mission (or goals and objectives if no program mission statement is available).	<p>Upon successful completion, students are prepared to:</p> <ul style="list-style-type: none"> <li>• Accurately demonstrate entry-level skills in residential, commercial, and industrial electrical installation and maintenance.</li> <li>• Practice safety on the job and recognize potential hazards.</li> <li>• Interpret and comply with the National Electrical Code NFPA 70 book and local codes.</li> <li>• Read and interpret all sections of blueprints and draft electrical circuits.</li> <li>• Integrate carpentry, masonry, plumbing, and HVACR systems with electrical installation and maintenance.</li> <li>• Produce take-off lists, perform layout, and install new materials for existing and new projects.</li> <li>• Think critically, do research, calculate minimum requirements, and solve problems.</li> <li>• Demonstrate the qualities of an apprentice electrician: positive attitude and behavior, discipline, promptness and attendance, ability to work alone or with others, with cultural awareness, and good communication skills.</li> </ul>

<b>Report and discuss all major/meaningful actions and activities that occurred in the program over the past three years, from July 1, 2013 through June 30, 2016. For example:</b>	
Changes to the program’s curriculum due to course additions, deletions, modifications (CRC, Fast Track, GE-	<p>As of Fall 2015, DHHL Model Home Project has shifted to the third and fourth semester, to be completed by only second year students.</p> <p>To meet ACCJC’s requirement, Etro. 120 math has been added to EIMT’s first semester for both CA &amp; AAS degrees which replaced Math 51, along</p>

designations), and re-sequencing	with the addition of Eng. 102 (for AAS only). As a result the program overall AAS credit has decreased from 72 credits to 71 credits. BLPRT. 22 and BLPRT 30-C has also shifted to different semesters due to this program adjustment.
New certificates/degrees	N/A
Personnel and position additions and/or losses.	N/A
Other major/meaningful activities, including responses to previous CERC feedback.	N/A

<b>Describe, analyze, and celebrate the program's successes and accomplishments. (For example, more students were retained/graduated OR the program successfully integrated new strategies/technologies.)</b>	
Discuss what the program has been doing well that needs to be maintained and strengthened.  Please provide evidence if applicable (ex: program data reports, relevant URL links, etc.).	The working relationship between EIMT & Carpentry has been re-established, starting Fall 2015, plans for both EIMT instructors to be alternating supervising and instructing of students to participate on the wiring of the Department of Hawaiian Homelands Project. This re-established working relationship will need to be maintained so that the EIMT students gain valuable work experiences through this active live job. The DHHL Model Home Project requires interaction for all trades involved, along with a realistic sense of time management schedules. Majority of our graduates have found employment with non-union privatized companies that focuses on residential and commercial type of jobs. By having this DHHL Model Home project integrated into the program the students will have more skill and retention by their participation. Students will be more

	adept to perform their skill sets that industry will require from them.
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<b>Describe, analyze, and discuss any challenges and/or obstacles the program has faced.</b>	
Identify and discuss the program's challenges/obstacles.	The challenges that the EIMT programs have faced is the struggle of not having adequate work areas and equipment between both cohorts. These areas include both indoor and outdoor work spaces. Updated equipment and materials would be needed for student assignments to align with our CLO and PLO's in both cohorts.
Discuss changes and actions taken to address those challenges, and any results of those actions.	Administration is actively planning to renovate building #391 to provide an increased lab area to accommodate the high volume of EIMT students. New lighting, flooring in classrooms, painting and roofing will be installed. Outdoor work areas will need to be considered for planning and allocated equally. We are currently working with Administration to work out the details of moving items into storage and securing remote classroom and temporary lab areas in preparation for this remodel. We are also submitting a list of equipment and tools that will be needed to satisfy the student count of both cohorts.
Discuss what still needs to be done in order to successfully meet and overcome these challenges.	We will need to find funding to properly equip the program and find more work area (indoor and outdoor). We are currently working with Administration to ensure that proper provisions will be supplied.

**ARPD Data**

**Please attach a copy of the ARPD data tables for the three years under review and submit with the Program Review document.**

- a) If you will be submitting the Program Review document in hard copy, print and staple a copy of the data tables to the submission; the icon to print the data tables is on the upper right side, just above the data tables.**

**OR**

- b) If you will be submitting the Program Review document in digital form, attach a PDF copy along with the digital submission; the icon to download the data tables as a PDF is in the upper right side, just above the data tables.

Program data can be found on the ARPD website: <http://www.hawaii.edu/offices/cc/arpd/>

<b>Analyze the program's ARPD data for the 3-year review period.</b>	
<p>Describe, discuss, and provide context for the data, including the program's health scores in the Demand, Efficiency, Effectiveness, and Overall Health categories.</p>	<p><b>Demand Indicators</b> are based on the "New &amp; replacement Positions (County Prorated) listed on line #2 divided by the Number of majors listed on line #3. Benchmark: Healthy = &gt; 0.75, Cautionary: 0.5 – 0.74 and Unhealthy &lt; 0.5</p> <p>EIMT Program's Demand Health Call for 2013-2014 was "Healthy", 2014-2015 "Unhealthy", and 2015-2016 "Unhealthy". The only thing that changed, to cause this swing from Healthy to Unhealthy, is the scoring rubrics used to determine the Demand Health Call.</p> <p>If we use the current scoring rubrics with the 2013-14 data and compare it to the 2014-15 data, we actually had an increase 7% in the ratio of New &amp; Replacement Positions (County Prorated) to Number of Majors, but instead of maintaining a Healthy call, it went down to an Unhealthy call. So it seems like this data may not be accurate.</p> <p>After further analysis of this new rubric we found that the formula is good, but the data used is not. Currently, the Demand Indicator looks at the ratio of New &amp; Replacement Positions (County Prorated) to Number of Majors. We feel that it should look at the ratio of New &amp; Replacement Positions (County Prorated) to Unduplicated Degrees/Certificates Awarded. It is the graduating students that are entering the workforce, not every students that declared EIMT as their major.</p> <p>With the use of this data our Demand Health Call would be, a sustained, Healthy!</p>

**Efficiency Indicators** are based on the “Fill Rate” listed on line #10. Benchmark: Healthy: 75-100%, Cautionary: 60 – 74%, unhealthy: < 60 %.

We have been given an Efficiency Health Call of Healthy for the past three years. We have a mandated enrollment capacity so our scoring rubric is based off of Class Fill rate. In the past three years, our Fill Rate averaged 93.9%. The minimum Fill Rate to get a Healthy call is 75%. We do not see this number dropping anytime in the near future.

**Effective Indicators** are based on two areas:

1.) Increasing the number of Degrees and CA’s awarded by 5% per year

(Difference between actual and goal)

2.) Persistence Fall to Spring.

EIMT Effectiveness indicators for 2013 reflected a “Cautionary” status.

EIMT Effectiveness Indicators for 2014 reflected a “Healthy” Status.

EIMT Effectiveness Indicators for 2015 reflected a “Healthy” Status.

Although we are Healthy in this area, there was a change in the scoring rubric in which we must increase the number of Degrees and CAs awarded by 5% per year. This does not affect us this year, but it does in the years to come. Currently we are running at or near capacity, which means we will not be able to increase the number of Degrees and CAs awarded by 5% per year because we cannot increase our capacity due to physical space needed.

**Overall Health** Scoring Rubric are based on adding health call scores from Demand, Efficiency, and Effectiveness.

Scoring Rubric for Overall Health

5-6 = Healthy

2-4 = Cautionary

0-1 = Unhealthy

Over the past three years we have been given the following Overall Program Health Calls: 2014 – Healthy, 2015 – Cautionary, 2016 – Cautionary. The only major changes has been the scoring rubrics,

	<p>especially for the Demand Health Call. As mentioned above, if the Demand Indicator used graduating students versus total declared majors, we would have been given an Overall Program Health Call of Healthy over the past three years!!</p> <p>Overall, the program has been a very consistent over the past three years. Our Average Class Size was 18.8 (with a capacity of 20) and had an average of 17.67 Unduplicated Degree/Certificates Awarded – that is a 94% success rate, this is a great accomplishment by the EIMT Faculty! There was an average of 24 New &amp; Replacement Positions (County Prorated) which equates to job openings for all of the graduating students. This is a Healthy program!</p>
<p>Describe, discuss, and provide context for data in the Distance Education, Perkins Core Indicators, and Performance Funding Indicators categories, as appropriate.</p>	<p>Overall, besides 5P1 and 5P2, we have been meeting the Perkins Core Indicators.</p> <p><b>5P1 and 5P2</b> – We have not met these indicators in the past three years. We average 4.25 female majors every year and averaged 3.73 females graduating from the program. Right now we are only concentrating on 5P1 because we need nontraditional participants before we can increase completion.</p> <p>With the assistance of our female faculty, we are attending every career fair/day possible and showcasing the program to any prospective student. During these career fairs, we are emphasizing what females can accomplish and contribute to this field of work in hopes of recruiting more nontraditional students.</p>
<p>Describe any trends, and any internal and/or external factors that are relevant to understanding the program’s data.</p>	<p>The construction industry has produced an abundance of jobs that are not recognized in these “Quantitative Indicators”. Majority of our EIMT graduates are employed outside of County or State positions which, which are not reflective in these Annual Report outcomes. The EIMT program is consistently filled to capacity every Fall enrollment.</p>
<p>Discuss other strengths and challenges of the program that are relevant to understanding the program’s data.</p>	<p>The major “<b>Strength</b>” for the EIMT Program is definitely based on the popularity of the program that is reflected in <b>Line item #9, Average Class Size</b> (18.7 – 19) and <b>#10, Fill Rate</b> (93.3% - 95%). Students are accomplishing their academic goals as shown in <b>Line # 17 Successful Completion Equivalent C or Higher</b> 2013-14 = 95%, 2014-15 = 95% and <b>2015-16= 86%</b>.</p>

	<p>As of Fall of 2014 the EIMT Program produced two cohorts. Data trends are reflected due to new teaching arrangements along with attrition and the strong economy, which reduced student completion of the program see: <b>Line #18 Withdrawals (Grade = W) 2013-14 = 2, 2014-15 = 3, 2015-16 = 7. Line #19 Persistence Fall to Spring 2013-14 =84.3%, 2014-15= 69.8%, 2015-16 = 88.4% Line 19a Persistence Fall to Fall 2013-14 = 62.7%, 2014-15= 51%, 2015-16 = 46.1%.</b></p>
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<p><b>Analyze the program’s IRO data for the 3-year review period:</b>          If applicable: Discuss how data/analysis provided by the Institutional Research Office has been used for program improvement. (For example, how results from CCSSE or IRO research requests have impacted program development.)</p>	
Describe, discuss, and provide context for the data.	N/A
Discuss changes made as a result of the IRO data.	N/A

<p><b>Contributions to the College: Discuss how the program aligns with and supports the College’s institutional effectiveness and helps the Kauhale achieve our shared goals.</b></p>	
<p><u>College Mission:</u>  <i>“Hawai’i Community College (Hawai’i CC) promotes student learning by embracing our unique Hawai’i Island culture and inspiring growth in the spirit of “E ‘Imi Pono.” Aligned with the UH Community Colleges system’s mission, we are committed to serving</i></p>	<p>The EIMT Program has successfully been participating in the Department of Hawaiian Homeland “Model Home” Project. By re integrating this project with our program we are collaborating with other affiliated programs such as Architectural Engineering Cad Technologies (AEC), Carpentry (CARP), Agriculture (AG), Diesel mechanics (DISL), Hawaiian Studies (AA-HWST) within our “Kauhale”, along with Plumbing Contractors and Painting Contractor, Tape-Mudding Contractors, County of Hawaii Inspectors and Utility Inspectors that we also encounter on the project.</p> <p>For the past five years the DHHL Model Home’s had Photovoltaic systems Installed by the EIMT students which was a great asset to the homeowners, to the students and the environment. Photovoltaic lessens the carbon footprint to reduce oil fuel use to produce energy, instead PV harness the energy from the</p>



<p><i>all segments of our Hawai'i Island community."</i></p>	<p>natural sun light, through the photon effect. The Hawaiian Island are place near the equator that has an abundance of direct sun exposure, compared to other countries that is leading in PV installations. The students gain a good experience working on a real job site, great exposure working in a Hawaiian Community and are making a great contribution of their newly learned skill to reinforce their theory and confidence along with benefiting the DHHL recipients recognized at the Model Home Dedication Ceremony. This home encapsulates the skill, knowledge and accomplishments of all students involved, with a great economic purchase value.</p>
<p><u>Institutional Learning Outcomes (ILOs):</u>  <a href="http://hawaii.hawaii.edu/files/assessment/outcomes.php">http://hawaii.hawaii.edu/files/assessment/outcomes.php</a> - ilo</p>	<p><b>ILO 1:</b> Our graduates will be able to communicate effectively in a variety of situations.</p> <p>Our EIMT students are placed in group activities that requires communication, knowledge and collaboration within the groups.</p> <p><b>EIMT PLO 1:</b> Accurately demonstrate entry-level skills in residential, commercial, and industrial electrical installation and maintenance.</p> <p><b>EIMT PLO 2:</b> Practice safety on the job and recognize potential hazards.</p> <p><b>EIMT PLO 3:</b> Interpret and comply with the National Electrical Code NFPA 70 book and local codes.</p> <p><b>EIMT PLO 4:</b> Read and interpret all sections of blueprints and draft electrical circuits.</p> <p><b>EIMT PLO 5:</b> Integrate carpentry, masonry, plumbing, and HVACR systems with electrical installation and maintenance.</p> <p><b>EIMT PLO 6:</b> Produce take-off lists, perform layout, and install new materials for existing and new projects.</p> <p><b>EIMT PLO 7:</b> Think critically, do research, calculate minimum requirements, and solve problems.</p> <p><b>EIMT PLO 8:</b> Demonstrate the qualities of an apprentice electrician: positive attitude and behavior, discipline, promptness and attendance, ability to work alone or with others, with cultural awareness, and good communication skills.</p>

**ILO 2:** Our graduates will be able to gather, evaluate and analyze ideas and information to use in overcoming challenges, solving problems and making decisions.

Reading, comprehension, analyzing and application are requirements for our EIMT students through rigorous chapter reviewed assignments, individual lab and group lab assignments. Projects are created to create problem solving and positive outcomes.

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

**EIMT PLO 2:** Practice safety on the job and recognize potential hazards.

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

**EIMT PLO 4:** Read and interpret all sections of blueprints and draft electrical circuits.

**EIMT PLO 5:** Integrate carpentry, masonry, plumbing, and HVACR systems with electrical installation and maintenance.

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

**EIMT PLO 7:** Think critically, do research, calculate minimum requirements, and solve problems.

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

**ILO 3:** Our graduates will develop the knowledge, skills and values to make contributions to our community in a manner that respects diversity and Hawaiian culture.

Instruction and lectures based on local utilities Electrical Service Installation Manual (ESIM) requirements and Local County of Hawaii Electrical Authority Having Jurisdiction (AHJ) requirements are covered in our courses. These regulated requirements are accepted by the Public Utility Commissions and Local Governance Bodies here on the Big Island.

Our EIMT graduates will have the knowledge of understanding the electrical principles, theory and skills along with photovoltaic knowledge to be productive electrical apprentices out in the community.

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

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

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

<http://hawaii.hawaii.edu/sites/default/files/docs/strategic-plan/hawcc-strategic-directions-2015-2021.pdf>

### **The Program's Learning-Outcomes Assessments**

For assessment resources and PDF copies of all submitted assessment reports from the program during

the review period, please see the following websites:

Assessment website:

<http://hawaii.hawaii.edu/files/assessment/http://hawaii.hawaii.edu/files/assessment/>

Assessment Reports/Resources:

<http://hawaii.hawaii.edu/files/assessment/reports/http://hawaii.hawaii.edu/files/assessment/reports/>

The program faculty/staff have reviewed the program record on Kualii KSCM and hereby affirm that all information, including the PLOs, is correct.

The program faculty/staff have reviewed the program record on Kualii KSCM and have found that all information is not correct and hereby affirm that the program will be submitting proposals for revision.

Kualii KSCM: <https://hawaii.kualii.co/cm/#/courses>

<http://hawaii.hawaii.edu/files/assessment/outcomes.php - plo>

*If the Kualii KSCM program entry needs revision (for example, to the program description, entry or completion requirements, and/or PLOs) those revisions must be proposed through the Fast Track process or CRC "Proposal to Modify a Program" process, as appropriate.*

**PLOs**

<p>Please list the Program Learning Outcomes (PLOs) as recorded on Kualii KSCM.</p>	<p>EIMT PLO1: Accurately demonstrate entry-level skills in residential, commercial, and industrial electrical installation and maintenance.  EIMT PLO2: Practice safety on the job and recognize potential hazards.  EIMT PLO3: Interpret and comply with the National Electrical Code NFPA 70 book and local codes.  EIMT PLO4: Read and interpret all sections of blueprints and draft electrical circuits.  EIMT PLO5: Integrate carpentry, masonry, plumbing, and HVACR systems with electrical installation and maintenance.  EIMT PLO6: Produce take-off lists, perform layout, and install new materials for existing and new projects.  EIMT PLO7: Think critically, do research, calculate minimum requirements, and solve problems.  EIMT PLO8: Demonstrate the qualities of an apprentice electrician: positive attitude and behavior, discipline, promptness and attendance, ability to work alone or with others, with cultural awareness, and good communication skills.</p>
<p>Discuss the program's challenges, if any, in helping students overall achieve its PLOs.</p>	<p>1.) Due to the forecasted increase of students, we are planning to increase the shop area by adding another shop. Each shop will be assigned to a cohort so that equipment and tool inventory can be performed precisely and to alleviate traffic on many equipment. This process is being planned</p>

to start in Fall 2018 with the renovation of Bldg. 391. Both shops will need to be adequately provided with proper equipment and provisions so that student learning and attainment of the PLOs can be maintained or increased.

2.) Lack of Photovoltaic Training & Equipment. For the past five years, since 2012, The EIMT Program has been actively installing a complete electrical installation for the DHHL Model Home along with the installation of a complete Photovoltaic package. As of 2017, this is the first DHHL Model Home since 2012 that lacked a Photovoltaic system. Hawaii Electric Light Company here on the Big Island of Hawai'i is approaching the 5-megawatt capacity limit set by the state Public Utilities Commission (PUC) for Hawai'i Island. As of this week, the capacity of approved systems under the grid-supply program totals over four megawatts due to the saturation of Hawaii Electric Light Co. grid lines, HELCO is no longer accepting any Grid Tied connections that allows feedback power to their power lines.

<https://www.hawaiielectriclight.com/clean-energy-hawaii/producing-clean-energy/customer-self-supply-and-grid-supply-programs>

HELCO only allows a Customer Self Supply. CSS systems basically uses batteries to store generated energy from the photovoltaic system during the day (to be used by the occupants at night) and the PV also powers up the residence power needs during the day. The system requires a device to absorb any excess energy that the system is producing to stop the extra power from feeding back to the HELCO power lines. This added requirement has placed a financial burden on the DHHL project. So far DHHL has managed to keep the turn key package for the DHHL Model Home Projects to under \$200K "turn key". By doing so the residence will be deemed as affordable for all qualifying Hawaiian descendants on the list. With the heavy restrictions that Hawaii Electric Light Co. has enforced, the required components such as batteries, charge controllers and an anti-feedback device to deter energy to be feed back to the HELCO secondary power lines would more-than- likely push the "turn key" price to over \$200K.

If funding were to be granted, this complete off grid system would fulfill

	<p>the CLO for EIMT 20, 22 and 43. This package would then take the place of the DHHL MH Project (PV Installation) and would be transferred to an on campus instruction instead, which will directly fulfill the course description for EIMT 20, 22 and EIMT 43, and indirectly cover CLO's for EIMT 41.</p> <p>Therefore, the EIMT Program is requesting the purchase of a complete CSS, or Off Grid Photovoltaic system inclusive of sealed maintenance free batteries, Anti-Feedback device, combiner box and fusing, charge controllers, cable wires, PV modules, 3R disconnects, ground mounted supporting frame, rails, hardware and zip ties.</p> <p>Rough Estimated Cost: \$40 – 45K.</p> <p>HGI Action Strategy 2: Implement structural improvements that promote persistence to attain a degree and timely completion</p> <p><i>· Strengthen and align assessment, program/unit review, data collection, and data analyses processes to support improved teaching and learning, accreditation, and governance and planning. · Provide enhanced professional development to improve teaching and learning.</i></p> <p>HI2 Action Strategy 3: Continue to support programs that suit Hawai'i Island's location and environment as well as address critical gaps.</p> <p><i>· Sustainable agriculture · Energy</i></p>
<p>Include a summary discussion of the results of any PLO assessments voluntarily undertaken by the program's faculty.</p>	<p>Assessment for Fall 2013 "Temp. Pole Stands", developed positive reflection of PLO's 3, 6, 7 &amp; 8. All assessors that participated had scored the rubric at 100%. SLO 6: Successfully installing a temporary pole to HELCO Specs. SLO 7: Identifying all electrical materials involved in Temp. Pole assembly. SLO 8: Knowledge of NM properties &amp; application to NEC standards. SLO 9: Ladder safety skills SLO 10:</p>

Tying in Panel Boards/Load Centers

SLO 11: Grounding Systems, were also a part of the assessment. ILO's 1 & 2 were also integrated. Please see the attached link to view the file. Assessors included: 3- current EIMT Advisory Council Members, 1-retired EIMT Instructor, 2-HELCO Engineering Inspectors.

**SPRING 2014 Model Home Assessment:** PLO's 1, 2, 3, 4, 6,7 & SLO's: 2.) Wiring up a residential double wall construction structure 3.) Designing Network & Point to Point Wiring Design 4.) Understanding PV basic principles 5.) Wiring & theory of low voltage systems 6.) Comprehending basic conduit bending skills 7.) Completing switching & receptacle circuits 8.) Installing various permanent Residential Single Phase Service systems 9.) Installing a live 4.5KW DC - 3.87KW AC Photovoltaic System on the DHHL Model Home 10.) Finishing/trimming out a residential double wall construction structure, were used in this assessment. Assessors consisted of three EIMT Advisors, 2- C/H Electrical Inspectors, 1-Electrical Contractor/Alumni, 1-retired EIMT Instructor and 1-community rep. EIMT 22 "Expected Level of Achievement" was 87-95% of all students will be meeting standard of PLO 's & SLO's for Spring 2014. I believe that the percentages of the assessors reviews met that range, we averaged 98%, as an outcome.

<http://hawaii.hawaii.edu/files/assessment/reports/slorpt/2013-14/EIMT2013-14.pdf>

Assessment for Fall 2014 "Temp. Pole Stands", incorporated PLO's #3,6,7 & 8.

SLO's: SLO 6: Successfully installing a temporary pole to HELCO Specs.

SLO 7: Identifying all electrical materials involved in Temp Pole assembly.

SLO 8: Knowledge of NM properties & application to NEC standards.

SLO 9: Ladder safety skills

SLO 10: Tying in Panel Boards/Load Centers

SLO 11: Grounding Systems

ILO'S: 1 & 2. Outcome was at 98% due to one of the current industry's assessors rated one of the artifacts as "Developing to Meet Expectation" due to a minor error on a student's material list. The other three assessors (HELCO Engineering Inspectors) that are not familiar with electrical installations & NEC codes had opted out in answering a particular

	<p>“Competency question” TEMP Pole NM-B Installation, SLO #8, and two opted out answering “Competency question” Temp Pole Production-Workmanship, SLO #9, the questions involved in SLO #9 involved questions of evidence of ladder skills applied, which may have been beyond their comfort level to answer, hence the two opted out with an “N/A” entry.</p> <p><b>SPRING 2015 “Junction Box Splice”:</b> PLO’s: #4, 6 &amp; 7, * SLO 1: Designing concepts and applications of Network and Point to Point Wiring Circuitry. * SLO 6: Residential rough in and trim out of a double wall project. ILO #2 were also incorporated in this assessment. Assessors included three EIMT Advisory Members, three Electrical Contractors &amp; two retired EIMT Instructors. The maximum possible points listed on the rubric was 800 points. The assessment results came in at 726 points out of 800, which resulted in a 90% positive outcome. <a href="http://hawaii.hawaii.edu/files/assessment/reports/slorpt/2014-15/EIMT2014-15.pdf">http://hawaii.hawaii.edu/files/assessment/reports/slorpt/2014-15/EIMT2014-15.pdf</a></p> <p><b>Fall 2015 EIMT 41: Conduit Calculation.</b> PLO’s 1, 3, 6, &amp; 7, SLO 3. Calculate wire fill to select appropriate type of size of conduits. Assessors included: Two EIMT Advisory Council Members, two retired EIMT Instructors, one Electrician/Alumni. Maximum points per assessors were nine points. Out of the five Assessors, we received a total score of 44 out of 45 points, 97.7% outcome. I had received great comments. Please see the link below to review file.</p> <p><b>SPRING 2016 EIMT 43: Logic Control Circuitry</b> PLO’s: 1, 4, 7 &amp; 8, SLO 4: Design and draft electrical control schematics and electrical wiring diagrams. All four assessors had rated their chosen student’s work to be twelve points each, hence, the results of our assessors were tallied at 100% satisfaction, by each assessor. Please see the link below to review the forms. Assessors included two EIMT Advisory Members, one-retired EIMT Instructor and one Electrical Contractor. <a href="http://hawaii.hawaii.edu/files/assessment/reports/slorpt/2015-16/EIMT2015-16.pdf">http://hawaii.hawaii.edu/files/assessment/reports/slorpt/2015-16/EIMT2015-16.pdf</a></p>
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**CLOs**

Discuss and summarize	The overall summary for the past three years of assessment have been a
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<p>the <u>overall</u> results of course learning outcomes (CLO) assessments during the 3-year review period.</p>	<p>great tool to measure student’s outcomes. Fall 2013 received 100%, Spring 2014 received 98%, Fall 2014 received 98%, Spring 2015 received 90%, Fall 2015 received 97% and Spring 2016 received 100%. I believe it’s the selected individuals that you invite (assessor) can make the difference. Spring of 2015 assessment scoring had dropped to 90%, but it may be due to the style or personal preference of each assessor level of how they choose to “splice”. The students did a good job in their execution. The lowest markings were “Developing to Meet Expectation” based on two points, which is understandable for students who are in training.</p> <p>Overall having six assessments in the past three years tallied an average of 97% performance. The outcome was acceptable to assessors.</p>
<p>Describe how the program’s faculty/staff regularly discussed and used overall assessment results to plan for improvement.</p>	<p>Through attending assessment workshops, it was suggested that the chosen assessment topics be conducted twice, if the outcomes were acceptable, then the “Closing the Loop” forms would then be filled. A new “artifact” to be assessed should then start again. Data received from assessment are reviewed and analyzed to make necessary changes for better student outcomes.</p>
<p>Discuss the implementation of these improvement plans and consequences for overall program improvement.</p>	<p>Improvements would affect the delivery or approach of topic introduced to the students, along with length of time the introduction of a subject be studied, or possibly the sequencing of topics to lead to a specific topic matter, more hands on lab assignments to reinforce memory and skills, would more than likely be altered in hopes of a better assessment outcome.</p>

**PART II: PROGRAM ACTION PLAN**

<p><b>Describe and discuss the program’s action plan to improve student learning for the next 3 years, from July 1, 2016 through June 30, 2019.</b></p>	<p><b>Benchmarks and Timelines</b></p>
<p><b>Action Goal 1:</b>  Support the increased working areas by supplying both cohorts with the</p>	<p><b>Benchmarks/Timelines:</b>  <b>Fall 2017</b></p>

<p>resources (benders, equipment, Ridgid cutting-threading machine) and equipment (picks, shovels, hand benders, hickey's, Milwaukee Sawzall, Milwaukee Hole Hawg drills, etc.) needed for student learning and attainment of PLOs.</p> <p>The allocated budget reserved for EIMT was equally dispersed between the two cohorts units about 11 years ago, which is not currently adequate for materials, hardware, apparatus and necessary supplies. Prices on copper wires that we use daily has increased with no comparable increase in the G-Budget to compensate for inflation. Projecting into June 2018 when the renovation of building #391 we will be completed. The Separated shop will now be required to have our own first aid kit that's required to meet OSHA's standard. Currently working with Administration to obtain the necessary apparatus.</p>	<p><b>Currently working with Admin.</b></p>
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<p><b>How can this action Goal lead to improvements in student learning and attainment of the program's learning outcomes (PLOs)?</b></p> <p>To support an increase of students, we are adding another shop. Each shop needs to be supplied to be able to support student learning and attainment of the PLOs. Students should definitely not be deprived of equipment and materials. Students are required to be trained using up-to-date equipment, tools and materials to be properly educated to meet our EIMT mission statement and PLO's. Proper funding of both EIMT cohorts will bring forth student skill attainment, knowledge retention, comprehension, and student success.</p> <p>These resources will also be incorporated into the course assessments by using a dynamic, controlled, assessment strategy. We will also use these equipment for displays and demonstrations at various career fairs/days.</p>	
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<p><b>Action Goal 2:</b></p> <p>A complete Off Grid Photovoltaic system inclusive of sealed maintenance free batteries, combiner box and fusing, charge controllers, cable wires, PV modules, 3R disconnects, ground mounted supporting frame, rails, hardware, and zip ties.</p> <p>Rough Estimated Cost: \$35 – 40K.</p>	<p><b>Benchmarks/Timelines:</b> <b>Fall 2017 – Spring 2018</b></p>
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**How can this action Goal lead to improvements in student learning and attainment of the program’s learning outcomes (PLOs)?**

Industry has taken a turn due to the over saturation of HELCO power lines. The latest alternative is to have Customer Self Supply Systems (CSS) installed to offset fluctuating HELCO fee’s.

Hawaii Electric Light Company here on the Big Island of Hawai’i is approaching the 5-megawatt capacity limit set by the state Public Utilities Commission (PUC) for Hawai’i Island. As of this week, the capacity of approved systems under the grid-supply program totals over four megawatts.

However, customers will still be able to buy rooftop systems that don’t export to the grid but still offset a substantial part of their electric bill. Under a Customer Self-Supply option, households are able to generate their own electricity and potentially store energy for use after the sun goes down.

The PUC created the self-supply program as an alternative to the grid-supply program. Basically HELCO will no longer accept newer proposed PV systems that “feedback” power supply to the grid (CGS) Customer Grid Supply. Due to this maximum capacity state, HELCO will only accept “Customer Self-Supply” systems. See <https://www.hawaiielectriclight.com/clean-energy-hawaii/producing-clean-energy/customer-self-supply-and-grid-supply-programs>.

CSS has more added requirements that would increase the materials required to meet compliance such as batteries, charge controllers and a unit to absorb the extra energy produced by the photovoltaic system to deter energy to potentially feeding back to the grid.

DHHL has managed to keep the turn key package for the DHHL Model Home Project to under \$200K. By doing so residence will be deemed as affordable for all qualifying Hawaiian descendants on the list. With the heavy restrictions that Hawaii Electric Light Co. has enforced, the required components such as batteries, charge controllers and an anti-feedback device to deter energy to be feed back to the HELCO secondary power lines would more-than- likely push the Turnkey price to over \$200K.

If funding were to be granted, this complete off grid system would fulfill the CLO and PLO’s for EIMT 20 and EIMT 43.

[http://hawaii.hawaii.edu/sites/default/files/assets/catalog/docs/11-course\\_listings.pdf](http://hawaii.hawaii.edu/sites/default/files/assets/catalog/docs/11-course_listings.pdf)

(See Pages 124 and 125)

This action plan is in alignment with Hawaiian Electric’s work to replace imported oil with renewable resources. They are now 25% renewable. *They have a comprehensive plan to reach*

48% by the end of the decade in hopes to reduce fossil fuel use and greenhouse gas emissions. Their goals include: • Transforming and strengthening the energy delivery network with the latest technology • Working to develop diverse sources of renewable energy • Keeping service safe and reliable • Giving you more choices to help you lower your electric bill.

[https://www.hawaiielectriclight.com/Documents/about\\_us/our\\_vision/renewable\\_timeline.pdf](https://www.hawaiielectriclight.com/Documents/about_us/our_vision/renewable_timeline.pdf)

*“Our goal is 100 percent renewable energy for electricity by 2045. By achieving this, Hawaii will greatly reduce its dependence on imported oil. This will lower electric bills and provide a cleaner environment for future generations.*

*Hawaii is the first state in the nation to set a renewable energy goal of 100%. But the utilities in Hawaii can't make this happen alone. We must continue with the collaborative efforts that have gotten us this far, involving the utilities, state and local governments, business partners, communities and customers like you.”*

<https://www.hawaiielectriclight.com/about-us/our-vision/100-percent-renewable-energy>

The system will fulfill the course description for EIMT 20, 22 and EIMT 43. This new concept is a current trend that will eventually be common for consumers in the state of Hawai'i which will possibly entail a future demand. We will also use this setup for training so that students will know how to maintain and troubleshoot PV systems that currently exist.

This unit will also be incorporated into the course assessments by using a dynamic, controlled, assessment strategy. We will also use this as a display for the program when students (K-12) come over during excursions or at HawCC Day.

<p><b>Action Goal 3:</b></p> <p>Seek funding for the purchase of a Simutech software package to enhance our EIMT student's knowledge in "troubleshooting" circuits.</p> <p><a href="https://www.simutechmultimedia.com/products/">https://www.simutechmultimedia.com/products/</a> <a href="http://www.simutechmultimedia.com/demo-ty/">http://www.simutechmultimedia.com/demo-ty/</a> <a href="https://www.simutechmultimedia.com/demo/?ref=pricingty">https://www.simutechmultimedia.com/demo/?ref=pricingty</a></p> <p>Laptops, or desk computer units will be also be required to use Simutech packages.</p> <p>Estimated Cost: \$ 13,000.00</p>	<p><b>Benchmarks/Timelines:</b></p> <p><b>Fall 2017 – Spring 2018</b></p>
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**How can this action Goal lead to improvements in student learning and attainment of the program’s learning outcomes (PLOs)?**

Our EIMT Advisory Council members made mention at our meetings of how trouble shooting would be great for the students to learn. (That statement was not written in the minutes. I will pass this by the assigned note taker).

One of the many traits/skills of a great apprentice, journeyman and Supervising Electrician, is to be able to troubleshoot. Our main goal is *“prepare students for employment with electrical appliance shops, utility companies, and electrical construction, and maintenance companies. Learning will center on planning, designing, constructing, installing and maintaining electrical wiring and equipment.”*

By applying this great trouble shooting software into the curriculum, it will build the graduating students with appropriate skillset that will give them a better success rate of initial employment and employment retention.

This unit will also be incorporated into the course assessments by using a dynamic, controlled, assessment strategy. We will also use this as a display for the program when students (K-12) come over during excursions or at HawCC Day.

**Action Goal 4:**

Mock Up Model: Double Duplex Lab Structure. This project would allow all of EIMT students to have the structure as a lab project to be used for double wall rough in for cable, or conduit, PV training would be used on the roof top, service and grounding systems would be applied along with load center installation and branch circuit installations.

This proposal would be very beneficial to all EIMT current registered students, IF it would be shared between both cohorts equally, Or if there were two similar units for each cohort to direct. However, funding was not awarded and the project never materialized.

Rough Estimated Cost: \$120,000.00

**Benchmarks/Timelines:**

**Fall 2017**

**How can this action Goal lead to improvements in student learning and attainment of the program's learning outcomes (PLOs)?**

This mock up duplex would be a great for students to build their training on as assessors would be able to observe students in action, or rate their completed lab assignments in the mock up duplex unit. PLO's are always used to rate students in their rubrics assessment, so both pieces would be greatly used on this project.

This unit will also be incorporated into the course assessments by using a dynamic, controlled, assessment strategy. We will also use this as a display for the program when students (K-12) come over during excursions or at HawCC Day.

**Describe and discuss any specific strategies, tactics, activities, or plans for:**

Program modifications: Currently brainstorming about re aligning the EIMT curriculum. This past Fall 2016 changes were made such as: 1.) ETRO. Math 120 was recently added this past Fall 2016 semester that inevitably 2.) pushed back BLPRT 22 to the second semester and also 3.) pushed back BLPRT 30-C to the third semester and 4.) Model Home project was recently moved back to the second year student's project during their third semester EIMT 41-Commercial Wiring and fourth semester EIMT 43 Industrial Wiring, the catalog listing is not in alignment.

Catalog 2016-17 course Listings:

*"Blpr 22—Blueprint Reading and Drafting (3) The use of mechanical drawing instruments to make shop drawings which include orthographic projection, dimensioning, and full section. Freehand sketching of shop drawings, isometric and oblique projection sketching. Reading blueprints of simple structures. (3 lec hrs.)"*,

*"Blpr 30C—Blueprint Reading for Electricians (3) PreReq: Blpr 22 and EIMT 20 Reading of specifications and blueprints of residential dwellings to extract information that may affect the wiring of the structure. Designing and sketching of wiring diagrams of branch circuits which are in compliance with the National Electrical Code. (3 lec hrs.)"*

Hence, the catalog listed lineup does not correspond to the actual projects. Possibly will explore ways to properly align the timing of new adjustments such as having EIMT 43 Industrial Wiring introduced in the first semester that *"Covers power generation, transmission, and distribution; step-up and step-down power transformers; buck/boost transformers; electromagnetism; single-phase*

and three-phase motors; motor controls; and photovoltaic systems (off-grid & grid-tie). (6 lec hrs., 15 lab hrs., 2 lec/lab hrs.)” re numerating the class number may also have to be considered to reduce confusion on class sequencing. Secondly moving EIMT 41 to the second semester “Covers the installation of various types of electrical conduits in classified hazardous and non-hazardous locations; the installation of electrical services; blueprint reading and interpretations; and related duties of the electrical trade such as carpentry, masonry, plumbing, and refrigeration. (6 lec hrs., 15 lab hrs., 2 lec/lab hrs.)” This class would then coincide when BLPRT. 22 is conducted in the second semester. Thirdly, moving EIMT 22 to the third semester, “Covers basic Electron Theory, Ohm’s Law, Power Law, series and parallel circuits, AC and DC circuits, magnetism, grounding, introduction to the basics of Photovoltaic principles, installation of permanent electrical services, and the introduction of electrical conduit bending. (6 lec hrs., 15 lab hrs., 2 lec/lab hrs.)”. BLPRT. 30-C would coincide at this time, which would be complimentary. Students would be familiar at this stage on Ohm’s Law and power law calculations. Lastly moving EIMT 20 to the fourth semester “Covers safety regulations and procedures practiced in the construction trade and industry; the use of related hand tools and power equipment; basic interior wiring of electrical devices and equipment, lighting apparatus and low voltage equipment; electrical blueprints and symbols of residential wiring; various wiring methods and materials used; installation of temporary service pole stands; and the interpretation of current national and local electrical codes. (6 lec hrs., 15 lab hrs., 2 lec/lab hrs.)” Having this alignment would also pair the related class to be more appropriately aligned such as BLPRT 22 & BLPRT 30-C.

Course-level instructional or curriculum changes: Possibly major re alignment as mentioned above.

Changes to assessment practices, activities, or projects: Assessments are going well, adjustments of rubrics and new artifacts will be considered.

Increases or changes in student support activities and services: The past year the EIMT cohort had a lot of veterans enter into our program. By attending workshops led by Kate DeSoto “How to Support Those in Crises” & “Green Zone Training led by Sue Dunworthy, I’ve become more aware of services that are available for them. As a result, I had them visit my class to introduce themselves to my class students. Hopefully this visitation will make them aware of the resources that we have on campus if they ever needed it. Having these services will aid in student success.

Discuss how the program’s action plan will help the Kauhale achieve the four Initiatives in the College’s *Strategic Directions 2015-2021* plan:

<http://hawaii.hawaii.edu/sites/default/files/docs/strategic-plan/hawcc-strategic-directions-2015-2021.pdf>

Hawai‘i Graduation Initiative	<b>Action Goal 1,2,3, and 4</b> aligns to <b>HGI Action Strategy 1</b> by engaging Hawai‘i Island K–12 students, parents, and public and private schools early
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	<p>and often to promote and prepare for college readiness</p> <p><b>Action Goal 1,2,3, and 4</b> aligns to <b><u>HGI Action Strategy 2</u></b> by reducing the gaps in college completion for Native Hawaiians and low-income and underrepresented groups.</p> <p><b>Action Goal 1,2,3, and 4</b> aligns to <b><u>HGI Action Strategy 2</u></b> by strengthening and aligning assessment, program/unit review, data collection, and data analyses processes to support improved teaching and learning, accreditation, and governance and planning.</p>
Hawai'i Innovation Initiative	N/A
21st Century Facilities (21CF) – Modern Teaching and Learning Environments	N/A
High Performance Mission-Driven System	N/A

<b>Explain how the program's action plan contributes to the College's achievement of the performance-based measures below.</b>	
Degrees & Certificates	<p><b>Action Goals 1,2,3, and 4</b> will maintain or increase Degrees and Certificates by giving the students needed tools and equipment to perform hands on learning.</p> <p><b>Action Goals 1,2,3, and 4</b> will maintain or increase Degrees and Certificates by allowing the faculty to properly assess student learning, which allows them to modify the curriculum to meet the student's needs.</p> <p><b>Action Goals 1,2,3, and 4</b> will maintain or increase Degrees and Certificates by maintaining or increasing enrollment. This will be completed by participating in career fairs/days or field trips to the college.</p> <p>Having the PV system, or the Mock Up Model Double Duplex Lab Structure,</p>



	<p>or the Simutech software, or proper updated tools and shop equipment will enhance their skills along with calculation and theory, re enforce (retain) the lectures and will guide them with experience that is required when employed in the electrical workforce. Achievements will also be made by reaching out to the students so they will be engage to graduating on time with the degree that they strived for. Accomplishments will also be achieved by investing time with them on lunch breaks, making myself more accessible through email, text, office hours, breaks, to be their mentor, advisor and instructor.</p>
<p>Native Hawaiian Degrees &amp; Certificates</p>	<p><b>Action Goals 1,2,3, and 4</b> will maintain or increase Native Hawaiian Degrees and Certificates by giving the students needed tools and equipment to perform hands on learning.</p> <p><b>Action Goals 1,2,3, and 4</b> will maintain or increase Native Hawaiian Degrees and Certificates by allowing the faculty to properly assess student learning, which allows them to modify the curriculum to meet the student’s needs.</p> <p><b>Action Goals 1,2,3, and 4</b> will maintain or increase Native Hawaiian Degrees and Certificates by maintaining or increasing enrollment. This will be completed by participating in career fairs/days or field trips to the college.</p> <p>By having our program participate in the DHHL Model Home project, our students have the opportunity to participate alongside the Hawaiian Life Style program in producing a “Piko” for the house dedication, along with participating in the full ceremony of the blessing and dedication of the home to the new owners. The EIMT program has been also volunteering with HLS to wire up festoon temporary lighting for their Ho’oike (semester end gathering). By collaborating with the ceremony and the program, our EIMT students may take an interest in enrolling into a course or elective related to their program.</p>
<p>STEM Degrees &amp; Certificates (include 4-Year Degrees)</p>	<p>N/A</p>
<p>Pell Grant Recipients Degrees &amp; Certificates</p>	<p>N/A</p>
<p>Transfers to UH 4 Year/Transfers to non-UH 4 Year</p>	<p>N/A</p>
<p>IPEDS Success Rate</p>	<p>N/A</p>

**Suggestions for Improvement:**

If the program's faculty/staff have any suggestions they'd like to share with the College about raising the program's or the College's overall enrollment, improving overall student engagement and success, or any other matter that the faculty/staff think can help the College increase our overall institutional effectiveness, please discuss below.

By providing the EIMT program with Simutech along with the computer stations need for this system, our students would expand their knowledge and troubleshooting theory immensely. Past Advisory council meeting guest had made mention of teaching our students to become more familiar with computer use due to the expanse use of technology used on job sites and facilities. Technology has evolved in the field where software are used for bidding, creating punch lists, programming fire alarm and PLC systems, contactors, etc. Mention was also in agreement that troubleshooting is a valuable skill for the students.

**PART III: Resources**

*Note: "Budget asks" for all categories may be included in the Comprehensive Review.*

Based on the program's overall AY 2014-16 assessment results, other relevant program information and data, and the program's overall action plan to improve student learning, describe and discuss below the program's current resources, resource needs, and cost-item "budget asks" for the 3-year period from July 1, 2016 through June 30, 2019.

**Resource Inventory**

<b>Describe the status of the following faculty/staff program resources:</b>	
Adequate Academic Support Resources (Library, tutoring, learning and testing facilities).	The Hale Kea computer lab area are a great asset to my students when they have to register, or complete applications, resumes, or end of the semester e-café surveys. They did make mention that the stations are limited due to the popularity of the computer lab.
Adequate Student Support Services (academic advising, counseling,	Our EIMT students are very fortunate to have great services provided by Karen Crowell, Helen Nishimoto & the Counseling staff who serves them with counseling, resume workshops, advising, registration and

career guidance).	grant information, etc.
Safe workplace.	Currently working with Administration to remodel building #391 to create appropriate classroom and lab areas for our students with updated lighting, flooring, roofing, fans, equipment, and storage areas.
Adequate and up-to-date computers and software (for program needs).	No. Technology is evolving, even for blue collar workers. We need to have updated computer or laptops for our students to acclimate to what the job requires. Electricians are now using more and more technology in their line of work. HELCO Engineering employees made mention of how they need for their employees to be knowledgeable to create files, and to be familiar with computers. Currently, punch list for large jobs are viewed on mobile iPads which are more commonly used on job sites and more devices and electronic type of systems requires technology for programming, such as fire alarm systems, motor control system, etc. I'm strongly proposing a Simutech software system to be added into the EIMT program that enhances student's theory and skills for troubleshooting, which will entail them to use a computer for the exercises. These programs also enforces the safety of troubleshooting techniques.
Adequate computer access to allow faculty to do their jobs.	No. I have a tiny computer screen in my office which is difficult to work on documents such as the Annual Program Review and the Comprehensive 3-Year Review Reports, Assessment templates, rubrics, and assignments on. A double screen would be useful to cut, paste, edit, review other affiliated sites such as Laulima, Kualii, HawCC sites, etc. I've been working out of my home using my own computer that has adequate lighting and a double computer monitor screen.
Adequate training in computer technology (applications, operating systems, hardware, etc.).	Training workshops were well provided for faculty that covered: registration, advising, Laulima, Kualii, Star, Google Docs, etc.
Adequate training in audiovisual technology (projectors, ELMOs, polycom, etc.).	I haven't heard of any special workshops.
Adequate training in distance learning course development and management (Laulima,	I was aware that workshops were being offered, but since the EIMT program has no on line class being offered, I had not registered in any of the workshops.

etc.).	
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Resource Category	Resources the program needs to operate effectively:	Resources the program already has:	What is the program's resource gap?
<b>A. Personnel</b>			
1) Positions (Functions)			
2) Professional Development			
<b>B. Operating Resources</b>			
1) Supplies	Larger operating budget - around - \$8,342.00	We currently operate on a budget that is around \$6,342.00 Per JT. Email 11-16-15	Not enough supplies, operating budget has not increased with inflation.
2) Contracts			
3) Equipment	Equipment List	Outdated/Not enough for increased enrollment	Need one set of equipment for each cohort
4) Space and Facilities	Two modified double duplex structures  Off Grid Photovoltaic System  4X4 Truck	None  None  Old truck	Need a structure for lab work  Need for lab work  Cost of maintaining will exceed the worth of the vehicle
<b>C. Technology</b>			
1) Hardware			
2) Apps or Software			
3) Tech Support			
4) Tech-related Professional Development			
5) Tech labs / facilities			

**RESOURCE REQUESTS:**

For each “budget-ask” item, provide the following information:

Describe the needed item in detail.

**1) Two modified double duplex structures:** would allow all of EIMT students to have the structure as a lab project. This proposal would be very beneficial to all EIMT students. We are requesting one unit per cohort to allow for increased enrollment.

**2) Instructional Support Items:** Shelving units, benders: manual hand benders ½” – 1”, Hydraulic benders 2” - 3” RMC, Rigid pipe cutter/threading machine, Recycled oil gun pan. Two five Gal. Propane tank, torch heads and strikers. Two half Inch Hole Hawg Electric Drills, Milwaukee Sawzall.

**3) Photovoltaic:** A complete Off Grid Photovoltaic system inclusive of sealed maintenance free batteries, combiner box and fusing, charge controllers, cable wires, PV modules, 3R disconnects, ground mounted supporting frame, rails, hardware and zip ties.

**4.) Simutech Software** package with four updated computer systems or laptops.

**5) New Quad Cab 4 X 4 truck** to safely transport students, equipment and materials to and from various sites, especially the Model Home Project. The request would be for the truck to have pipe racks, be gas (not diesel). Rationale is for safety and health concern. Current GMC truck is not stable and poses concern for safe transportation of passengers. Truck should be shared within the EIMT program between the two instructors, along with other disciplines with a mandatory reservation scheduling precedence for EIMT, giving EIMT top priority of use.

<p>Provide complete information about known or estimated cost(s).</p>	<ol style="list-style-type: none"> <li>1) Two modified double duplex structures: once location is confirmed, we will provide an estimate.</li> <li>2) Instructional Support Items: Rough Estimated Cost: \$ 20K</li> <li>3) Photovoltaic: Rough Estimated Cost: \$35 – 40K.</li> <li>4) Simutech software and computers: Rough Estimated \$14K</li> <li>5.) New Quad Cab 4X4 truck: Estimated Cost: \$ 45K</li> </ol>
<p>Provide details about timeline(s) for procurement and activation/implementation.</p>	<ol style="list-style-type: none"> <li>1) TWO modified double duplex structures: Building renovation of Building #391 estimated completion date, Fall 2018. Preparation of this project starts Feb. 21, 2017, items will be segregated amongst both shops which will include all tools and apparatus.</li> <li>2) Instructional Support Items: ASAP</li> <li>3) Photovoltaic: Fall 2017</li> <li>4) New Quad Cab 4X4 truck: Fall 2017- Spring 2018</li> </ol>
<p>How does this align with the program’s Action Plan above?</p>	<p><b>Action Goal 1</b> aligns to <b><u>Ask Items 2 and 5</u></b> by supplying both shop areas the tools and equipment needed.</p> <p><b>Action Goal 2</b> aligns to <b><u>Ask Item 3</u></b> by giving the program a live system to work on.</p> <p><b>Action Goal 3</b> aligns to <b><u>Ask Item 4</u></b> by giving the program a simulated software system.</p> <p><b>Action Goal 4</b> aligns to <b><u>Ask Item 1</u></b></p> <ol style="list-style-type: none"> <li>1) TWO modified double duplex structures:</li> <li>2) Instructional Support Items:</li> <li>3) Photovoltaic: Hawaii Electric Light Company here on the Big Island of Hawai’i is approaching the 5-megawatt capacity limit set by the state Public Utilities Commission (PUC) for Hawai’i Island. As of this week, the capacity of approved systems under the grid-supply program totals over four megawatts. However, customers will still be able to buy rooftop systems that</li> </ol>

don't export to the grid but still offset a substantial part of their electric bill. Under a Customer Self-Supply option, households are able to generate their own electricity and potentially store energy for use after the sun goes down. The PUC created the self-supply program as an alternative to the grid-supply program. Basically HELCO will no longer accept newer proposed PV systems that "feedback" power supply to the grid (CGS) Customer Grid Supply. Due to this maximum capacity state, HELCO will only accept "Customer Self-Supply" systems. See

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CSS has more added requirements that would increase the materials required to meet compliance such as batteries, charge controllers and a unit to absorb the extra energy produced by the photovoltaic system to deter energy to potentially feeding back to the grid.

DHHL has managed to keep the turn key package for the DHHL Model Home Project to under \$200K. By doing so residence will be deemed as affordable for all qualifying Hawaiian descendants on the list. With the heavy restrictions that Hawaii Electric Light Co. has enforced, the required components such as batteries, charge controllers and an anti-feedback device to deter energy to be feed back to the HELCO secondary power lines would more-than- likely push the Turnkey price to over \$200K.

If funding were to be granted for the budget asks noted in the AY14-16 Comprehensive Review related to this Action Goal, this complete off grid system would fulfill the CLO and PLO's for EIMT 20 and EIMT 43.

[http://hawaii.hawaii.edu/sites/default/files/assets/catalog/docs/11-course\\_listings.pdf](http://hawaii.hawaii.edu/sites/default/files/assets/catalog/docs/11-course_listings.pdf)

(See Pages 124 and 125)

Industry has taken a turn due to the over saturation of HELCO power lines.

The latest alternative is to have Customer Self Supply Systems (CSS) installed to offset fluctuating HELCO fees. This package would then take the place of the DHHL MH Project (PV Installation) and would be transferred to on campus instruction instead, which will fulfill the course description for EIMT 22 and EIMT 43. This new concept is a current trend that will eventually be common for consumers in the state of Hawaii which will possibly entail a future demand.

This budget request is in alignment with Hawaiian Electric's work to replace

	<p>imported oil with renewable resources. They are now 25% renewable. They have a comprehensive plan to reach 48% by the end of the decade in hopes to reduce fossil fuel use and greenhouse gas emissions. Their goals include:</p> <ul style="list-style-type: none"> <li>• Transforming and strengthening the energy delivery network with the latest technology</li> <li>• Working to develop diverse sources of renewable energy</li> <li>• Keeping service safe and reliable</li> <li>• Giving you more choices to help you lower your electric bill.</li> </ul> <p><a href="https://www.hawaiielectriclight.com/Documents/about_us/our_vision/renewable_timeline.pdf">https://www.hawaiielectriclight.com/Documents/about_us/our_vision/renewable_timeline.pdf</a></p> <p>“Our goal is 100 percent renewable energy for electricity by 2045. By achieving this, Hawaii will greatly reduce its dependence on imported oil. This will lower electric bills and provide a cleaner environment for future generations. Hawaii is the first state in the nation to set a renewable energy goal of 100%. But the utilities in Hawaii can't make this happen alone. We must continue with the collaborative efforts that have gotten us this far, involving the utilities, state and local governments, business partners, communities and customers like you.”</p> <p><a href="https://www.hawaiielectriclight.com/about-us/our-vision/100-percent-renewable-energy">https://www.hawaiielectriclight.com/about-us/our-vision/100-percent-renewable-energy</a></p> <p>4) New Quad Cab 4X4 truck: safely transport students, equipment and materials to and from various sites, especially the Model Home Project.</p>
<p>Identify how the item aligns with one or more of the <i>2015-2021 Strategic Directions'</i> four Initiatives.</p>	<p><b>Ask Items 1,2,3, and 5</b> aligns to <b>HGI Action Strategy 1</b> by engaging Hawai'i Island K–12 students, parents, and public and private schools early and often to promote and prepare for college readiness</p> <p><b>Ask Items 1,2,3, and 5</b> aligns to <b>HGI Action Strategy 2</b> by reducing the gaps in college completion for Native Hawaiians and low-income and underrepresented groups.</p> <p><b>Ask Items 1,2,3, and 5</b> aligns to <b>HGI Action Strategy 2</b> by strengthening and aligning assessment, program/unit review, data collection, and data analyses processes to support improved teaching and learning,</p>



	accreditation, and governance and planning.
Discuss how the item will help the program support improvements in student learning and attainment of the program's and College's learning outcomes.	<b>Ask Items 1, 2, and 3</b> will help the program support improvements in student learning and attainment of the PLOs and CLOs by providing another delivery method to teach students. These items will also allow us to assess students with a hands-on, controlled environment.

<b>RESOURCE REQUESTS:</b> <b>For each "budget-ask" item, answer the following questions:</b>	
What are the implications or consequences for the program if this request is not funded?	<p>1) Two modified double duplex structures: The students will share the work area, limiting the hands-on learning.</p> <p>2) Instructional Support Items: The students will share outdated equipment and will have to conserve supplies. This limits the hands-on learning.</p> <p>3) Photo-voltaic: The students will not have a hands-on module to use in lab. We would cover the theory behind PV systems.</p> <p>4) New Quad Cab 4X4 truck: If not funded we would look for ways to find funding to purchase a used truck.</p>
How can the program build, create, or develop the needed resources within its existing capacity?	<p>1) Two modified double duplex structures: A possibility is to find donors for the material and have the Carpentry program put up the structures.</p> <p>2) Instructional Support Items: We will look for possible donors</p>

	<p>to donate the needed equipment and supplies.</p> <p>3) Photo-voltaic: We will look for possible donors who may be able donate items needed to put this training module together.</p> <p>4) New Quad Cab 4X4 truck: We will check with the AMT program to see if there are any donated vehicle that may fit our needs.</p>
<p>Can other resources be re-purposed to accommodate this need?</p>	<p>1) Two modified double duplex structures: no</p> <p>2) Instructional Support Items: no</p> <p>3) Photovoltaic: no</p> <p>4) New Quad Cab 4X4 truck: Possibly AMT can find a used vehicle. We need to check with them.</p>
<p>Are there other sources to fund this need, such as grants, community partnerships, etc.?</p>	<p>We will look into possible donors for all items.</p>
<p>Can this need be deferred? If so, for how long? What are the consequences if deferred?</p>	<p>1) Two modified double duplex structures: We can get away with one modified double duplex structure for a little while, but we will need two so we can support the higher enrollment of the program.</p> <p>2) Instructional Support Items: Of all the items, this is probably the most important. We must support the growth of the</p>

	<p>program and supply the students with the necessary equipment and supplies.</p> <p>3) Photo-voltaic: We would not like to defer on this for too long because we may not be installing PV systems on the model home come next year.</p> <p>4) New Quad Cab 4X4 truck: we can defer this for quite some time if we can find a used vehicle that fits our needs.</p>
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# Hawaii Community College

## 2014 Instructional Annual Report of Program Data

### Electrical Installation & Maintenance Tech

#### Part I: Program Quantitative Indicators

### Overall Program Health: **Healthy**

Majors Included: EMT Program CIP: 46.0302

Demand Indicators		Program Year			Demand Health Call
		11-12	12-13	13-14	
1	New & Replacement Positions (State)	42	61	285	<b>Healthy</b>
2	*New & Replacement Positions (County Prorated)	5	5	27	
3	*Number of Majors	61	65	66.5	
3a	Number of Majors Native Hawaiian	30	26	28	
3b	Fall Full-Time	83%	65%	70%	
3c	Fall Part-Time	17%	35%	30%	
3d	Fall Part-Time who are Full-Time in System	0%	0%	2%	
3e	Spring Full-Time	71%	68%	61%	
3f	Spring Part-Time	29%	32%	39%	
3g	Spring Part-Time who are Full-Time in System	0%	0%	0%	
4	SSH Program Majors in Program Classes	852	900	993	
5	SSH Non-Majors in Program Classes	0	12	0	
6	SSH in All Program Classes	852	912	993	
7	FTE Enrollment in Program Classes	28	30	33	
8	Total Number of Classes Taught	4	4	6	

Efficiency Indicators		Program Year			Efficiency Health Call
		11-12	12-13	13-14	
9	Average Class Size	17.8	19	18.7	<b>Healthy</b>
10	*Fill Rate	88.7%	95%	93.3%	
11	FTE BOR Appointed Faculty	2	2	2	
12	*Majors to FTE BOR Appointed Faculty	30.5	32.5	33.2	
13	Majors to Analytic FTE Faculty	34.3	36.6	33.3	
13a	Analytic FTE Faculty	1.8	1.8	2	
14	Overall Program Budget Allocation	\$149,116	\$142,148	\$168,882	
14a	General Funded Budget Allocation	\$130,766	\$118,976	\$138,084	
14b	Special/Federal Budget Allocation	\$0	\$8,011	\$5,350	
14c	Tuition and Fees	\$18,350	\$13,516	\$25,448	
15	Cost per SSH	\$175	\$156	\$170	
16	Number of Low-Enrolled (<10) Classes	0	0	0	

\*Data element used in health call calculation

Last Updated: January 25, 2015

Effectiveness Indicators		Program Year			Effectiveness Health Call
		11-12	12-13	13-14	
17	Successful Completion (Equivalent C or Higher)	92%	93%	95%	<b>Healthy</b>
18	Withdrawals (Grade = W)	1	1	2	
19	*Persistence Fall to Spring	78.1%	70.4%	84.3%	
19a	Persistence Fall to Fall		42.5%	62.7%	
20	*Unduplicated Degrees/Certificates Awarded	14	18	16	
20a	Degrees Awarded	13	17	14	
20b	Certificates of Achievement Awarded	2	16	15	
20c	Advanced Professional Certificates Awarded	0	0	0	
20d	Other Certificates Awarded	0	0	0	
21	External Licensing Exams Passed	Not Reported	Not Reported	Not Reported	
22	Transfers to UH 4-yr	3	4	1	
22a	Transfers with credential from program	1	0	0	
22b	Transfers without credential from program	2	4	1	

Distance Education: Completely On-line Classes		Program Year			
		11-12	12-13	13-14	
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 2012-2013		Goal	Actual	Met	
29	1P1 Technical Skills Attainment	90.00	82.61	Not Met	
30	2P1 Completion	55.00	73.91	Met	
31	3P1 Student Retention or Transfer	74.50	80.77	Met	
32	4P1 Student Placement	65.00	68.42	Met	
33	5P1 Nontraditional Participation	17.25	4.00	Not Met	
34	5P2 Nontraditional Completion	15.55	0.00	Not Met	

Performance Funding		Program Year			
		11-12	12-13	13-14	
35	Number of Degrees and Certificates		33	29	
36	Number of Degrees and Certificates Native Hawaiian		14	7	
37	Number of Degrees and Certificates STEM		Not STEM	Not STEM	
38	Number of Pell Recipients		44	41	
39	Number of Transfers to UH 4-yr		4	1	

\*Data element used in health call calculation

Last Updated: January 25, 2015

# Hawaii Community College

## 2015 Instructional Annual Report of Program Data

### Electrical Installation & Maintenance Tech

Part I: Program Quantitative Indicators

### Overall Program Health: **Cautionary**

Majors Included: EMT 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	<b>Unhealthy</b>
2	*New & Replacement Positions (County Prorated)	5	27	27	
3	*Number of Majors	65	67	57	
3a	Number of Majors Native Hawaiian	26	28	24	
3b	Fall Full-Time	65%	70%	70%	
3c	Fall Part-Time	35%	30%	30%	
3d	Fall Part-Time who are Full-Time in System	0%	2%	0%	
3e	Spring Full-Time	68%	61%	75%	
3f	Spring Part-Time	32%	39%	25%	
3g	Spring Part-Time who are Full-Time in System	0%	0%	2%	
4	SSH Program Majors in Program Classes	900	993	990	
5	SSH Non-Majors in Program Classes	12	0	0	
6	SSH in All Program Classes	912	993	990	
7	FTE Enrollment in Program Classes	30	33	33	
8	Total Number of Classes Taught	4	6	6	

Efficiency Indicators		Program Year			Efficiency Health Call
		12-13	13-14	14-15	
9	Average Class Size	19	18.7	19	<b>Healthy</b>
10	*Fill Rate	95%	93.3%	95%	
11	FTE BOR Appointed Faculty	2	2	2	
12	*Majors to FTE BOR Appointed Faculty	32.5	33.2	28.5	
13	Majors to Analytic FTE Faculty	36.6	33.3	28.5	
13a	Analytic FTE Faculty	1.8	2	2	
14	Overall Program Budget Allocation	\$142,148	\$168,882	Not Reported	
14a	General Funded Budget Allocation	\$118,976	\$138,084	Not Reported	
14b	Special/Federal Budget Allocation	\$8,011	\$5,350	Not Reported	
14c	Tuition and Fees	\$13,516	\$25,448	Not Reported	
15	Cost per SSH	\$156	\$170	Not Reported	
16	Number of Low-Enrolled (<10) Classes	0	0	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)	93%	95%	95%	Healthy
18	Withdrawals (Grade = W)	1	2	3	
19	*Persistence Fall to Spring	70.4%	84.3%	69.8%	
19a	Persistence Fall to Fall	42.5%	62.7%	51%	
20	*Unduplicated Degrees/Certificates Awarded	18	16	19	
20a	Degrees Awarded	17	14	16	
20b	Certificates of Achievement Awarded	16	15	5	
20c	Advanced Professional Certificates Awarded	0	0	0	
20d	Other Certificates Awarded	0	0	0	
21	External Licensing Exams Passed	Not Reported	Not Reported	Not Reported	
22	Transfers to UH 4-yr	4	1	1	
22a	Transfers with credential from program	0	0	0	
22b	Transfers without credential from program	4	1	1	

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	94.12	Met
30	2P1 Completion	47.00	82.35	Met
31	3P1 Student Retention or Transfer	75.21	88.46	Met
32	4P1 Student Placement	68.92	56.52	Not Met
33	5P1 Nontraditional Participation	17.50	8.33	Not Met
34	5P2 Nontraditional Completion	16.00	6.67	Not Met

Performance Funding		Program Year		
		12-13	13-14	14-15
35	Number of Degrees and Certificates	33	29	21
36	Number of Degrees and Certificates Native Hawaiian	14	7	8
37	Number of Degrees and Certificates STEM	Not STEM	Not STEM	Not STEM
38	Number of Pell Recipients	44	41	41
39	Number of Transfers to UH 4-yr	4	1	1

\*Data element used in health call calculation

Last Updated: October 7, 2015

# Hawaii Community College

## 2016 Instructional Annual Report of Program Data

### Electrical Installation & Maintenance Tech

Part I: Program Quantitative Indicators

#### Overall Program Health: **Cautionary**

Majors Included: EMT    Program CIP: 46.0302

Demand Indicators		Program Year			Demand Health Call
		13-14	14-15	15-16	
1	New & Replacement Positions (State)	285	274	253	<b>Unhealthy</b>
2	*New & Replacement Positions (County Prorated)	27	27	18	
3	*Number of Majors	67	57	54	
3a	Number of Majors Native Hawaiian	28	24	25	
3b	Fall Full-Time	70%	70%	83%	
3c	Fall Part-Time	30%	30%	17%	
3d	Fall Part-Time who are Full-Time in System	2%	0%	0%	
3e	Spring Full-Time	61%	75%	80%	
3f	Spring Part-Time	39%	25%	20%	
3g	Spring Part-Time who are Full-Time in System	0%	2%	0%	
4	SSH Program Majors in Program Classes	993	990	984	
5	SSH Non-Majors in Program Classes	0	0	0	
6	SSH in All Program Classes	993	990	984	
7	FTE Enrollment in Program Classes	33	33	33	
8	Total Number of Classes Taught	6	6	6	

Efficiency Indicators		Program Year			Efficiency Health Call
		13-14	14-15	15-16	
9	Average Class Size	18.7	19	18.7	<b>Healthy</b>
10	*Fill Rate	93.3%	95%	93.3%	
11	FTE BOR Appointed Faculty	2	2	2	
12	*Majors to FTE BOR Appointed Faculty	33.2	28.5	26.7	
13	Majors to Analytic FTE Faculty	33.3	28.5	26.8	
13a	Analytic FTE Faculty	2	2	2	
14	Overall Program Budget Allocation	\$168,882	Not Reported	Not Yet Reported	
14a	General Funded Budget Allocation	\$138,084	Not Reported	Not Yet Reported	
14b	Special/Federal Budget Allocation	\$5,350	Not Reported	Not Yet Reported	
14c	Tuition and Fees	\$25,448	Not Reported	Not Yet Reported	
15	Cost per SSH	\$170	Not Reported	Not Yet Reported	
16	Number of Low-Enrolled (<10) Classes	0	0	0	

\*Data element used in health call calculation

Last Updated: January 18, 2017



Effectiveness Indicators		Program Year			Effectiveness Health Call
		13-14	14-15	15-16	
17	Successful Completion (Equivalent C or Higher)	95%	95%	86%	<b>Healthy</b>
18	Withdrawals (Grade = W)	2	3	7	
19	*Persistence Fall to Spring	84.3%	69.8%	88.4%	
19a	Persistence Fall to Fall	62.7%	51%	46.1%	
20	*Unduplicated Degrees/Certificates Awarded	16	19	18	
20a	Degrees Awarded	14	16	13	
20b	Certificates of Achievement Awarded	15	5	16	
20c	Advanced Professional Certificates Awarded	0	0	0	
20d	Other Certificates Awarded	0	0	0	
21	External Licensing Exams Passed	Not Reported	Not Reported	N/A	
22	Transfers to UH 4-yr	1	1	1	
22a	Transfers with credential from program	0	0	1	
22b	Transfers without credential from program	1	1	0	

Distance Education: Completely On-line Classes		Program Year		
		13-14	14-15	15-16
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 2014-2015		Goal	Actual	Met
29	1P1 Technical Skills Attainment	91.00	95.24	Met
30	2P1 Completion	50.30	76.19	Met
31	3P1 Student Retention or Transfer	76.72	85.19	Met
32	4P1 Student Placement	69.00	88.24	Met
33	5P1 Nontraditional Participation	19.69	8.00	Not Met
34	5P2 Nontraditional Completion	19.36	11.11	Not Met

Performance Measures		Program Year		
		13-14	14-15	15-16
35	Number of Degrees and Certificates	29	21	29
36	Number of Degrees and Certificates Native Hawaiian	7	8	14
37	Number of Degrees and Certificates STEM	Not STEM	Not STEM	Not STEM
38	Number of Pell Recipients	41	41	32
39	Number of Transfers to UH 4-yr	1	1	1

\*Data element used in health call calculation

Last Updated: January 18, 2017