

Electrical Installation and Maintenance Technology Program - (EIMT)

Writer: R. Dela Cruz, Assistant Professor



2020

ANNUAL REPORT OF PROGRAM DATA



UNIVERSITY of HAWAII®
HAWAII
COMMUNITY COLLEGE

1. Electrical Installation and Maintenance Technology Program

Program or Unit Mission or Purpose Statement

THE ELECTRICAL INSTALLATION AND MAINTENANCE TECHNOLOGY 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.

What is the target student or service population?

The target student population is in alignment with the college's "open door policy" with no reservation to race, color, religion, gender, sex preference, etc. Program faculty will teach anyone who earnestly wants to learn and who wants to better their life by successfully completing the EIMT two-year AAS degree or CA. By doing so, their chances of getting a job are very favorable.

The program notes that maximum enrollment each Fall is normally capped at twenty (20) seats. However, in Fall 2020, the program was recommended to reduce the intake of new students down to fourteen (14) due to COVID-19. The program responded by lowering the cap to seventeen (17), taking into account the possible attrition rate.

2. Analysis of the Program/Unit

Discuss the Program's or Unit's strengths and areas to improve in terms of Demand, Efficiency, and Effectiveness based on an analysis of the program's Quantitative Indicators or comparable unit-developed measures or program-developed metrics. Include a discussion of relevant historical-trend data on key measures (i.e., last three years).

Demand Indicators: Healthy

The strength of the EIMT program is its track record of "demand" which has been consistent throughout the past three years.

The number of Majors/Native Hawaiian has been positive with 78% - 84% Full Time enrollment.

The program believes there is an error on line # 8 "Total Number of Classes Taught," which lists "5" for all three years. EIMT core primary classes are four (4): EIMT 20, 22, 41 & 43, with no summer classes.

Efficiency Indicator: Healthy

Fill rates are positive with 88% -94%.

(NOTE: the cohort graduates of the faculty member writing this Review, R. Dela Cruz, are listed in Spring 2018 & Spring 2020.)

Effectiveness Indicators: Healthy

Degrees Awarded noted on line 20a show positive graduation numbers of 17 degrees awarded to the cohort taught by this Review's faculty writer in AY18 and AY20.

Certificates of Achievements (line 20b) were also positive for this faculty member's last two cohorts at 16 & 18 respectively.

Distance Indicators:

N/A

Instructional programs must include ARPD health indicators with benchmarks to provide a quick view on the overall condition of the program; CTE programs must include an analysis of Perkins Core indicators for which the program did not meet the performance level.

Perkins Indicators:

The EIMT program has received "Not Met" rating for "Technical Skills Attainment". Goal 94.75, Actual 91.67, which reflects the margin of a 3.08 difference. This margin may or may not have anything to do with this Review writer's cohort, as there are two separate EIMT instructors with separate cohort groups and the data does not reflect this program operational formation.

2P1 Completion, 3P1 student Retention or Transfer and 4P1 Student Placement, all have "Met" status.

5p1 Nontraditional Participation and 5P2 Nontraditional Completion have reflected a "Not Met" status. Even with a female instructor, it has been difficult to attract enough female students to meet the national Perkins goal for gender parity in our program.

In terms of improvement, I need to find ways to attract more females into this principally male-dominated trade. Being a female instructor and an active Electrical Contractor has not been easy, as I've experienced resistance by some male and more traditional industry counterparts. Nevertheless, I have actively participated alongside my EIMT students at various Career Fairs out in the community to promote our program, especially to prospective female students. This has been a personal ongoing goal for me and I will try my best to continue to positively encourage and mentor females to succeed in this male dominated trade.



Construction Career Fair 2019 @ Civic Auditorium Grounds

Graduates from the EIMT program have been successful in finding job placements. The average percentage of job employment has been approximately 80% successful. I have maintained contact with my graduates after graduation to track their employment status within the electrical field.

Discuss significant program or unit actions (new certificate(s), stop outs, gain/loss of position(s), results of prior year's action plan, etc.). Include external factors affecting the program or unit.

There were plans in motion for restructuring the EIMT program to start two separate CA cohorts, each to be led by one of the program's FTE BOR Appointed faculty members. One CA would have been focused on Residential and Theory instruction along with a live Department of Hawaiian Homes Land "Model Home" project, which was to have been my cohort and instructional focus. In this plan, this cohort division would have been repeated every year. In the plan, the other FTE BOR Appointed faculty member would instruct a separate cohort in the Commercial-Industrial Wiring course. This new reconstructed plan initially was set to be in effect in Fall 2020.

Unfortunately, this plan was not implemented due to the last-minute reconsideration of the other faculty member. The program therefore continues with two separate EIMT cohorts, each led by one of the program's two faculty members, each of whom provides both Residential and Commercial instruction. We will continue to seek avenues to make necessary on-going improvements in our program for the benefit of our EIMT students.

<https://uhcc.hawaii.edu/varpd/index.php?y=2020&c=HAW&t=CTE&p=2092>

This writer notes that the UHCC System-provided ARPD data table (see URL above) combines unseparated data for the cohorts of both EIMT instructors. This Review therefore should be considered to reflect only this writer's assigned areas of instruction and responsibility.

3. Program Student Learning Outcomes or Unit/Service Outcomes

- a) *List of the Program Student Learning Outcomes or Unit/Service Outcomes*
- b) *Program or Unit/Service Outcomes that have been assessed in the year of this Annual Review.*
- c) *Assessment Results.*
- d) *Changes that have been made as a result of the assessment results.*

A.) Program Learning Outcomes:

Upon successful completion, students are prepared to:

- Accurately demonstrate entry-level skills in residential, commercial, and industrial electrical installation and maintenance.
- Practice safety on the job and recognize potential hazards.
- Interpret and comply with the National Electrical Code NFPA 70 book and local codes.

- Read and interpret all sections of blueprints and draft electrical circuits.
- Integrate carpentry, masonry, plumbing, and HVACR systems with electrical installation and maintenance.
- Produce take-off lists, perform layout, and install new materials for existing and new projects.
- Think critically, do research, calculate minimum requirements, and solve problems.
- 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.

B.) During AY19-20, this Review's writer, R. Dela Cruz, was the instructor and assessor for EIMT 41 in Fall 2019 and EIMT 43 in Spring 2020. This cohort of EIMT students completed multiple conduit bending exercises that consisted of ninety-degree bending, back-to-back ninety-degree bending, off-set bending, kicks, three-bend saddles, four-bend saddles, and concentric layouts, along with conduit fill, motor control wiring, concrete slab rough-in, etc.

The students' artifacts for the assessment of these courses normally would have been related to the completion of the Department of Hawaiian Homeland Model Home # 53. This project is located at 371 Lauae Yung Avenue, TMK 2-1-021-111. This project covered detailed requirements listed in the EIMT's CLOs and related PLOs. Students initially had constructed and erected a 100-amp-rated temporary pole on the Mode Home Job site to provide all working tradesmen with temporary power. This temp power pole was completed prior to the framing completion of the project. The pole was dressed with conduits instead of traditional open service cables, and was incorporated to address new course lessons for conduit bending and conduit fill that were outlined in EIMT 41 and EIMT 43 CLOs. Another change added to Ms. Dela Cruz's fourth semester EIMT 43 instruction was a concrete slab rough-in with conduits.

Due to COVID-19, the finishing stages of the DHHL Model Home project were open only to limited numbers of students who voluntarily participated. Rotating groups were assigned to take turns in completing tasks such as installation of fixtures and devices, including circuit breakers, receptacle outlets, switches, Ethernet patch cords for the Enphase Photovoltaic Communication lines, and fittings that were made on site for the Photovoltaic system that included 20 modules, all of which were installed and tested by the students.

C.) No assessment results could be finalized or reported for this Review period. During Fall 2019, the EIMT Program was working on plans to restructure the overall curriculum and offerings (see p. 4). Although this reorganization plan ultimately was not implemented, the Fall 2019 planning phase resulted in uncertainty about who would be conducting the AY19-20 assessments. Thus, this Review writer was unable to comply with the program's normal assessment protocols that semester.

In addition, due to the Covid pandemic, the College suspended all course assessments for Spring 2020. As a consequence, no assessments were conducted during AY19-20.

However, I do have confirmation that 16 out of my 20 graduates are currently employed with jobs in the Electrical field. This data comes out to 80% employment of graduates, which is a positive outcome to confirm that my graduates are competent and are starting their planned careers upon successful completion of the AAS degree. Only four students in the cohort have not found employment in the electrical field after Spring 2020 graduation and/or are not currently employed: student #1 is currently enrolled in the Carpentry Program here at Hawai'i CC; student #2 works with his dad's construction company but utilizes his electrical knowledge to conduct electrical repairs and troubleshooting tasks; student #3 works for a food delivery company, which is in high demand due to COVID-19; and student #4 is not currently employed in the industry due to personal reasons.

D.) Due to the initial changes that were set in motion for separating the EIMT program into two cohorts with separate foci for the CA, plans were in preparation for this writer to take on the DHHL Model Home Project every year with Residential Wiring and Theory as the assigned instructional focus. Since this plan was abandoned in mid-year without implementation, no assessment data can be provided in this APR for AY19-20. This faculty members will continue to work on her next round of scheduled assessments, focusing on EIMT 41 in Fall 2021 and EIMT 43 in Spring 2022. Full assessment cycles have been completed for the program's other two courses, EIMT 20 and EIMT 22, in previous years.



DHHL MH # 53 Slab Rough In, EIMT 43

2020 Hawai'i Community College ARPD
Program: EIMT



20 Modules: 5.8 KVA AC / 6 KW DC PV System



Photovoltaic system, MH # 43



Conduit Bending EIMT 43



Temporary Pole MH #53 - EIMT 41 Fall 2019



Rough In @ MH #53 EIMT 43

4. Action Plan:

Based on findings in Parts 1-3, develop an action plan for your program or unit from now until your next Comprehensive Review date. Be sure to focus on areas to improve identified in ARPD data, student learning or unit/service outcomes, results of survey data, and other data used to assess your program or unit. This plan should guide your program/unit through to the next program/unit review cycle and must detail measurable outcomes, benchmarks and timelines. Include an analysis of progress in achieving planned improvements.

** CTE programs must include specific action plans for any Perkins Core Indicator for which the program did not meet the performance level.*

Perkins Indicators that require improvements are “Technical Skills Attainment,” as addressed on page #3. I will continue to improve my instructions with campus-based lab assignments to prepare my students to execute similar assignments on the next DHHL Model Home Project. Assignments and lab projects infused with the live project will be adjusted to reflect all CLO’s based on the current semester of instruction.

The second Perkins Indicators that requires improvement is our “Nontraditional Participation” rate. As mentioned on page #3, I will continue to try to be a good female mentor, instructor and confidant using my Electrical Contractor background to assist my female students along with all other students. My last past cohort that recently graduated in Spring 2020 included one female who graduated with her initial cohort. My current new cohort that just started in Fall 2020 includes two female students. I will earnestly work with them through these next two years to equip them to be successful and competent in their field of study and beyond.

Specify how the action plan aligns with the College’s Mission and Strategic Plan.

The College’s mission statement is, *“To promote lifelong learning, Hawai’i Community College will emphasize the knowledge and experience necessary for Kauhale members to pursue academic achievement and workforce readiness. Aligned with the mission of the UH Community Colleges, we are committed to serving all segments of our Hawai’i Island community”.*

My EIMT students will be conducting various assignments along with hands-on assignments that reflect the current state of our industry and are compliant with the latest edition of the National Electrical Code (NEC). By being actively engaged in new technology and diligent in updating my professional development initiatives, I will be leading my students to perform new methods of wiring various devices and equipment to equip them to be aware of current workforce standards. *“We are lifelong learners. As technology advances overnight, we never stop learning. If we do, we will be left “in the dark.”* I consistently remind my students of this truth about our industry, and they witness me constantly researching new apparatus and techniques in the electrical field on a regular basis.

Discuss how these recommendations for improvement or actions will guide your program or unit until the next Comprehensive Review. Be sure to list resources that will be required, if any, in section 5 below.

Over my many years teaching at the College, I have experienced numerous changes that I have had to accept and adapt too. The fall-out from the abrupt rejection of the EIMT program restructuring proposal is just one of the many examples of changes that have put pressure on my ability to maintain normal instruction strategies and program planning for improvement. However, such uncertainty is my normal. I believe that being flexible and diligent are great assets to possess to be successful in any field or profession. Leading by example is one of the cornerstones of my teaching

strategy. My hope for my students is for them to apply my example and to find ways to be flexible in life in the face of challenges and changes.

**The action plan may be amended based on new initiatives, updated data, or unforeseen external factors.*

As mentioned above and throughout this APR, due to the challenge of constantly having to adapt to new programmatic and teaching arrangements, I expect there may be unforeseen external factors that will be beyond my control. However, I will be diligent and will adjust to ensure that my students will be adept and knowledgeable and will have a smooth transition into the workforce.

5. Resource Implications

Detail any resource requests, including reallocation of existing resources (physical, human, financial)

My cohort actively participates in the DHHL Model Home project, which requires a reliable operable truck, preferably one with pipe racks. The current truck assigned to the EIMT program is very old, which results in numerous repairs beyond what our budget allows (we have no budget at this current time). It is imperative that we have a safe operable truck to haul students and materials to and from the live project worksite. We, along with Carpentry and Construction Academy, share vehicles when needed, but sometimes we have conflicting schedules where we are unable to share shop vehicles.

I am requesting that the College replace our outdated and increasingly-unsafe shop truck. At this time, we have placed a request to have our shop truck be assessed by the Automotive Mechanics Technology program and recommend whether we should keep it, scrap it, or try to repair it with no funds available.

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