Electronics Technology

2020
ANNUAL REPORT OF PROGRAM DATA

UNIVERSITY of HAWAI'I®
HAWAI'I
COMMUNITY COLLEGE

1. Program or Unit Description

This program prepares students for employment in telecommunications, utility, manufacturing medical electronics, computers, and networking. The electronic technician fabricates, installs, maintains, and repairs electronic equipment. Students applying to the electronics program should have two years of high school math including geometry or algebra, and two years of high school science including chemistry or physics.

The target student population is students seeking a 2-year program in electronics technologies who would possess the desire to solve puzzles and have an interest in technologies.

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).
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. 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.

The STRENGTHS of the program are growing. Working with Maui College, has resulted in a 2 + 2 pathway for our students that will be available in 2021. When they've completed the HawaiiCC program, our students then can move on to Maui College and continue on to a BS degree in Engineering Technology (ENGT). Grant work has been a new endeavor for us and looks promising. We are working with the Hawaii Community College Agriculture Department on a high-tech growing system. We will be working with Lew Nakamura and his students constructing a mobile vertical high tech modular growing system. In addition, some of our students are going to Florida to compete in the NASA Robotic Mining Competition, where they will compete against some of the largest universities and meet engineering representatives as well. Our Advisory Committee is growing. When the current program coordinator started 5 years ago, there was 1 company representative and the Council's last meeting (6 February 2020) had 11 industry representatives. Locally, more companies are interested in our program. Based on the conversations with our Advisory Council representatives, there were 17 job openings available locally for our 6 graduating students.

The WEAKNESS in the program is still trying to find the students who have an interest in the technologies field. A further struggle is convincing women that this is an industry for them as well. COVID has really hurt the momentum of the program. Last semester the students were cheated out of the experience of their final semester and graduation due to COVID. This is a face-to-face program and due to the potential exposure, possibly new enrollment also suffered.

The DEMAND Indicators are problematic as usual. I can't speak to the State numbers, but based on the conversations with our advisory representatives, during our last local Advisory meeting, there were 17 jobs available in the telecommunications and observatory industries. The Fall and Spring semester full-time and part-time student data are incorrect as well. This is due to the mixing of EIMT and the ETRO students in the ETRO 120 course. The typical size for the EMIT group is between 20 to 30 students and occurs every Fall semester.

The EFFICIENCY Indicators are a constant challenge. The fill-rate is low but the job-rate is excellent and the wages are very good. Challenges include expanding our exposure and that is being worked on by the program coordinator. The military is grabbing up some students before they graduate, as well. Our persistence is good at 89%. The program loses very few students. The losses are typically due to students' having financial pressures or getting jobs before graduation.

EFFECTIVENESS Indicators demonstrate a very good success rate at 94%, very few withdrawals, and solid persistence. However, the degrees awarded count doesn't look correct, it looks low based on our program's records. For example, 2018-19 shows 0 when we graduated 5 students and one was recruited into an electronics position with the Air Force. Although the one student left without the degree, he ended up going into the field of choice. I call that a win.

DISTANCE Indicator does not apply, the program is face-to-face.

PERKINS Indicator shows a great number for attaining technical skills. The grant from Perkins had a huge influence in this outcome. The student retention is very good as well. There may not be a large number of students but they are typically dedicated. The 4P1 indicator shows the military influence. The students do very well on their testing in the technical areas and the military offers big bonuses and some students take their offer. The 5P1 nontraditional participation is a constant struggle.

PERFORMANCE Because the program is offered to students in two-year cohorts and only graduates students every two years, the Performance Indicators will always be skewed on a bi-annual basis.

[ARPD data table: https://uhcc.hawaii.edu/varpd/index.php?y=2020&c=HAW&t=CTE&p=2093]

3. Program Student Learning Outcomes

a) *PROGRAM LEARNING OUTCOMES (PLOs)*
Upon successful completion, students are prepared to:
1. Specify, design, build, install, program, operate, troubleshoot, analyze, and modify electronics systems, automated test, and manufacturing control systems.
2. Specify, install, program, operate, troubleshoot, and modify computer systems.
3. Have effective written, interpersonal, presentation, and team building skills.

4. Have the necessary leadership and management skills to effectively complete a project.
5. Have a well-developed sense of work ethics and personal discipline to succeed in their chosen profession.
6. Have attitudes, abilities, and skills required to adapt to rapidly changing technologies and a desire for life-long learning.

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

Due to the complete program redesign that was implemented beginning in Fall 2019 that included revision of the program's curriculum, the program also instituted a new assessment cycle for all courses. This new cycle provides a one-year hiatus from active assessment, AY19-20, to allow for the new curriculum to be put in place. The program's assessment schedule restarts active assessment beginning in Fall 2020 with Initial assessments of ETRO 120, 120L, 140, 143 and 143L; in Spring 2021, the program is scheduled to conduct Initial assessments of ETRO 122, 122L and 240B; all other program courses will be assessed in Fall 2021 and Spring 2022 per the program's master assessment schedule as published in the [HawCC Master Assessment Schedule for Programs and Courses](#).

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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.
Specify how the action plan aligns with the College's Mission and Strategic Plan.
http://hawaii.hawaii.edu/sites/default/files/assets/docs/strategic-plan/hawcc-strategic-directions-2015-2021.pdf
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.*
The action plan may be amended based on new initiatives, updated data, or unforeseen external factors.

My primary action plan continues to be "Recruit more students." One new approach I'm working on is to create YouTube projects demonstrating electronic concepts. Most of my students found us through the internet and not so much through our other outreach attempts. Expanding in this direction seems to make sense. This will also be a gateway to demonstrate our projects like the NASA Robotics Mining Competition and our work with high tech growing with the HawCC Agriculture Program via the internet.

More assessments also need to happen to align with the College's and UHCC System requirements. I now have one cohort complete on the new program and this fall will be assessing 4 courses (see Part 3 above). I assess formatively on a daily basis to understand how my students are comprehending the information that I give them. Summative assessment reporting is still a challenge when I'm still trying to find the balance in the point structure for grades and just how much information can be passed successfully and efficiently.

With the new current program changes, I'm finding my students are being more productive and effective in construction of new assignments. The Perkins numbers should improve just because there will be more information accrued. The students that I have graduated in the past all have been successful either finding work or continuing on for a higher degree.

5. Resource Implications

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

An item that would be most helpful would be to attend an industrial professional development conference either for communication technology or industrial controls on an annual or biannual basis.

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