Electronics Technology

**ANNUAL**
REPORT OF PROGRAM DATA
**2021**

UNIVERSITY *of* HAWAI'I®
**KAUA'I**
COMMUNITY COLLEGE

## 1. Program or Unit Description

The Program's mission is to produce graduates who are technically competent, can communicate and work with others effectively, demonstrate responsible citizenship, leadership and an awareness of the global context of their work.

The graduates of this program serve the technology needs of this island. The program is the only source of technical training on the island and it therefore serves a vital role in the community. Graduates are employed by subcontractors to the Navy Base, PMRF, or by local employers such as Pacific Communications, ASCM, Spectrum, Hawaii Telecom, Xerox, and various computer and IT positions needed in commerce or tourism. (These are the employers of the past four years.) The demand for graduates is greater than the current supply, with students often being hired before they graduate. The program provides a broad training which includes electronics, mechanics, programming, and networking.

## 2. Analysis of the Program/Unit

A discussion the Program'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 follows.

Demand indicators provided by the UH system with one CIP code state 1 (one) county prorated job is available, and the program Needs Attention. Fortunately, this year the Demand Indicator recognizes that relying on county jobs only provides insufficient data to assess true local demand. This program maintains contact with graduates and local employers, so the program is able to report that all the graduates get employed. Furthermore, the local high tech employers come to the program building and try to recruit students for technician positions even before they graduate. The demand is far greater than the number of students graduating from the program. For example, the prior ARPD reported 20 technician openings, and for this ARPD at least 10 requests for technicians can be documented. This program believes the Needs Attention indicator for Demand is inaccurate.

Efficiency Indicator is healthy, because enrollment is up, but there is a reduction in FTE BOR appointed faculty from 2 to 1. This may indicate financial healthiness, but is not sustainable.

The 2019 -20 year was the last year with two instructors. One instructor retired and no replacements are permitted during the pandemic. Only having one instructor is creating a strain on the program, the sole instructor, and the students by forcing students to take some classes as distance education. Since there can be no replacement for hands-on education, which is required to teach electronics, forcing distance classes has lowered the quality of the education and the control on the program learning outcomes. Furthermore, the program is at risk as finding lecturers has been very difficult, if not impossible (see Fall 2021), and this program can not be sustained by only one instructor.

| # | Demand Indicators | 2018 - 19 | 2019 - 20 | 2020 - 21 | Demand Health |
|---|---|---|---|---|---|
| 1. | New & Replacement Positions (State) | 86 | 71 | 50 | |
| 2.* | New & Replacement Positions (County Prorated) | 1 | 1 | 1 | |
| 3. | Number of Majors | 16 | 17 | 21 | |
| 3a. | Number of Majors Native Hawaiian | 5 | 4 | 5 | |
| 3b. | Fall Full-Time | 22% | 58% | 50% | |
| 3c. | Fall Part-Time | 78% | 42% | 50% | |
| 3d. | Fall Part-Time who are Full-Time in System | 6% | 0% | 0% | |
| 3e. | Spring Full-Time | 50% | 47% | 56% | Needs Attention |
| 3f. | Spring Part-Time | 50% | 53% | 44% | Insufficient Data County Level |
| 3g. | Spring Part-Time who are Full-Time in System | 0% | 7% | 0% | |
| 4. | SSH Program Majors in Program Classes | 167 | 176 | 203 | |
| 5. | SSH Non-Majors in Program Classes | 85 | 87 | 109 | |
| 6. | SSH in All Program Classes | 252 | 263 | 312 | |
| 7. | FTE Enrollment in Program Classes | 8 | 9 | 10 | |
| 8. | Total Number of Classes Taught | 11 | 9 | 10 | |

NOTE: New & Replacement jobs updated ([View Methodology](#)).

| # | Efficiency Indicators | 2018 - 19 | 2019 - 20 | 2020 - 21 | Efficiency Health |
|---|---|---|---|---|---|
| 9. | Average Class Size | 8 | 9 | 11 | |
| 10.* | Fill Rate | 54.5% | 60% | 71.9% | |
| 11. | FTE BOR Appointed Faculty | 2 | 2 | 1 | |
| 12.* | Majors to FTE BOR Appointed Faculty | 8 | 9 | 21 | |
| 13. | Majors to Analytic FTE Faculty | 16 | 17 | 21 | |
| 13a. | Analytic FTE Faculty | 1 | 1 | 1 | |
| 14. | Overall Program Expenditures | $188,238 | $183,957 | $0 | Healthy |
| 14a. | General Funded Budget Allocation | $152,102 | $155,398 | | |
| 14b. | Special/Federal Budget Allocation | 0 | 0 | | |
| 14c. | Tuition and Fees | $36,136 | $28,559 | | |
| 15. | Cost per SSH | | | | |
| 16. | Number of Low-Enrolled (<10) Classes | 5 | 5 | 2 | |

| # | Effectiveness Indicators | 2018 - 19 | 2019 - 20 | 2020 - 21 | Effectiveness Health |
|---|---|---|---|---|---|
| 17. | Successful Completion (Equivalent C or Higher) | 92% | 88% | 79% | |
| 18. | Withdrawals (Grade = W) | 0 | 0 | 7 | |
| 19.* | Persistence Fall to Spring | 69% | 67% | 71% | |
| 19a. | Persistence Fall to Fall | 62% | 44% | 41% | |
| 20.* | Unduplicated Degrees/Certificates Awarded | 11 | 10 | 7 | |
| 20a. | Degrees Awarded | 5 | 2 | 3 | |
| 20b. | Certificates of Achievement Awarded | 5 | 1 | 3 | Progressing |
| 20c. | Advanced Professional Certificates Awarded | 0 | 0 | 0 | |
| 20d. | Other Certificates Awarded | 10 | 15 | 8 | |
| 21. | External Licensing Exams Passed [1] | | | | |
| 22. | Transfers to UH 4-yr | 0 | 3 | 0 | |
| 22a. | Transfers with credential from program | 0 | 1 | 0 | |
| 22b. | Transfers without credential from program | 0 | 2 | 0 | |

Program: Enter Program or Unit Name
[1] Campus to include in program analysis if applicable.

| # | Distance Indicators | 2018 - 19 | 2019 - 20 | 2020 - 21 | |
|---|---|---|---|---|---|
| 23. | Number of Distance Education Classes Taught | 0 | 0 | 1 | |
| 24. | Enrollments Distance Education Classes | 0 | 0 | 11 | |
| 25. | Fill Rate | 0% | 0% | 100% | |
| 26. | Successful Completion (Equivalent C or Higher) | 0% | 0% | 91% | |
| 27. | Withdrawals (Grade = W) | 0 | 0 | 0 | |
| 28. | Persistence (Fall to Spring Not Limited to Distance Education) | 0% | 0% | 91% | |

| # | Perkins Indicators | Goal | Actual | Met | |
|---|---|---|---|---|---|
| 29. | 1P1 Postsecondary Placement | 33 | 100 | Met | |
| 30. | 2P1 Earned Recognized Credential | 33 | 76.92 | Met | |
| 31. | 3P1 Nontraditional Program Concentration | N/A | N/A | N/A | |
| 32. | Placeholder - intentionally blank | N/A | N/A | N/A | |
| 33. | Placeholder - intentionally blank | N/A | N/A | N/A | |
| 34. | Placeholder - intentionally blank | N/A | 0 | N/A | |
| | | | | | |

| # | Performance Indicators | 2018 - 19 | 2019 - 20 | 2020 - 21 | |
|---|---|---|---|---|---|
| 35. | Number of Degrees and Certificates | 10 | 3 | 6 | |
| 36. | Number of Degrees and Certificates Native Hawaiian | 1 | 0 | 0 | |
| 37. | Number of Degrees and Certificates STEM | 11 | 3 | 6 | |
| 38. | Number of Pell Recipients[1] | 8 | 2 | 3 | |
| 39. | Number of Transfers to UH 4-yr | 0 | 3 | 0 | |

\* Used in Rubric to determine Health Indicator
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## 3. Program Student Learning Outcomes or Unit/Service Outcomes

a) List of the Program Student Learning Outcomes or Unit/Service Outcomes
   a. Demonstrate analysis, design, and measuring of digital circuits and digital logic fundamentals.
   b. Demonstrate practical knowledge of computer hardware, software, and operating systems.
   c. Develop skill with algorithmic thinking and demonstrate computer programming language fundamentals such as variables, decision structures, conditional statements, data types and data structures, iterations, and functions.
   d. Demonstrate building and configuring internet networks.
   e. Demonstrate theoretical and applied knowledge of passive and active electronics components and circuits used in DC and AC electronics.
   f. Demonstrate soldering, desoldering, circuit board layout, circuit board fabrication, cable and connector fabrication, electronic component identification and associated test and measurement principles.
   g. Understand and safely apply the physics of light, laser safety, geometric optics, lenses, mirrors, polarizing lenses, interference/diffraction waves, laser physics, optical imaging.
   h. Communicate effectively orally, in writing, and by means of the various electronic communication devices.
b) Program or Unit/Service Outcomes that have been assessed in the year of this Annual Review. PSLOs e, f, and g are assessed in this review.
c) Assessment Results.
   The courses which map to the PSLOs were examined for checking the achievement of the Program Learning Objective. An objective is considered met if students overall achieved 70% of the objective. The results are summarized below.

| PSLO | Course mapping | % of students achieving > 70% | PSLO met/unmet |
|------|----------------|-------------------------------|----------------|
| e | ETRO 105 and 106 | 91 to 100 | met |
| f | ETRO 101 | 75 | met |
| g | ETRO 161 | 91 | met |

d) Changes that have been made as a result of the assessment results. No changes are being made. Upon examination of the course details, the reason students do not make the objective is they failed to complete the course or the assessments. Those who generally complete all the assessments, generally achieved the objective.

## 4. Action Plan

The action plan is always to improve recruiting of students, since the program enrollment is not meeting the graduation needs of the community. The program does not have high enrollment, and students at the high schools are not aware of this lucrative career path. Yet, the students are in very high demand from the local employers, often being hired before they graduate. An action plan needs to include marketing and education to the high schools to improve enrollment. This will also likely improve Perkins core indicators. However,

with only one instructor, grant writing and implementation, as well as marketing efforts, remain challenging.

It is unclear if two instructors will teach this program in the future, due to the pandemic. With this in mind, courses are now being shared across the system. While necessary, increasing on-line delivery lowers the quality of education for this program. A second instructor is needed. Just hiring lecturers is also insufficient, as lecturers usually just teach their courses and leave, and they do not contribute to overall program maintenance.

## 5. Resource Implications

A second FTE instructor is needed for this program. The course teaching load is too heavy and the maintenance of the program resources (test and measurement equipment, fabrication equipment) is too time consuming for one instructor.

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

## 6. Optional: Edits to Occupation List for Instructional Programs

Review the Standard Occupational Classification (SOC) codes listed for your Instructional Program and verify that the occupations listed align with the program learning outcomes. Program graduates should be prepared to enter the occupations listed upon program completion. Indicate in this section if the program is requesting removal or additions to the occupation list.

☐ **I am requesting changes to the SOC codes/occupations listed for my program/unit.**