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

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College: Kauai Community College Program: Electronics Technology

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

<http://www.hawaii.edu/offices/cc/arpd/instructional.php?action=analysis&college=KAU&year=2014&program=93>



Program Description

The Electronics Technology program at Kaua`i Community College was created to meet the demand for technicians on the island of Kaua`i. The curriculum offers basic electronics, computer maintenance, programming and networking technologies (IT, Information Technology) courses enabling graduates to qualify for entry-level technician or IT positions. Elective courses in advanced networking are offered through the embedded Cisco Networking Academy Program. Courses in fiber optics, RF, and photonics are also offered on an irregular schedule. Students leaving the program or completing and exiting by means of the COM (Certificate of Competence), CC (Certificate of Completion), CA (Certificate of Achievement), and/or the AS (Associates in Science) degree fulfill basic competencies enabling entry into the variety of jobs requiring knowledge of advanced technology.

AS degree graduates may seek electronics technician positions or may choose to continue their education at baccalaureate electronics or computer engineering technology programs. University of Hawaii Maui College offers a BAT (Bachelors in Applied Technology) in Electro-optics and the program has articulated many of its courses with this program.

The instructional plan emphasizes competency-based learning, critical thinking skills, and attention to quality. Electronic and computer networking principles are re-enforced by extensive hands-on learning in the laboratory and by participation in projects or internships. The projects provide contextual learning in an environment which closely resembles work experiences in the industrial sector. An internship at one of the high tech companies or a capstone-like experience is a requirement for graduation.

In comparing KauCC and the Electronics Technology Program Mission Statements it is clear that this program strives to educate and train students to be successful. Emphasis is placed on technical knowledge and skills as well as personal skills.

The Electronics Technology Program Mission Statement: 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.

Kaua`i Community College Mission Statement: Kaua`i Community College provides open access education and training in an ethical and innovative student-centered and community-focused environment, nurturing life-long learners who appreciate diversity and lead responsible and fulfilling lives.

Part I. Quantitative Indicators

Overall Program Health: **Cautionary**

Majors Included: ET Program CIP: 15.0303

Demand Indicators		Program Year			Demand Health Call
		12-13	13-14	14-15	
1	New & Replacement Positions (State)	11	13	13	Unhealthy
2	*New & Replacement Positions (County Prorated)	0	0	1	
3	*Number of Majors	38	45	44	
3a	Number of Majors Native Hawaiian	14	12	13	
3b	Fall Full-Time	34%	49%	43%	
3c	Fall Part-Time	66%	51%	57%	
3d	Fall Part-Time who are Full-Time in System	14%	4%	4%	
3e	Spring Full-Time	43%	40%	33%	
3f	Spring Part-Time	58%	60%	67%	
3g	Spring Part-Time who are Full-Time in System	8%	13%	2%	
4	SSH Program Majors in Program Classes	330	455	401	
5	SSH Non-Majors in Program Classes	303	352	383	
6	SSH in All Program Classes	633	807	784	
7	FTE Enrollment in Program Classes	21	27	26	
8	Total Number of Classes Taught	27	23	21	

Efficiency Indicators		Program Year			Efficiency Health Call
		12-13	13-14	14-15	
9	Average Class Size	8.1	11.8	12.3	Healthy
10	*Fill Rate	60.1%	73.6%	74%	
11	FTE BOR Appointed Faculty	1	2	2	
12	*Majors to FTE BOR Appointed Faculty	37.5	22.2	22	
13	Majors to Analytic FTE Faculty	13.0	18.2	19.5	
13a	Analytic FTE Faculty	2.9	2.4	2.3	
14	Overall Program Budget Allocation	\$177,233	\$172,149	\$400,191	
14a	General Funded Budget Allocation	\$173,333	\$162,663	\$123,056	
14b	Special/Federal Budget Allocation	\$0	\$0	\$273,286	
14c	Tuition and Fees	\$3,900	\$9,486	\$3,849	
15	Cost per SSH	\$280	\$213	\$510	
16	Number of Low-Enrolled (<10) Classes	16	6	4	

*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)	82%	86%	83%	Healthy
18	Withdrawals (Grade = W)	11	8	14	
19	*Persistence Fall to Spring	74.2%	65.3%	69.5%	
19a	Persistence Fall to Fall	48.5%	38.7%	47.7%	
20	*Unduplicated Degrees/Certificates Awarded	22	19	24	
20a	Degrees Awarded	4	6	4	
20b	Certificates of Achievement Awarded	0	1	1	

20c	Advanced Professional Certificates Awarded	0	0	0
20d	Other Certificates Awarded	38	21	37
21	External Licensing Exams Passed	Not Reported	Not Reported	N/A
22	Transfers to UH 4-yr	3	2	1
22a	Transfers with credential from program	0	0	0
22b	Transfers without credential from program	3	2	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	100.00	Met
30	2P1 Completion	47.00	75.00	Met
31	3P1 Student Retention or Transfer	75.21	91.67	Met
32	4P1 Student Placement	68.92	57.14	Not Met
33	5P1 Nontraditional Participation	17.50	10.81	Not Met
34	5P2 Nontraditional Completion	16.00	0.00	Not Met

Performance Funding		Program Year		
		12-13	13-14	14-15
35	Number of Degrees and Certificates	4	7	5
36	Number of Degrees and Certificates Native Hawaiian	1	4	2
37	Number of Degrees and Certificates STEM	4	7	5
38	Number of Pell Recipients	22	21	21
39	Number of Transfers to UH 4-yr	3	2	1

*Data element used in health call calculation

Last Updated: October 7, 2015

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

Part II. Analysis of the Program

Demand Indicators (Unhealthy). Demand Indicators are unhealthy again this year, and have been unhealthy since four years ago when only one CIP code was allowed to compute this metric. In reality, students graduating from the Electronics Technology program can not only have jobs as electronic technicians (CIP 15.0303, SOC code 17-3023), but they are also qualified to have jobs as Computer Support Specialists (SOC code 15-1150) and electrical and electronic equipment mechanics, installers and repairers (SOC 49-2000). Computer Network Support Specialist (SOC code 15-1152); Network and Computer System Administrators (SOC code 15-1142). A search of relevant current available positions on hiwi.org for October 2015 indicates that the demand indicator would at least become Cautionary. Given that this program is the only option for receiving technical training on this island, and skilled workers/professionals are needed by multiple industries. this program remains a viable and necessary program for the island.

Perkins Core Indicators not met are: 4P1 Student Placement, 5P1 Nontraditional Participation, 5P2 Nontraditional Completion. We have been awarded a Perkins Grant that focuses on these indicators. Our non-trad participaion is not exceptionally different than national norms.

Part III. Action Plan

The program was awarded several grants this year which support many technology upgrades to the program (new lab benches, new cyber security and networking equipment, and new test equipment). The program continues to support Hawaii Space Flight Lab and give students internships to prepare them for high tech jobs. While much needed grants have solved many of previous years's needs, a major safety issue remains that directly relates to providing accessible and safe access to RF equipment that the students use for their hands-on education, and their internships. Thus, the action plan addresses only one program goal this year, which relates to safety and educational access. The table below summarizes the request and alignment to PLOs. Note that the request is partially paid for by grants.

Program Goal & Campus Strategic Priority or Goal	Action Item	Resources Needed	Person(s) Responsible	Timeline	Indicator of Improvement	PLO impacted
ETRO 8 - Ensure <u>safe</u> and modern sustainable practices are incorporated into the ETRO program.	Provide safe access to RF systems located on roof so that students may learn technical concepts, and student internships with partner Hawaii Space flight Lab can be supported providing valuable training	OSHA compliant ladder attached to building (est at \$66,000 by UH Manoa architect). \$30,000 can be supplied from Title III pre-engineering grant	Purvinis, Shimokawa	ASAP. Continual issues with having safe access is detrimental to program	Students and faculty will be able to safely work with the systems	1, 2, 3

Part IV. Resource Implications

RESOURCES NEEDED			OUTCOMES
Initial Acquisition Cost	Annual Recurring Cost	Useful Life	(Identify and Quantify)
\$36,000 = \$66,000 est. cost from architect- \$30,000 Grant funded contribution	0	25 + years	Students will have safe access to the RF systems they are studying. Students will be able to continue to learn communication and space based technologies and support the community when needed, particularly in times of emergencies (such as hurricanes)

Program Student Learning Outcomes

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

Assessed this year?	Program Student Learning Outcomes	
1 <input type="checkbox"/> Yes	Demonstrate an appropriate mastery of the knowledge, techniques, and skills in the use of contemporary tools of electronics technology.	
2 <input type="checkbox"/> Yes	Demonstrate theoretical and technical knowledge of components, systems, and control processes that govern the outcomes of systems for purposes of operation, maintenance, and improvement.	

Assessed this year?	Program Student Learning Outcomes	
3	<input type="checkbox"/> Yes	Apply current technical knowledge in the analysis and solution of technical problems.
4	<input type="checkbox"/> Yes	Function effectively on teams interacting with all levels of personnel, fully participating, and adding to the dynamics of the group
5	<input type="checkbox"/> Yes	Communicate effectively orally, in writing, and by means of the various electronic communication devices.
6	<input type="checkbox"/> Yes	Exhibit professional, ethical, and social responsibilities showing a respect for diversity and an awareness of contemporary professional, societal, and global issues.
7	<input type="checkbox"/> Yes	Explain the importance of commitment to quality, timeliness, and continuous professional improvement in adapting to emerging technologies.

A) Evidence of Industry Validation

Advisory Board meeting conducted with PMRF staff and local high tech companies indicate that course offerings need to include more computer networking and programming skills, and that 4 year degrees are primarily sought.

B) Expected Level Achievement

PSLOs are assessed generally at 70 percent. However, PSLOs are not directly assessed but rather CSLOs and assessments are translated into PSLO assessment. Since all CSLOs were reviewed in 2014-2015, and mapped to PSLOs.

C) Courses Assessed

All CSLOs are assessed when they are taught.

D) Assessment Strategy/Instrument

NO.	How is it assessed?
1	<u>Hands-on skills</u> with hand/power <u>tools</u> , meters, <u>instrumentation</u> , and <u>software</u> ; demonstrated by projects, tests, practical labs
2	<u>Technical knowledge</u> and <u>critical thinking</u> skills as applied to systems, operations and development; demonstrated by projects, tests, practical labs
3	Technical knowledge and <u>critical thinking</u> skills as applied to <u>troubleshooting</u> ; demonstrated in lab environments
4	<u>Workplace skills</u> --Work ethic, initiative, leadership, team player; demonstrated in lab and group environments
5	<u>Communication</u> demonstrated in projects, computer submissions, oral presentations

6	<u>Ethics, diversity, awareness</u> with sensitivity and respect toward others.
7	Life long learning, adaptability, and an ingrained consciousness toward <u>quality, thoroughness</u> and attention to detail.

E) Results of Program Assessment

Courses were aligned to PLOs in 2014-2015

F) Other Comments

The cost of teaching high technology courses involves costly consumables that have to be purchased prior to many of the ETRO classes. Examples: ETRO 18, 120L, 121, and 122L require over a \$150 of components, solder, solder iron tips, etc. per student per class. At least two classes (ETRO 140B and 121 require cable fabrication end-connectors, jacks, cables, etc. These classes also have tools and parts that have a limited life span, such as the WAN modules in the Cisco routers wear out from constant use. The funding we get from the division is not enough to cover these costs. Our solution is pursue grants to make up the deficiencies in replacing equipment, and perhaps to charge lab fees for the consumables. .

G) Next Steps

As stated in the review, the need for graduates with a baccalaureate degree in engineering or a computer specialist field far exceeds the need for electronic technicians with an Associate Degree in Kauai, which is a reflection of our rapidly changing and advancing society. Therefore the current program is growing its technology and degree offerings to support the anticipated needs for engineers, computer programmers, and IT professionals (with emphasis on cyber security) with baccalaureate degrees. An ASNS with pre-engineering focus has been added with course offerings that began Fall 2015. These courses are taught by Electronics Technology faculty, but are affiliated with the SAM division.

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