



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

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PREVIEW

College: Kauai Community College Program: Electronics Technology

The last comprehensive review for this program was on 2014, and can be viewed at:

<https://sites.google.com/a/hawaii.edu/accreditation/cumulative-program-reviews/2010---2014>



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, fiber optics, and RF are also offered on an irregular schedule. Students leaving the program or completing and exiting by means of the COC (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) and the ETRO program is in the process of renewing articulation agreements with Maui College.

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.

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
		14-15	15-16	16-17	
1	New & Replacement Positions (State)	13	21	16	Unhealthy
2	*New & Replacement Positions (County Prorated)	1	1	1	
3	Number of Majors	44	44	32	
3a	Number of Majors Native Hawaiian	13	10	9	
3b	Fall Full-Time	43%	33%	53%	
3c	Fall Part-Time	57%	67%	47%	
3d	Fall Part-Time who are Full-Time in System	4%	0%	0%	
3e	Spring Full-Time	33%	31%	45%	
3f	Spring Part-Time	67%	69%	55%	
3g	Spring Part-Time who are Full-Time in System	2%	5%	3%	
4	SSH Program Majors in Program Classes	401	248	263	
5	SSH Non-Majors in Program Classes	383	85	120	
6	SSH in All Program Classes	784	333	383	
7	FTE Enrollment in Program Classes	26	11	13	

8	Total Number of Classes Taught	21	12	14
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Efficiency Indicators		Program Year			Efficiency Health Call
		14-15	15-16	16-17	
9	Average Class Size	12.3	10.2	9.7	Healthy
10	*Fill Rate	74%	68.9%	66.6%	
11	FTE BOR Appointed Faculty	2	2	2	
12	*Majors to FTE BOR Appointed Faculty	22	21.7	15.7	
13	Majors to Analytic FTE Faculty	19.5	35.6	20.7	
13a	Analytic FTE Faculty	2.3	1.2	1.5	
14	Overall Program Budget Allocation	\$400,191	\$154,332	Not Yet Reported	
14a	General Funded Budget Allocation	\$123,056	\$149,826	Not Yet Reported	
14b	Special/Federal Budget Allocation	\$273,286	\$0	Not Yet Reported	
14c	Tuition and Fees	\$3,849	\$4,506	Not Yet Reported	
15	Cost per SSH	\$510	\$463	Not Yet Reported	
16	Number of Low-Enrolled (<10) Classes	4	5	5	

*Data element used in health call calculation

Last Updated: October 29, 2017

Effectiveness Indicators		Program Year			Effectiveness Health Call
		14-15	15-16	16-17	
17	Successful Completion (Equivalent C or Higher)	83%	77%	77%	Healthy
18	Withdrawals (Grade = W)	14	9	8	
19	*Persistence Fall to Spring	69.5%	65.3%	65.6%	
19a	Persistence Fall to Fall	47.7%	32.6%	46.4%	
20	*Unduplicated Degrees/Certificates Awarded	24	12	15	
20a	Degrees Awarded	4	2	5	
20b	Certificates of Achievement Awarded	1	5	6	
20c	Advanced Professional Certificates Awarded	0	0	0	
20d	Other Certificates Awarded	37	17	28	
21	External Licensing Exams Passed	Not Reported	Not Reported	N/A	
22	Transfers to UH 4-yr	1	0	1	
22a	Transfers with credential from program	0	0	0	
22b	Transfers without credential from program	1	0	1	

Distance Education: Completely On-line Classes		Program Year			
		14-15	15-16	16-17	
23	Number of Distance Education Classes Taught	0	0	1	
24	Enrollments Distance Education Classes	N/A	N/A	2	
25	Fill Rate	N/A	N/A	17%	
26	Successful Completion (Equivalent C or Higher)	N/A	N/A	50%	
27	Withdrawals (Grade = W)	N/A	N/A	0	
28	Persistence (Fall to Spring Not Limited to Distance Education)	N/A	N/A	No Fall Courses	

Perkins IV Core Indicators 2015-2016		Goal	Actual	Met	
29	1P1 Technical Skills Attainment	92.00	100.00	Met	
30	2P1 Completion	51.00	50.00	Not Met	
31	3P1 Student Retention or Transfer	81.00	62.50	Not Met	
32	4P1 Student Placement	63.87	60.00	Not Met	
33	5P1 Nontraditional Participation	22.00	16.13	Not Met	
34	5P2 Nontraditional Completion	22.00	33.33	Met	

Performance Measures		Program Year			
		14-15	15-16	16-17	
35	Number of Degrees and Certificates	5	7	11	
36	Number of Degrees and Certificates Native Hawaiian	2	1	2	
37	Number of Degrees and Certificates STEM	5	7	11	
38	Number of Pell Recipients ¹	21	22	7	
39	Number of Transfers to UH 4-yr	1	0	1	

*Data element used in health call calculation

Last Updated: October 29, 2017

¹PY 16-17; Pell recipients graduates not majors

Glossary | Health Call Scoring Rubric

Part II. Analysis of the Program

Demand Indicators (Unhealthy). Demand Indicators have been unhealthy since six 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).

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. Efficiency and Effectiveness Indicators are both healthy.

Perkins Core Indicators that are not met are analyzed below:

2P1 Completion: Score is 50% and goal is 51%. Goal is essentially met.

3P1 Student Retention of Transfer. This score of 62.6. Electronics is a difficult and math intensive subject. Incoming students are typically weak in this skill area.

4P1 Student Placement: Goal is 63.87 and score is 60, which corresponds to a fraction of a student.

5P1 Nontraditional Participation. Our non-trad participation is not exceptionally different than national norms. Women in electronics remain under represented nationally.

Part III. Action Plan

This program will continue to strive for relevance to the job market by continually maintaining and updating electronics technology tools of the trade. In particular this program needs to replace obsolete or broken essential pieces of electronic equipment listed below and then detailed in tables:

1. Broken and obsolete CNC circuit board machine used by all electronics students
2. RF signal generator for circuit classes
3. Laser chiller to support required ETRO 161 class
4. Laser etcher used by a variety of student projects

Program Goal & Campus Strategic Goal or Priority Alignment	Strategic Goal 13: Enhance Facilities with Appropriate Technology and Ensure Facilities Support 21st Century Learning and Teaching Environments
Action Item	Replace obsoleted and not functioning LPFK S62 Etcher because students can no longer make circuit boards
Resource(s) Request	\$30,000 New Circuit Board CNC etcher and tools,
Person(s) Responsible and Collaborators	Purvinis
Timeline	Immediate
Indicator of Improvement	100% of students can make circuit boards. Presently no boards can be made since machine is no longer functional
PSLO Impacted	<ol style="list-style-type: none"> 1. Demonstrate an appropriate mastery of the knowledge, techniques, and skills in the use of contemporary tools of electronics technology. 2. Demonstrate theoretical and technical knowledge of components, systems, and control processes that govern the outcomes of systems for purposes of operation, maintenance, and improvement. 3. Apply current technical knowledge in the analysis and solution of technical problems. 4. Function effectively on teams interacting with all levels of personnel, fully participating, and adding to the dynamics of the group
Current Status	Presently no circuit boards can be made since machine is no longer functional. This is a fundamental capability for electronics technicians.

Program Goal & Campus Strategic Goal or Priority Alignment	Strategic Goal 13: Enhance Facilities with Appropriate Technology and Ensure Facilities Support 21st Century Learning and Teaching Environments
Action Item	Replace obsoleted and not functioning Wavetek RF signal generator
Resource(s) Request	\$11,000
Person(s) Responsible and Collaborators	Purvinis
Timeline	Immediate
Indicator of Improvement	Students will learn principals of RF (radio frequency) and pass a test in ETRO 122 and ETRO 257 indicating practical knowledge acquired
PSLO Impacted	<ol style="list-style-type: none"> 1. Demonstrate an appropriate mastery of the knowledge, techniques, and skills in the use of contemporary tools of electronics technology. 2. Demonstrate theoretical and technical knowledge of components, systems, and control processes that govern the outcomes of systems for purposes of operation, maintenance, and improvement. 3. Apply current technical knowledge in the analysis and solution of technical problems.

	4. Function effectively on teams interacting with all levels of personnel, fully participating, and adding to the dynamics of the group
Current Status	Presently students can not learn about high frequency signals or communication signals, although this knowledge is part of an electronics technicians core knowledge.

Program Goal & Campus Strategic Goal or Priority Alignment	Strategic Goal 13: Enhance Facilities with Appropriate Technology and Ensure Facilities Support 21st Century Learning and Teaching Environments
Action Item	Replace laser chiller that uses discontinued refrigerant and is leaking.
Resource(s) Request	\$7018
Person(s) Responsible and Collaborators	Purvinis
Timeline	Immediate
Indicator of Improvement	100% of students taking the required ETRO 161 laser class will understand and be exposed to high power lasers used at high tech companies such as subcontractors at PMRF.
PSLO Impacted	<ol style="list-style-type: none"> 1. Demonstrate an appropriate mastery of the knowledge, techniques, and skills in the use of contemporary tools of electronics technology. 2. Demonstrate theoretical and technical knowledge of components, systems, and control processes that govern the outcomes of systems for purposes of operation, maintenance, and improvement. 3. Apply current technical knowledge in the analysis and solution of technical problems. 4. Function effectively on teams interacting with all levels of personnel, fully participating, and adding to the dynamics of the group
Current Status	Presently the high power laser cannot be used in the optics class as the chiller is not functional due to leaking refrigerant and refrigerant type that can no longer be obtained. This is an expensive laser that cannot be operated with chilling.

Program Goal & Campus Strategic Goal or Priority Alignment	Strategic Goal 13: Enhance Facilities with Appropriate Technology and Ensure Facilities Support 21st Century Learning and Teaching Environments
Action Item	Replace Laser etche/cutter
Resource(s) Request	\$50,000
Person(s) Responsible and Collaborators	Purvinis
Timeline	Immediate
Indicator of Improvement	Students will once again have access to this equipment for their projects.
PSLO Impacted	<ol style="list-style-type: none"> 1. Demonstrate an appropriate mastery of the knowledge, techniques, and skills in the use of contemporary tools of electronics technology. 2. Demonstrate theoretical and technical knowledge of components, systems, and control processes that govern the outcomes of systems for purposes of operation, maintenance, and improvement. 3. Apply current technical knowledge in the analysis and solution of technical problems. 4. Function effectively on teams interacting with all levels of personnel, fully participating, and adding to the dynamics of the group
Current Status	Current system is experiencing age related issues and is not support by vendor (obsoleted). It is also underpowered for using with electronics fabrication.

Non- traditional students are encouraged and also mentored by a non-traditional faculty.

Special projects remain essential to attracting, motivating, and providing experiences that help student later be placed into the workforce.

Part IV. Resource Implications

RESOURCES NEEDED			OUTCOMES
Initial Acquisition Cost	Annual Recurring Cost	Useful Life	(Identify and Quantify)
30,000 for LPFK S63 PCB CNC machine	500	10 years	All students in electronics will be able to make circuit boards again, an essential electronics technician skill

\$11,000 for RF signal generator	0	15 years+	Students will learn principals of RF (radio frequencv) and pass a test in ETRO 122 and ETRO 257 indicating practical knowledge acquired. Presently we cannot teach this material which is core to electronics technology
\$7018 for laser chiller	0	10 years	100% of students taking the required ETRO 161 laser class will understand and be exposed to high power lasers used at high tech companies such as subcontractors at PMRF.
\$50,000 for laser etcher	0	10 years	Students will once again have access to this equipment for their projects. Current system is experiencing age related issues and is not support by vendor (obsoleted). It is also underpowered for using with electronics fabrication.

Program Student Learning Outcomes

For the 2016-2017 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"/> No	Demonstrate an appropriate mastery of the knowledge, techniques, and skills in the use of contemporary tools of electronics technology.	
2 <input type="checkbox"/> No	Demonstrate theoretical and technical knowledge of components, systems, and control processes that govern the outcomes of systems for purposes of operation, maintenance, and improvement.	
3 <input type="checkbox"/> No	Apply current technical knowledge in the analysis and solution of technical problems.	
4 <input type="checkbox"/> No	Function effectively on teams interacting with all levels of personnel, fully participating, and adding to the dynamics of the group	
5 <input type="checkbox"/> No	Communicate effectively orally, in writing, and by means of the various electronic communication devices.	
6 <input type="checkbox"/> No	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"/> No	Explain the importance of commitment to quality, timeliness, and continuous professional improvement in adapting to emerging technologies.	

A) Evidence of Industry Validation

Learning outcomes are modeled after the competencies recommended by the Electronics Technician Association International (ETAI) and the National Coalition for Electronics Education (NCEE).

This campus has been visited by multiple high tech local companies this year. The industry is seeking technicians from this campus (local graduates). The industry representatives have reviewed our program and validated the content.

B) Expected Level Achievement

PSLOs are assessed generally at 70 percent. However, PSLOs are not directly assessed but rather CSLOs and these assessments are translated into PSLO assessment

C) Courses Assessed

All courses are assessed when they are taught, as the course sequence is on a two year cycle and there are not multiple sections.

D) Assessment Strategy/Instrument

LiveText commercial software is the campus adopted instrument of assessment

E) Results of Program Assessment

No PSLO assessment at this time. Data summary is not available from the LiveText. The program reviewed its PSLOs against industry standards (see part A) and Cisco Networking Academy.

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

No content.

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