



2020
ANNUAL REVIEW OF PROGRAM DATA

Facilities Engineering Technology



UNIVERSITY of HAWAII®
KAUA'I
COMMUNITY COLLEGE

1. Program or Unit Description

The Facilities Engineering Technology (FENG) program will prepare individuals for employment in jobs requiring multiple maintenance competencies. These competencies will allow graduates to obtain general maintenance positions in a variety of industries. Graduates will have gained knowledge in electrical applications and practices; refrigeration and air conditioning systems; basic plumbing installations and repair; and drywall, painting, and construction methods. The program has been revised in response to industry needs.

The Facilities Engineering Technology (FENG) program directly aligns with the college's mission statement of inspiring, engaging, and empowering learners and educators. Our students enter the program with little to no knowledge of Facilities Maintenance and leave with a good breadth of knowledge in all areas of the building maintenance trade. Our students learn in and out of the classroom and we pride ourselves in providing exceptional hands-on training and project-based-learning, backed up with the math, science, and english skills needed to thrive in the building construction trade.

Part I. Program Description

Date of Last Comprehensive Review	10/31/2018
Date Website Last Reviewed/Updated	8/16/2019
Target Student Population	Current Kaua'i DOE High School Seniors and 20 to 40 year olds looking to change occupations to learn a building maintenance trade. Military students looking to utilize their GI Bill. Part Time evening students
External Factor(s) that Affected the Program or Unit	Tourist and hospitality industry trends. Construction Academy at DOE, Alu Like program "Kai kai a' o' Program", and internships with various contractors on island.

2. Analysis of the Program/Unit

The Facility Engineering Program has been listed as a CIP Code: 15.9999 for other types of Engineers since 2008. The reasoning from former instructors was to try and attract students through the title and to use these students in the STEM counts at the college. The actual CIP Code for this occupation is 46.0401 Building/Property Maintenance and Management or on O*NET Online the code is 49-9071.00 - Maintenance and Repair Workers, General. Because of this the actual jobs available is not accurate with the Demand Indicators for jobs in Hawaii and Kauai is incorrect. With the jobs from indeed.com for this occupation there is 4 to 5 job openings per week with many jobs unfilled for three months or more. The Hospitality and Tourism Industry was hard hit with the

Covid-19 Pandemic, but many of these positions were retained to complete remodeling and preventive maintenance during the slow down. New hiring is flat, but expected to increase during the next 2 to 3 years as tourism returns to normal.

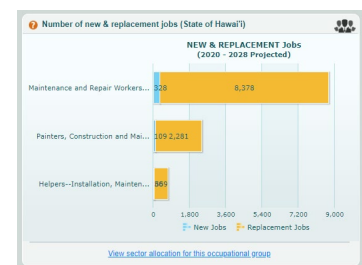
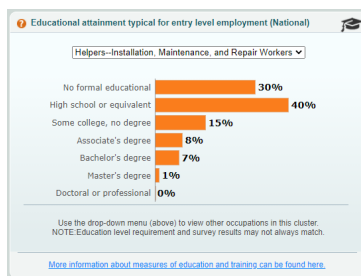
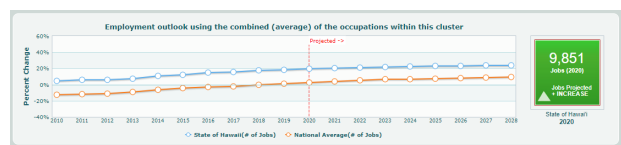
Demand Indicators

Using the SOC Code 49-9071 Maintenance and Repair Worker there were 9,851 replacement jobs with 328 new jobs projected for this year. During the last year many local employees have contacted us about updating their skills for transfer into these jobs. Recruiting at the DOE and through the Construction Academy our efforts are beginning to pay off. Also local employers are encouraging their employees to update their skills through our night program. More adults are taking the program to gain better skills to make themselves more marketable to the local employers. Because of Covid-19 Pandemic, larger commercial and industrial positions have decreased slowly over the past year which forces those employees to look into promotions and to seek additional training to meet employer demand. The number of related trades is not taken into account with the number of jobs available. Therefore, the program produces enough majors for New and Replacement positions available for entry level Building/Property Maintenance and Management positions. The overall health in Demand Indicators would be HEALTHY if the correct data was available. The following data is from https://uhcc.hawaii.edu/career_explorer using the proper codes.

OCCUPATIONAL GROUP PROFILE

SOC Code	Occupations in this Cluster	Education Level
49-9098	Helpers--Installation, Maintenance, and Repair Workers	High school diploma or equivalent
47-2141	Painters, Construction and Maintenance	No formal educational credential
49-9071	Maintenance and Repair Workers, General	High school diploma or equivalent

Indicates a STEM occupation



During the last year, the number of majors has decreased by one, and class size has averaged over nine students per class. The data also shows a low number of full-time students, but our target students are part time students at night. While the numbers of part-time students have held steady

from 92% to 83%. This is because of stability in the faculty teaching courses and the classes being offered on a two-year cycle consistently. The emphases and request in HVAC courses has increased and is being taught with 14 students enrolled and lab accessibility increased by using the EIMT instructor instead of a lecturer. The number of SSH Program Majors in Program Classes have been up and increased during the three-year cycle with a balancing of returning students during the last semester. With a high of 179 and a low of 101 but is estimated to level off during next few years at 100. FTE Enrollment in Program Classes peaked in AY17-18 and is trending to level off at approximately 6 over the next five years. Additional recruitment can be used to increase these numbers. The total number of classes taught has decreased to 5 each year, mainly due to creating a standard two-year pathway asked for by the administration. Demand for the overall health would be HEALTHY if the correct data was available, and this is a program where the enrollment can grow to meet the needs of the local economy and job seeking students. The consolidation of this program to the Building Construction Technology has been implemented with the Program Action Request in the Curriculum Committee workflow at the time of this report.

Efficiency Indicators

The Average Class size for the FENG Program has stayed steady from between 9 to 10 over last three years, and hopefully shows a future upward trend with the help of the full time faculty and Career Track Coordinator. The Fill Rate has stayed steady over last three-year cycle up from 62.5 to 63.4% with a peak of 75% Demand for HVAC has required that the course be scheduled for Fall 2020 so that fourteen students can complete their certificate. FTE BOR Appointed faculty remains at 0, with Full time faculty from Carpentry and Electrical teaching courses with lectures teaching remaining classes. Majors to Analytic FTE Faculty has no data available. Several sections of data were not provided in this past three years under budget allocation. The number of Low-Enrolled classes has stayed at 4 with the majority of the courses around 9 students enrolled. Under the consolidation with a two year start all low enrolled classes below 8 will be cancelled. The number of entry level courses has been limited to fall semester and students must now start then to begin the cycle.

Effectiveness Indicators

In 2017 to 2020 shows that the Successful Completion has been steady average of 91% in 2020, which is consistent from the past three years. The majority of these students have either had scheduling conflicts or have taken jobs locally. Withdrawals have also been low overall with one during the three-year cycle, but with Covid-19 this semester has already had some withdrawals from moving courses to Zoom. Persistence fall to spring indicates an upward trend from 92% to 89% with last year at 88%, although the Persistence fall to fall has increased from 33% to 64%, part of that may be attributed to high number of students starting that year trying to use their enrollment to qualify for entrance programs and increased recruitment. With no graduates counts because the Program only offers CO's, the decision was made to create CA under the new Building Construction Technology. The move to the new Building Construction Technology degree and certificates will allow us to count these student's as completers.

A PAR change to Building Construction Technology in fall 2021 will address this issue of low enrollment, and will allow students to select from other course offerings. The number of Transfers with and without credential from the program is nonexistent; and is not a measured positive outcome for this CTE program that has historically been a terminal degree.

Distance Education (Completely On-line Classes)

The FENG program does not offer Distance Learning at the current time.

Performance Indicators

Since the most students are part time and only CO's are currently given no data for this section is available.

Perkins Core Indicators

The FENG Program did meet the Perkins Core Indicators for Technical Skills Attainment at 100%, Completion at 75%, and Student Placement at 80%. Student Retention/Transfer goals were not met. Nontraditional Participation and Completion has been a priority in the FENG Program. We have had our new Trades Tracking Coordinator working with students to make sure opportunities are given to the nontraditional students that are interested in the program. Recruitment from housekeeping and custodial staffs at the local employers has improved advancement has increased these numbers, but are not reflected in data yet.

The last CPR (Comprehensive Program Review) was in 2018 and was reviewed by the college cabinet.

<https://uhcc.hawaii.edu/varpd/index.php?y=2020&c=KAU&t=CTE&p=2186>

College: Kaua'i Community College

Program: Facilities Engineering

Status: Report Complete

Program Quantitative Indicators

STEM Major

Overall Program Health: Cautionary

Facilities Engineering

CIP Code = 15.9999

17-3024 - Electro-Mechanical Technicians 17-3029 - Engineering Technicians, Except Drafters, All Other

#	Demand Indicators	2017 - 18	2018 - 19	2019 - 20	Demand Health
1.	New & Replacement Positions (State)	72	61	62	Unhealthy Insufficient Data County Level
2.*	New & Replacement Positions (County Prorated)	1	1	1	
3.	Number of Majors	14	18	17	
3a.	Number of Majors Native Hawaiian	1	5	3	

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3b.	Fall Full-Time	8%	28%	17%
3c.	Fall Part-Time	92%	72%	83%
3d.	Fall Part-Time who are Full-Time in System	0%	0%	0%
3e.	Spring Full-Time	0%	0%	7%
3f.	Spring Part-Time	100%	100%	93%
3g.	Spring Part-Time who are Full-Time in System	0%	0%	0%
4.	SSH Program Majors in Program Classes	41	136	68
5.	SSH Non-Majors in Program Classes	87	43	33
6.	SSH in All Program Classes	128	179	101
7.	FTE Enrollment in Program Classes	4	6	3
8.	Total Number of Classes Taught	6	7	5

#	Efficiency Indicators	2017 - 18	2018 - 19	2019 - 20	Efficiency Health	
9.	Average Class Size	9	10	9	Cautionary	
10.*	Fill Rate	61.5%	75%	63.4%		
11.	FTE BOR Appointed Faculty	0	0	0		
12.*	Majors to FTE BOR Appointed Faculty	0	0	0		
13.	Majors to Analytic FTE Faculty	0	0	0		
13a.	Analytic FTE Faculty	0	1	0		
14.	Overall Program Expenditures	\$0	\$0	\$0		
14a.	General Funded Budget Allocation					
14b.	Special/Federal Budget Allocation					
14c.	Tuition and Fees					
15.	Cost per SSH					
16.	Number of Low-Enrolled (<10) Classes	4	5	4		
#	Effectiveness Indicators	2017 - 18	2018 - 19	2019 - 20		Effectiveness Health
17.	Successful Completion (Equivalent C or Higher)	91%	93%	91%		Cautionary
18.	Withdrawals (Grade = W)	0	1	0		
19.*	Persistence Fall to Spring	92%	89%	88%		
19a.	Persistence Fall to Fall	33%	50%	64%		
20.*	Unduplicated Degrees/Certificates Awarded	1	6	4		
20a.	Degrees Awarded	0	0	0		
20b.	Certificates of Achievement Awarded	0	0	0		
20c.	Advanced Professional Certificates Awarded	0	0	0		
20d.	Other Certificates Awarded	2	10	7		

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21.	External Licensing Exams Passed ¹				
22.	Transfers to UH 4-yr	0	0	0	
22a.	Transfers with credential from program	0	0	0	
22b.	Transfers without credential from program	0	0	0	

¹ Campus to include in program analysis if applicable.

#	Distance Indicators	2017 - 18	2018 - 19	2019 - 20	
23.	Number of Distance Education Classes Taught	0	0	0	
24.	Enrollments Distance Education Classes	0	0	0	
25.	Fill Rate	0%	0%	0%	
26.	Successful Completion (Equivalent C or Higher)	0%	0%	0%	
27.	Withdrawals (Grade = W)	0	0	0	
28.	Persistence (Fall to Spring Not Limited to Distance Education)	0%	0%	0%	
#	Perkins Indicators	Goal	Actual	Met	
29.	1P1 Technical Skills Attainment	94.75	100	Met	
30.	2P1 Completion	61	75	Met	
31.	3P1 Student Retention or Transfer	86	80	Not Met	
32.	4P1 Student Placement	66.75	80	Met	
33.	5P1 Nontraditional Participation	23.75	5.26	Not Met	
34.	5P2 Nontraditional Completion	23.25	0	Not Met	
#	Performance Indicators	2017 - 18	2018 - 19	2019 - 20	
35.	Number of Degrees and Certificates				
36.	Number of Degrees and Certificates Native Hawaiian				
37.	Number of Degrees and Certificates STEM				
38.	Number of Pell Recipients ¹				
39.	Number of Transfers to UH 4-yr				

* Used in Rubric to determine Health Indicator

Date Last Modified: 2020-10-13 01:45:20

3. Program Student Learning Outcomes or Unit/Service Outcomes

The new PSLO's approved by the Assessment Committee for the Building Construction Technology Program.

1. Examine blueprints sufficiently to use them to plan a project.
2. Select proper materials for a given project that comply with building standards and codes.
3. Maintain the tools required in the Construction Technology Industry.

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4. Utilize Occupational Safety and Health Administration (OSHA) and State safety regulations necessary to assess a task for hazards and the steps required to minimize risks, protecting self and others.
5. Know the application of codes and regulations in the mechanical, electrical, and carpentry fields to construct or repair and maintain these systems within a facility.
6. Communicate successfully orally and in writing using computer technology.
7. Understand, integrate, and utilize knowledge in the professional environment.
8. Demonstrate professionalism with attitudes, conduct, ethics, and work practices.

Assessments were completed using the PSLO's for the 2019 AAS EIMT Program.

PSLO	Assessed During this APRU Cycle (Y or N)	Findings	Improvements Implemented	Next Assessment Date
Read and understand blueprints sufficiently to use them to plan a project.	Yes	All students passed with 70%	Work on "Just in Time" Math	Annually
Select materials properly for a given project.	Yes	All students passed with 80%	Work on identifying proper building materials	Annually
Maintain and care for the tools required in the construction and maintenance industry	Yes	All students passed with 90%	Students can improve on maintaining basic hand tools more efficiently	Annually

PSLO	Assessed During this APRU Cycle (Y or N)	Findings	Improvements Implemented	Next Assessment Date
Know and utilize Occupational Safety and Health Administration (OSHA) and State safety regulations to minimize risk and protect self and others.	Yes	All students passed with 100%	Constant monitoring	Evaluated on a daily basis
Communicate successfully in writing, orally, and with computer technology.	Yes	All students passed with 70%	Students are required to write a weekly log.	Annually

4. Action Plan

The consolidation of the Carpentry, Electrical Installation and Maintenance, and Facility Engineering programs was created to help the college justify the building trades on the island of Kaua'i by making it possible to meet the minimum numbers required by the UH BOR Executive Policy 5.229 Programs with Low Number of Degrees Conferred. The decision was made to modify the existing AAS Degrees to allow pathways to the Building Construction Trade (merging three programs into a single AAS degree with three concentrations). The Facility Engineering terminal CO has not had student completers formally noted in the total student graduates. Program consolidation will involve converting the existing terminal CO into a CA so that completion rates are formally reported by UH.

The Computer Aided Design, Welding, and Construction Academy courses are added to the program to give these stand-alone courses a CO under the Building Construction Technology Program to help boost enrollment and to budget funds to run the courses through the Trades Division. The Computer Aided Design is articulated with the P-20 DOE Pathways and needs to be included in the proposal so those courses can transfer to the UHCC system. Welding courses will reestablish itself because of public demand with increased AWS training standards to become an addition to the Facility Building Maintenance CA under the new BCT degree.

Recommendations

Consolidation efforts are modeled after the UHMC Construction Technology AAS Degree while building on the strengths of the EIMT and Carpentry programs at KauCC. The following statements are our recommendations:

- Creation of EC pathways as a replacement for KauCC's Construction Academy for CARP and AEC classes and bring additional secondary students to the College.
- Consolidate these programs as planned and have full-time faculty teach courses in as many disciplines as possible, eliminating lecturers and additional staff, and combine courses that are similar under one program.
- Realizing the Hotel Industry will rebound and these courses will be needed in the future, a restructuring of course offerings and temporarily not schedule low enrolled classes.
- Our final recommendation is to teach courses every other year with every other year start dates in areas to better utilize classroom space and staff.

No salary or cost savings will be gained by the elimination of the Facility Engineering program as the majority of courses are taught by salaried faculty of the existing EIMT and CARP programs. Minimal lecturers are used on courses for which current faculty do not meet the MQs. Loss of FENG students will make many of those combined classes low enrolled. The majority of Facility Maintenance students are returning adults seeking an occupational change or a work promotion. KauCC is the only source of training for Kaua'i residents to update their skills in the Hospitality Industry.

5. Resource Implications

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

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