Facilities Engineering Technology

ANNUAL
REPORT OF PROGRAM DATA
2021

UNIVERSITY of HAWAI'I®
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.

With the Kaua'i economy changing from the pandemic the decision has been made to consolidate the EIMT, FENG, AEC, and WELD programs with the Carpentry Program to create the Construction Program to match and articulate the program Maui College and West Oahu. As far as the Building Construction Technology proposal it was rejected last year by the Curriculum Committee and the Administration because of problems associated with Banner, Star GPS, Financial Aid and Student Services with the merger of the program. The current proposal was submitted as part of *Ka Papa Hana Holomua: Academic Affairs Plan Fall 2021-Fall 2026* to UHCC. Part of this plan for EIMT and FENG is to stop out starting Fall 2022 and Teach Out completed by Spring 2024. To meet ACCJC standards, the Stop Out can last only 2 years and then must be completed. EIMT and FENG will no longer be available to enroll new students beginning September 1, 2022, for registration of Spring 2023 and a notice will be posted on the Website and with Student Services.

Stop Out will need BOR approval and according to VCAA we will need to create the Construction Program as proposed in *Ka Papa Hana Holomua: Academic Affairs Plan Fall 2021-Fall 2026* the Construction program will seek BOR approval Spring 2024. The Carpentry Program will continue until as is until the Construction Program is approved and started to allow students to continue in the building trades. EIMT or FENG, as is, will teach each class one more time after Fall 2022 to allow students a chance to graduate. During the proposal any currently taught course that is part of the Construction Program will convert to course Alpha/Numeric and title that can be matched to the Maui College Construction Program and create those that cannot be modified to match. We are trying to match Maui's program as closely as possible so that there is a higher possibility of approval at the OVPCC and BOR and so we can articulate with Maui College and West Oahu.

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

Overall Program Health: ***Cautionary***

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 ***Needs Attention***

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. As word of the program closing has spread, potential students are choosing other programs or not attending which has drastically affected enrollment. 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. Potential students are waiting to see when the Construction Technology Program will begin. Students wanting to start now are being directed into the Carpentry Program.

During the last year, the number of majors has decreased again by two, 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 between 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 HVAC courses are in the off year and the EIMT instructor is teaching Solar (PV) this year. The number of SSH Program Majors in Program Classes have decreased during the three-year cycle with a balancing of returning students during the last semester graduating. The majority of students that are completing a Certificate of Completion are not represented in the data. With a high of 179 and a low of 101 but is estimated to level off during next few years at 132. FTE Enrollment in Program Classes peaked in AY17-18 and is trending to decrease to approximately 4 as the program ends. The total number of classes taught has decreased to 3 each year, mainly due to creating a standard two-year pathway asked for by the administration. The consolidation of this program to the Construction Technology will be submitted Spring 2022 with the Program Action Request at the time of this report. Demand Indicators for the FENG Program for 2020-2021 is ***Needs Attention***.

#	Demand Indicators	2018-19	2019-20	2020-21	Demand Health
1	New & Replacement Positions (State)	151	116	53	
2.*	New & Replacement Positions (County Prorated)	2	2	1	
3	Number of Majors	18	17	15	
3a.	Number of Majors Native Hawaiian	5	3	3	
3b.	Fall Full-Time	28%	17%	11%	
3c.	Fall Part-Time	72%	83%	89%	
3d.	Fall Part-Time who are Full-Time in System	0%	0%	0%	**Needs Attention**
3e.	Spring Full-Time	0%	7%	0%	
3f.	Spring Part-Time	100%	93%	100%	
3g.	Spring Part-Time who are Full-Time in System	0%	0%	0%	
4	SSH Program Majors in Program Classes	136	68	72	
5	SSH Non-Majors in Program Classes	43	33	60	
6	SSH in All Program Classes	179	101	132	
7	FTE Enrollment in Program Classes	6	3	4	
8	Total Number of Classes Taught	7	5	3	

Efficiency Indicators *Progressing*

The Average Class size for the FENG Program has stayed steady from between 9 to 15 over the last three years, and hopefully those wanting to continue will transfer to Carpentry or wait for the Construction Program 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 100% with demand for HVAC requested to be scheduled for Fall 2021. FTE BOR Appointed faculty remains at 0, with Full time faculty from Carpentry and Electrical teaching courses with lecture teaching remaining classes. Majors to Analytic FTE Faculty has no data available. Several sections of data were not provided in the past three years under budget allocation. The number of Low-Enrolled classes is zero with all low enrolled courses cancelled. 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. Efficiency Indicators for the FENG Program for 2020-2021 is ***Progressing***.

#	Efficiency Indicators	2018 - 19	2019 - 20	2020 - 21	Efficiency Health
9	Average Class Size	10	9	15	
10.*	Fill Rate	75.00%	63.40%	100.00%	
11	FTE BOR Appointed Faculty	0	0	0	
12.*	Majors to FTE BOR Appointed Faculty	0	0	0	
13	Majors to Analytic FTE Faculty	18	0	0	
13a	Analytic FTE Faculty	1	0	0	**Progressing**
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	$0	$0	$0	
16	Number of Low-Enrolled (<10) Classes	5	4	0	

Effectiveness Indicators *Progressing*

In 2017 to 2021 shows that the Successful Completion has been a steady average of 91% in 2020 to 82% in 2021, 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 three 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% which dropped last year to 56% with most students completing, although the Persistence fall to fall has increased from 33% to 64%.

A PAR change to Construction Technology in fall 2024 will address this issue of low enrollment, and will allow students to select from other course offerings. The number of Transfers with a Construction Technology degree will be available through Maui College and West Oahu. Effectiveness Indicators for the FENG Program for 2020-2021 is ***Progressing***.

#	Effectiveness Indicators	2018 - 19	2019 - 20	2020 - 21	Effectiveness Health
17.	Successful Completion (Equivalent C or Higher)	93%	91%	82%	
18.	Withdrawals (Grade = W)	1	0	2	
19.*	Persistence Fall to Spring	89%	88%	56%	
19a.	Persistence Fall to Fall	58%	64%	33%	
20.*	Unduplicated Degrees/Certificates Awarded	6	4	9	
20a.	Degrees Awarded	0	0	0	
20b.	Certificates of Achievement Awarded	0	0	0	*Progressing*
20c.	Advanced Professional Certificates Awarded	0	0	0	
20d.	Other Certificates Awarded	10	7	17	
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	

Distance Education

(Completely On-line Classes) The FENG program does not offer Distance Learning at the current time. Program Coordinator does not know which course is listed as Distance Learning.

#	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	20	
25	Fill Rate	0%	0%	100%	*Not Applicable*
26	Successful Completion (Equivalent C or Higher)	0%	0%	75%	
27	Withdrawals (Grade = W)	0	0	1	
28	Persistence (Fall to Spring Not Limited to Distance Education)	0%	0%	85%	

Perkins Core Indicators

The FENG Program met the Perkins Core Indicators for Postsecondary Placement and Earned Recognized Credential. It is difficult to ascertain why the other four core indicators were not met as the data provided is incomplete. Nontraditional Participation and Completion has been a priority in the FENG Program. The one female is currently enrolled in courses. We have had our new Trades Tracking Coordinator working with students to stay on track to graduate.

		Goal	Actual	Met	
29	1P1 Postsecondary Placement	33	100	Met	
30	2P1 Earned Recognized Credential	33	100	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

Since most students are part time and only CO's are currently given no data for this section is available. The number of Transfers to UH 4-year was at zero as expected with most students entering the workforce. The number of Transfers with a Construction Technology degree will be available through Maui College and West Oahu.

#	Performance Indicators	2018-19	2019-20	2020-21	
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 Recipients1				
39	Number of Transfers to UH 4-yr				

Please use the following link to the 2021 Annual Report of Program Data (ARPD)RU 2380:

https://uhcc.hawaii.edu/varpd/index.php?y=2021&c=KAU&t=CTE&p=2380

The last CPR (Comprehensive Program Review) was in 2019 and was reviewed by the college cabinet.

3. Program Student Learning Outcomes or Unit/Service Outcomes

The PSLO's approved by the Assessment Committee for the Building Construction Technology Program in 2017 were used for assessment purposes.

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.

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.

Note: The above PSLO's are for the Building Construction Technology Program. The below assessments PSLO's are for the AY2020/2021 current EIMT Program Assessments were completed using the BCT Program.

PSLO	Assessed During this APRU Cycle (Y or N)	Findings	Improvements Implemented
Examine blueprints sufficiently to use them to plan a project.	Yes	All students passed with 70%	Work on "Just in Time" Math and implemented the QM course for Trades
Select proper materials for a given project that comply with building standards and codes.	Yes	All students passed with 80%	Work on identifying proper building materials
Maintain the tools required in the Construction Technology Industry.	Yes	All students passed with 90%	Students can improve on maintaining basic hand tools more efficiently
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.	Yes	All students passed with 90%	Additional Training and PPE Equipment required in shop area.
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.	Yes	All students passed with 100%	Constant monitoring
Communicate successfully orally and in writing using computer technology.	Yes	All students passed with 70%	Students are required to write a weekly log.
Understand, integrate, and utilize knowledge in the professional environment.	Yes	All students passed with 80%	Students are required to make up tardiness after class, cleaning up.

PSLO	Assessed During this APRU Cycle (Y or N)	Findings	Improvements Implemented
Demonstrate professionalism with attitudes, conduct, ethics, and work practices.	Yes	All students passed with 80%	Students were evaluated with off campus instructor evaluation on job site

4. Action Plan

The FENG Program will continue with the current courses and program outline through Spring 2024 to allow students from the EIMT and FENG programs complete their program certificates and degrees while the transition to the Construction Program is being implemented and approved. The instructors feel that moving the new students from these programs to Carpentry will help increase the numbers and justify the continuance of the construction trades. The early College trades courses will also help with recruitment and job placement as the economy recovers from the pandemic. The growth potential at early college and the permanent hire of three instructors for the offered early college classes will help with additional courses taught in the new Construction Program in AutoCAD, Electrical, HVAC, and Plumbing.

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 Kauaʻi 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 Degree to allow pathways to the building construction trades merging all construction programs into a single AAS degree to match the Maui College Program. The Facility Engineering terminal CO has not had student completers as formally noted in the total student graduates and will be Stopped Out by Spring 2024. 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 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 Construction 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 pathways as a replacement for KauCC's Construction Academy for Early College and AEC classes and bring additional secondary students to the College.
- Consolidate these programs with reworked pathways as a revised plan will 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 that a review of what courses will be needed in the future, a restructuring of course offerings and temporarily not scheduling 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.

Cost savings will be gained by the elimination of the EIMT Instructor in Summer 2024 through retirement. The majority of courses should be taught by tenure track salaried faculty of the existing CARP and Early College Trades programs. Minimal lecturers should be used on courses for which current faculty for Early College and individual construction courses. The potential for part time night students should be evaluated and the change to the Construction program begins as well as 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 that will rebound in the coming years.

5. Resource Implications

Two Full time tenure track instructors to meet the need of Early College CARP and AEC courses and additional courses that are currently taught by an EIMT instructor and AEC, Construction Academy, FENG, and Welding lectures. This is a future request for AY 2024-2025. Although this request is for Fall 2024 it is important to replace these positions that were eliminated by budget cuts and retirement if the program is expected to continue as is.

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

6. Optional: Edits to Occupation List for Instructional Programs

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. Using the SOC Code 49-9071 Maintenance and Repair Worker there were 9,851 replacement jobs with 328 new jobs projected for this year. Because of this the actual jobs available is not accurate with the Demand Indicators for jobs in Hawaii and Kauai is incorrect.

Given that this program is being Stopped Out it may not be worth the effort to make a change at this time.

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