Construction Technology (CTEC) Program

2019
ANNUAL REPORT OF PROGRAM DATA

UNIVERSITY of HAWAI'I®
MAUI COLLEGE

1. Program Description

a) Statement and brief description of the program including a listing of the program level Student Learning Outcomes (SLOs).

The Construction Technology Program prepares students in general building construction and maintenance of large or small structures. It allows students to explore different trades prior to selecting a specialization.

Program Student Learning Outcomes:
Upon successful completion of the Construction Technology Program, the student should be able to:

1. Use and maintain appropriate materials, tools, equipment, and procedures to carry out tasks performed on construction projects according to safety and industry standards.
2. Use math, computer, and oral and written communication skills to solve construction project problems.
3. Create and maintain accurate documentation of construction and maintenance projects.
4. Describe industry standard Green Building practices in construction and maintenance projects.
5. Read and interpret blueprints, and/or schematics, and specifications to plan projects.
6. Demonstrate the craftsmanship standards of dependability, punctuality, and quality.
7. Examine and use proper mechanical, electrical, and carpentry codes and standards applicable to construction and repair.

b) Program Mission

The Construction Technology Program prepares students in general building, construction, and maintenance of large or small structures. It allows students to explore different trades prior to selecting a specialization.

c) Date Program Website Last Reviewed/Updated.

Last Reviewed Spring 2019; Last Updated Fall 2015

d) Date Program Page Reviewed/Updated in Catalog.

Reviewed Spring 2019; Updated Fall 2018

2. Analysis of the Program

a) Strengths and weaknesses in terms of demand, efficiency, and effectiveness based on an analysis of the Quantitative Indicators. CTE programs must include an analysis of Perkins Core indicators for which the program did not meet the performance level.

Include Significant Program Actions (new certificates, stop outs, gain/loss of positions, results of prior year's action plan).

i) Demand Indicators: **Healthy**

	Demand Indicators	2016 - 17	2017 - 18	2018 - 19	Demand Health
1.	New & Replacement Positions (State)	404	406	382	
*2.	New & Replacement Positions (County Prorated)	50	49	48	
3.	Number of Majors	62	67	73	
3a.	Number of Majors Native Hawaiian	12	13	17	
3b.	Fall Full-Time	33%	41%	37%	
3c.	Fall Part-Time	67%	59%	63%	
3d.	Fall Part-Time who are Full-Time in System	0%	0%	0%	
3e.	Spring Full-Time	42%	40%	38%	Healthy
3f.	Spring Part-Time	58%	60%	62%	
3g.	Spring Part-Time who are Full-Time in System	1%	2%	0%	
4.	SSH Program Majors in Program Classes	703	820	618	
5.	SSH Non-Majors in Program Classes	151	81	81	
6.	SSH in All Program Classes	854	901	699	
7.	FTE Enrollment in Program Classes	28	30	23	
8.	Total Number of Classes Taught	23	24	19	

Screenshot ARPDV 2019 Report
UHMC Construction Technology Program
(https://uhcc.hawaii.edu/varpd/)

CTEC Program graduates have always thrived in gaining industry employment as a result of their degrees and certificates awarded through the UHMC CTEC Program, whether the CTEC Program's Demand Health Call scored an "Unhealthy" rating from 2008-2015, showed improvement with the 2016-2017 "Cautionary" score, and now reflects "Healthy".

According to the National Association of Homebuilders (NAHB), we are facing the largest amount of unfilled construction related replacement positions ever. With the retirement of tens of thousands of baby boomer generation tradespersons each year, and a limited amount of interested replacement prospects over the next several years representing a shrinking workforce, this ensures vast employment opportunities for CTEC students to apply the skills and knowledge recognized in the attainment of their CTEC certificates and degrees.

As noted in the CTEC Program Description, "The Construction Technology program prepares students in general building construction and maintenance of large or small structures. The program allows students to explore different trades prior to selecting a specialization". This means that CTEC program students compete for jobs at entry or intermediate levels in many trade fields outside of the confinement of programs to one Classification of Instructional Programs (CIP) Code, in the case of UHMC's CTEC

Program, 46.0000 Construction Trades, General. However, the program's curriculum introduces and familiarizes students with industry knowledge and skills in multiple trades at a level that afford students the opportunity for gainful employment under many CIP Codes:

46.0000) Construction Trades, General.
46.01) Mason/Masonry.
46.0101) Mason/Masonry.
46.02) Carpenters.
46.0201) Carpentry/Carpenter.
46.03) Electrical and Power Transmission Installers.
46.0301) Electrical and Power Transmission Installation/Installer, General.
46.0302) Electrician.
46.0303) Lineworker.
46.0399) Electrical and Power Transmission Installers, Other.
46.04) Building/Construction Finishing, Management, and Inspection.
46.0401) Building/Property Maintenance.
46.0402) Concrete Finishing/Concrete Finisher.
46.0403) Building/Home/Construction Inspection/Inspector.
46.0404) Drywall Installation/Drywaller.
46.0406) Glazier.
46.0408) Painting/Painter and Wall Coverer.
46.0410) Roofer.
46.0411) Metal Building Assembly/Assembler.
46.0412) Building/Construction Site Management/Manager.
46.0413) Carpet, Floor, and Tile Worker.
46.0414) Insulator.
46.0415) Building Construction Technology.
46.0499) Building/Construction Finishing, Management, and Inspection, Other.
46.05) Plumbing and Related Water Supply Services.
46.0502) Pipefitting/Pipefitter and Sprinkler Fitter.
46.0503) Plumbing Technology/Plumber.
46.0599) Plumbing and Related Water Supply Services, Other.
46.99) Construction Trades, Other.
46.9999) Construction Trades, Other.
47.0106) Appliance Installation and Repair Technology/Technician
47.02) Heating, Air Conditioning, Ventilation and Refrigeration Maintenance Technology/Technician (HAC, HACR, HVAC, HVACR).
47.0201) Heating, Air Conditioning, Ventilation and Refrigeration Maintenance Technology/Technician.
15.0501) Heating, Ventilation, Air Conditioning and Refrigeration Engineering Technology/Technician.
15.0503) Energy Management and Systems Technology/Technician.
15.0505) Solar Energy Technology/Technician.
15.0506) Water Quality and Wastewater Treatment Management and Recycling Technology/Technician.
15.1301) Drafting and Design Technology/Technician, General.
15.1302) CAD/CADD Drafting and/or Design Technology/Technician.
15.1303) Architectural Drafting and Architectural CAD/CADD.

https://nces.ed.gov/ipeds/cipcode/browse.aspx?y=55

CTEC graduates regularly seek and are successful in gaining employment in these various and many other trades and facilities operations and maintenance career paths throughout the state of Hawaii, the mainland, and other geographic regions and traditionally do not limit themselves to accepting only the new and replacement positions (County Prorated) used to calculate the Demand Health Call. Additionally, many of the CTEC Program's students are incumbent workers seeking to gain promotion with their current employers through the aquisition of Certificates of Competance (COs) offered in the CTEC Program Map.

SSH and Budget Allocation

As ARPDV information did not reflect specific data or provided disputed data in various fields, the following is provided by UHMC Chancellor's Institutional Research Specialist:

54.88 Total TEs taught in CTEC
- 0 TEs taught by non-CTEC BoR instructors
- 0 TEs taught OUT

825 total SSH taught from courses
- Estimated Tuition Revenue of $112,004.5
- Estimated Salary Total $153,486
- 645 SH taught to CTEC majors
- 180 SH taught to Non-CTEC majors

ii) Efficiency Indicators: **Cautionary**

	Efficiency Indicators	2016 - 17	2017 - 18	2018 - 19	Efficiency Health
9.	Average Class Size	16	17	16	Cautionary
*10.	Fill Rate	83.5%	87.1%	86%	
11.	FTE BOR Appointed Faculty	1	1	1	
*12.	Majors to FTE BOR Appointed Faculty	62	67	73	
13.	Majors to Analytic FTE Faculty	62	67	73	
13a.	Analytic FTE Faculty	2	2	2	
14.	Overall Program Budget Allocation	$169,031	$212,174	$0	
14a.	General Funded Budget Allocation	$156,084	$162,020	$0	
14b.	Special/Federal Budget Allocation	$0	$0	$0	
14c.	Tuition and Fees	$12,947	$50,154	$0	
15.	Cost per SSH	$187	$0	$0	
16.	Number of Low-Enrolled (<10) Classes	3	3	3	

Screenshot ARPDV 2019 Report
UHMC Construction Technology Program
(https://uhcc.hawaii.edu/varpd/)

From 2008-2013, the CTEC Program was supported with 3-9 faculty positions, always meeting or exceeding the "Healthy" rating for student to faculty ratio in the scoring rubric. Changes in program full-time faculty and administrative budget decisions in Fall 2013 left the CTEC Program with one FT Faculty position representing more than 60 students each academic year, resulting in a "Cautionary" assessment of the Program's efficiency in each of the years after administrative cuts to an otherwise healthy and growing program.

Prior to preparing their report for final UHMC's final accreditation, The WSCUC Senior Accreditation Team conducted interviews with program coordinators with particular focus on larger single-faculty programs and how various challenges were being met and supported. Throughout the accreditation process, the WSCUC Team has continually made recommendations to UHMC, based on faculty-to-student ratios that facilitate program and student success, for faculty count increases for single-faculty programs with disproportionate student to faculty ratios as evidenced in ARPD data, CTEC Program Reviews and Advisory Committee recommendations, and consistently in program and department budget requests from 2013 to present.

> *"The Committee continues to be concerned about the long-term success, viability, and sustainability of the CTEC Program with only a single faculty and expressed this concern in previous years' budget recommendations. The CTEC Program functioned with three (or more) full-time faculty until the end of the 2012-2013 academic year. We believe that the teaching requirements and institutional demands placed on the Program Coordinator are well beyond what one person should be required to fulfill.*
>
> *There are numerous areas that the Program Coordinator could be more productive if the CTEC Program is able to secure a second faculty position. These areas include but not limited to: high school and industry outreach efforts, new class development and aligning of the Program to National Standards to provide additional National recognized certification to the Program and students. As noted in WSCUC accreditation team recommendations from their April 2-5, 2014 and January 31-February 5, 2017 visits, a program serving more than 60 students (and more than 75 in the Fall 2017 semester), such as the CTEC Program, cannot rely on one individual for perpetuity.*
>
> *The CTEC Program Advisory Committee again unanimously recommends that UHMC Administration conscientiously consider making a priority of the creation and hiring of a second full-time, permanent, Faculty position for the CTEC Program."*
>
> *Construction Technology Program Advisory Committee*
> *Letter of Support for CTEC Program*
> *Second Full-Time Faculty Permanent Position*
> *October, 15 2017*

The CTEC Program Advisory Committee still maintains the position that the workload of one FT Faculty and the current Program Lecture staff does not support scheduling of classes or planned expansion of the programs curriculum to meet industry educational requirements for specific trades, and strongly recommends that UHMC's administration immediately approve a second full-time Faculty position for the CTEC Program.

In the summer of 2018, the CTEC Program's sole full-time faculty member experienced a medical situation that almost left the program without a full-time faculty. As the current coordinator and sole-faculty is responsible for the support of more than 70 CTEC majors, required to maintain and develop curriculum for an extremely diverse group of trades courses; and finds, hires, and provides logistical and procurement support for all of the lecturers involved in the CTEC Program, this is a substantially difficult position to fill. Prior to 2014, the duties were shared between two full-time faculty with less than 60 students, and produced significantly less productive results than the current sole faculty. It is imperative that UHMC's administration begin to search for qualified predecessors and allow for a position that creates a smooth transition for growth and a sustainable future for the program.

UHMC's trades course instructors are traditionally current experts in their specific trade and the majority teach around their "day job" schedules as lecturers. Even lecturer positions are difficult to fill as trades lecturers can make substantially more money in their actual careers. The majority of trades lecturers have no desire to apply for a full-time instructor position unless significantly compensated beyond the normal instructor salary range, especially if the workload of the position requires them to teach courses outside of their specific area of expertise.

iii) Effectiveness Indicators: **Cautionary**

Effectiveness Indicators		2016 - 17	2017 - 18	2018 - 19	Effectiveness Health
17.	Successful Completion (Equivalent C or Higher)	88%	89%	88%	Cautionary
18.	Withdrawals (Grade = W)	16	16	7	
*19.	Persistence Fall to Spring	75%	65%	70%	
19a.	Persistence Fall to Fall	38%	50%	48%	
*20.	Unduplicated Degrees/Certificates Awarded	50	43	27	
20a.	Degrees Awarded	12	11	10	
20b.	Certificates of Achievement Awarded	14	12	9	
20c.	Advanced Professional Certificates Awarded	0	0	0	
20d.	Other Certificates Awarded	133	133	61	
21.	External Licensing Exams Passed	0	0	0	
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	

Screenshot ARPDV 2019 Report
UHMC Construction Technology Program
(https://uhcc.hawaii.edu/varpd/)

While UHMC's overall enrollments in most programs have pointedly declined over the last three years, enrollment and Associate of Applied Science graduation rates in the CTEC Program have increased significantly over the past five years. Additionally,

Certificates of Accomplishment and Certificates of Competence awarded have substantially increased as well.

The CTEC Program traditionally serves many students that come to UHMC in times of economic decline. Over the last five years, students transitioning to building and construction trades from the closing of the local sugar cane industry entered the program with educational assistance from the Department of Labor, contributing greatly to the increased completion and graduation rates in recent years. More importantly, our students have been able to go out into the work force and find meaningful employment based on the knowledge, skills, and experience they have gained through their UHMC, CTEC Program education.

The CTEC Program shows significant potential for growth in enrollment, completion, and transfer rates with construction industry trends to address new technology and specialized training in individual trades and facilities maintenance and management. This will be accomplished through implementing planned changes to curriculum to meet industry training requirements for technical trades education and articulating curriculum with UH West Oahu's BAS-FMGT (see Action Plan).

Additionally, industry safety guidelines for class sizes for most CTE/VocTech hands-on lab courses, and approximately 60-65% part-time student enrollment, students often must postpone graduation for multiple semesters which complicates retention, persistence, and completion issues. A second full-time faculty would allow for a more concentrated effort to meet the needs of the students to provide a better mix of courses, more sections, and class times that allow them to complete at a more rapid pace.

iv) Perkins Indicators

	Perkins Indicators	Goal	Actual	Met
29.	1P1 Technical Skills Attainment	93	95.24	Met
30.	2P1 Completion	55	33.33	Not Met
31.	3P1 Student Retention or Transfer	81.9	97.73	Met
32.	4P1 Student Placement	66.25	70	Met
33.	5P1 Nontraditional Participation	23.5	11.54	Not Met
34.	5P2 Nontraditional Completion	23	7.89	Not Met

Screenshot ARPDV 2019 Report
UHMC Construction Technology Program
(https://uhcc.hawaii.edu/varpd/)

2P1 Completion: As formerly noted, many of the CTEC Program's students are incumbent workers seeking to gain promotion with their current employers through the aquisition of Certificates of Competance (COs) and individual courses offered in the CTEC Program Map. While it is the intention of the CTEC Program to retain students to

degree completion, the goal of having these COs in the program map is to provide a path to a CTEC AAS using the COs as building blocks towards the degree, as well as providing local industry recognized trades workforce training in specialized fields. (See Performance Indicators)

5P1 Nontraditional Participation: The UH system goal of 23 percent nontraditional participation is excessive and presents an unreasonable expectation of the CTEC program in this area. The current percentage of non-traditional participation of 11.54 percent of CTEC program students exceeds the national average of nontraditional participation in the construction and facilities maintenance industry.

According to The National Association of Women in Construction Women currently "make up 9.1 percent of the U.S. construction workforce, However, the percentage of women in construction overall has hovered somewhere between 9% and 10% since 1996 and is currently at 9.9%. But of the 8.3 million that were employed in field production of the construction and extraction industries in 2018, only 3.4% were women".
(*https://www.cnbc.com/2019/01/28/heres-what-its-like-to-be-a-woman-construction-worker.html*),

In a recent survey, "three-quarters of those [women]ages 18 to 25 that the NAHB surveyed knew what careers they would pursue, but only 3% of that group had chosen construction. Undecided survey participants responded overwhelmingly (63%) that there was little to no chance that they would choose a career in construction no matter the pay, with almost half of that group wanting a less physical job and 32% responding that they considered construction work too difficult".
(*https://www.constructiondive.com/news/by-the-numbers-women-in-construction/549359/*)

As stated in the above article, "Convincing women they belong in construction and that the trades will treat them well represents a shift in mindset that won't happen overnight". While the sole CTEC Program full-time faculty makes every effort to recruit along these lines, it's a long game that will require more resources than one full-time person to make a real difference.

5P2 Nontraditional Completion: In consideration of the data discussed in 5P1, the UH System goal of 23 percent nontraditional completion is excessive and presents an unreasonable expectation of the CTEC Program in this area, as well. If nontraditional participation of 11.54% represents approximately 50% of the system goal in the area of participation yet exceeds national averages, 7.89% in completion of nontraditional students may be considered as a reasonably fair and met goal in this area.

v) Performance Indicators

	Performance Indicators	2016 - 17	2017 - 18	2018 - 19	
35.	Number of Degrees and Certificates	26	14	19	
36.	Number of Degrees and Certificates Native Hawaiian	5	2	4	
37.	Number of Degrees and Certificates STEM	Not STEM	Not STEM	Not STEM	
38.	Number of Pell Recipients[1]	12	5	8	
39.	Number of Transfers to UH 4-yr	0	0	0	

Screenshot ARPDV 2019 Report
UHMC Construction Technology Program
(https://uhcc.hawaii.edu/varpd/)

With the closing of Hawaiian Commercial & Sugar Company (HCS) on Maui in 2016, the program recruited numerous displaced workers seeking an avenue to gain short-term skills training which was funded through the Department of Labor, Workforce Development. While many of the students went on to pursue their CTEC AAS, a large portion of these students had no intention of taking the math or English courses required for the AAS and looked to gain employment by acquiring industry recognized skills through individual courses and COs offered by the CTEC Program. As of Spring 2019, most of the HC&S displaced students supported by this funding have either graduated the program or have gained employment through training in certificate courses. The current student base is building towards more full-time enrollment, with a concerted effort to recruit from local high schools, which should result in a higher percentage of completers.

b) Discuss course offering modality including online, hybrid, and skybridge.

	Distance Indicators	2016 - 17	2017 - 18	2018 - 19	
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%	

Screenshot ARPDV 2019 Report

UHMC Construction Technology Program
(https://uhcc.hawaii.edu/varpd/)

The complexity of hands-on demonstration and safety assessment of the skills and proficiencies required to complete many of the Student Learning Outcomes of the majority of the trades related courses in the CTEC Program make it difficult to offer these courses in an online, hybrid, or skybridge modality. However, a fraction of the lecture courses offered in the CTEC Program curriculum may be offered in one of the aforementioned platforms in the foreseeable future, but only if UHMC's administrators choose to support another full-time faculty or grant-funded position with adequate compensation for a prospect with both trades industry and distance education expertise.

c) Highlight new innovative student support efforts including FYE, etc.

PLA and Non-Credit to Credit Articulation

Over the last 2 years, the CTEC Program Coordinator has reviewed assessments and awarded multiple credits to students bringing industry experience in the form of Prior Learning Assessment (PLA). Additionally, the coordinator has developed articulation agreements with UHMC's non-credit programs. This allows students to gain credit for their non-credit industry training and has proved to be an asset to program recruitment. Articulated courses now include: OSH 10 (1 credit), HLTH 31, (1 credit), and MAIN 20 Intro to Building Maintenance (2 credits).

First Year Experience (FYE)

First Year Experience (FYE) is a vital part of helping students to feel at home and comfortable in the Construction Technology Program and in making decisions that contribute to their retention and success in their educational goals.

As students in the program spend up to 5 hours in one day in one CTEC course, peer connections and the ability to work well and collaborate with others towards a common goal is extremely important. During the last year, three (3) of the CTEC Program's introductory courses were observed as FYE courses: MAIN 20 Intro to Building Maintenance; MAIN 60 Small Equipment Repair; and CARP 20 Basic Carpentry Skills.

In addition to meeting the course requirements in these "hands-on" classes, first semester students are introduced to peers, often teamed up with returning students that are already familiar with campus and system resources, and are targeted with campus tours and guest speakers from various campus resources to include The Learning Center, Financial Aid, Counseling and other departments that focus in areas of student support and success.

HVAC Perkins Grant

In the Fall 2018 semester, the CTEC Program Coordinator was tasked by UHMC's Chancellor to write a Perkins grant to obtain funding to support workforce training in the area of Heating Ventilation and Air Conditioning, specifically targeting, incumbent, high school, and nontraditional students. With the aid support of the chancellor's grant specialist, a proposal was submitted in Spring 2019.

It is expected that the grant will be awarded for the 2019-2020 academic year and will provide support for students in the way of a full-time temporary HVAC certificate program coordinator, HVAC training center equipment, and textbook library.

Additionally, in Spring 2019, UHMC's Chancellor received funding for tuitions aimed at workforce development and requested non-credit services at UHMC to produce a similar short-term certificate program in the same area of instruction, in some ways competing with the CTEC program offering and target audience. However, coordinators from both programs have proposed, and continue to work toward creating articulation that will allow for students that have successfully completed non-credit course work to gain credit for some of the credit courses in the new CTEC HVAC Maintenance Certificate.

3. Program Student Learning Outcomes

a) List of the Program Student Learning Outcomes

Upon successful completion of the Construction Technology Program, the student should be able to:

1. Use and maintain appropriate materials, tools, equipment, and procedures to carry out tasks performed on construction projects according to safety and industry standards.
2. Use math, computer, and oral and written communication skills to solve construction project problems.
3. Create and maintain accurate documentation of construction and maintenance projects.
4. Describe industry standard Green Building practices in construction and maintenance projects.
5. Read and interpret blueprints, and/or schematics, and specifications to plan projects.
6. Demonstrate the craftsmanship standards of dependability, punctuality, and quality.
7. Examine and use proper mechanical, electrical, and carpentry codes and standards applicable to construction and repair.

b) Program Student Learning Outcomes that have been assessed in the year of the Annual Review of Program Data.

No assessment of Program SLOs was performed this year. All PSLOs were completely assessed in prior two (2) years in planning for overhaul of entire program map to better meet industry needs, course curriculum for all program courses, including reassessed course SLOs, were submitted in the Spring 2019 semester and major program map changes are to be submitted in Fall 2019. Reassessment of PLOs will begin Spring 2021.

c) Describe the assessment activity

Program assessment activities leading to major program changes submitted in Spring 2019 and those to be submitted in Fall 2019 include:
Program SLO assessment

CASLO assessment of all courses
Advisory Committee Meetings: x 4 ea. in 2018-2019; x 4 ea. in 2017-2018; and 3 times or more in each of the previous years from 2014 to 2017.

d) Describe assessment results

Rigorous assessment of Student Learning Outcomes for program and all courses in program map from 2014 to current has led to submission and approval of all CTEC Program course outlines in Spring 2019.

e) Describe any changes that have been made as a result of the assessments.

Rigorous assessment activities from 2014 to current have led to restructuring of program map that will allow students in this program to either complete their CTEC AAS at a terminal level or transfer to University of Hawaii-West Oahu's (UHWO) BAS Facilities Management (FMGT). All CTEC courses were brought to 100 level in Spring 2019 to facilitate program map changes to be submitted in FALL 2019. This will accommodate transfer of program courses to UHWO FMGT Program. FMGT Program Coordination Council Articulation agreement to be entered into Fall 2019, to begin Fall 2020.

4. Action Plan

a) Describe the action plan for the next academic year, including resource, curricular, professional development, or other next steps.

1. Continue to seek administration's support and funding for second permanent full-time faculty position

2. Complete curriculum submissions and articulation of CTEC Program's AAS with UH West Oahu's BAS-FMGT.

3. A Perkins grant creating a HVACR certificate in recognition of industry need for specific training in the air conditioning field was applied for during the Spring 2019 semester.

b) Include how the actions within the plan support the college's mission. In addition to the overall action plan for the program, include specific action plans for any Perkins Core Indicator for which the program did not meet the performance level.

1. A second full-time faculty would specifically concentrate on program recruitment, retention, and completion of nontraditional students (Perkins Indicators 2P1, 5P1, and 5P2), while offering new and relevant courses that lead students to transfer to the UH West Oahu BAS-FMGT program. More specifically the creation of a second position creates a line of succession in other areas that require new and hard to find instructors, most often coming from retiring industry professional and journey-worker positions to post-secondary education, time to become proficient in the areas of institutional knowledge to include UH System policies and procedures which

contribute to the safeguarding of the CTEC Program's maintenance, growth, and sustainability.

2. The creation of a transfer pathway to UH West Oahu's Facilities Management BAS program opens an avenue to construction and facilities careers that is more desirable than the physicality of the current CTEC Program map to nontraditional students. Additionally, this path allows for students that have no associate degree in their current bachelor's program (example: Sustainable Science, Applied Business & Information Technology) and undecided Liberal Arts majors to enter or transfer to the CTEC Program, bringing general education and some of their requirements towards the FMGT program with them. Final submission of curriculum documents expected in Fall 2019.

3. Should the HVACR Training Perkins grant be awarded for the 2019-2020 academic year, a temporary coordinator position funded through the grant may temporarily address some of the Perkins indicator challenges reflected in this year's data. However, administration should not rely on this to fill the gap of a permanent full-time faculty or as a succession plan for the program.

Funding and support for a second FT Faculty position, articulation of curriculum with UH West Oahu, and the potential HVAC Perkins grant specifically supports the following UHMC Strategic Directions:

Quality of Learning

- Objective 1: A college culture that promotes excellence in teaching and learning for students, faculty and staff.
- Objective 2: High quality degrees, certificates and courses that meet student, industry, and relevant stakeholder need.
- Objective 3: Physical and fiscal support for high-quality teaching and learning.
- Objective 4: Broad support for non-traditional and underprepared students with varied challenges.

Student Success

- Objective 1: College adopts policies and practices to help students enroll in and progress through college.
- Objective 2: College provides optimal learning environments and effective and timely support for struggling students (especially Native Hawaiian and underrepresented students).

Community Needs & Workforce Development

Goal: To prepare students to meet current and emerging community and workforce needs and opportunities.

- Objective 1: Continuous evidence-based understanding of community and workforce needs and opportunities.
- Objective 2: Credit and non-credit curriculum that are connected with relevant community and economic needs.
- Objective 3: High quality Outreach centers to meet the credit and non-credit needs of the community.

- Objective 4: Consistent communication with the community about the College's mission and offerings.

5. Resource Implications

(physical, human, financial)

As none of the CTEC program's primary budget requests have been granted for more than 6 years, and the need continues to grow exponentially with CTEC Program enrollments each year, and as UHMC's administration provides no succession plan for program leadership, the program's request remains the same as in the years before.

Primary Program Budget Request:

1. **FTE C-2 Construction Technology (CTEC) Instructor Position, 9 month, tenure track**

Base Salary: $54,084 (2017-2021 UHPA/BOR Contract), or current rate + fringe.

Secondary Program Budget Requests:

1. **Dust Collection System for Carpentry Shop**
   Estimated cost including infrastructure improvements: $18,000-$25,000

The Carpentry Shop serves approximately 150 Carpentry Apprenticeship Training Program and 65-70 CTEC Program students each semester. The industrial dust collection system for the Carpentry Shop was dismantled and disposed of in the 1990s and has not been replaced.

In some cases, portable dust collectors have been temporarily used at individual tool locations to mitigate atmospheric saw dust, but with poor results. Proper dust collection and air filtration is important in any work space. Repeated exposure to wood dust can cause chronic bronchitis, emphysema, "flu-like" symptoms, and cancer. Wood dust also frequently contains chemicals and fungi, which can become airborne and lodge deeply in the lungs, causing illness and damage. These things create an issue of health and safety for all students and faculty using the Carpentry Shop.

As the decommissioned dust collection system provided for an antiquated shop with larger capacity tools with more exposure to dust particulates, and the current equipment emits less particulate matter in a smaller footprint, the system will need to be sized to meet the needs of the current teaching environment. Additional infrastructure improvements include structural supports, overhead ducting, and electrical power to the collection unit/s.

2. **Carpentry Shop Workbenches (8 each)**
   Estimated Cost: $1,200 ea. (does not include shipping)

The current workbenches in the Carpentry Shop are more than 50 years old and are in very poor condition due to active and former termite infestation and excessive use. These "homemade" benches are not salvageable and must be replaced. As noted previously, the Carpentry Shop serves approximately 150 Carpentry Apprenticeship Training Program and 65-70 CTEC Program students each semester.

Appropriate workbenches should include:

- Steel Legs (adjustable height 29”-39”)
- 36” x 60” x 2” Oak Butcher-block top
- 2 ea. Carpenter’s Woodworking Vice