ANNUAL
REPORT OF PROGRAM DATA
2022

UNIVERSITY of HAWAI'I
MAUI
COMMUNITY COLLEGE

Construction Technology (CTEC) Program

1. Program or Unit Description

Program or Unit Mission or Purpose Statement
The Construction Technology (CTEC) 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.

Value of degree

What is the industry/higher ed path value of the certificate versus degree level?

While many students come to the CTEC Program in pursuit of an AAS degree, a large portion seek certificates to support promotion in their existing career or to cross train within their organization. The CTEC Advisory Committee, consisting of local employers, confirms that degrees in the building and construction/ facilities engineering field may not be required for many entry level industry positions. However, they wholeheartedly recommend degrees for individuals that wish to advance to higher levels of employment in the building, construction and facilities maintenance and management industry.

Provide graduate highlights based on recent graduate placement data.

Due to the Covid-19 pandemic, recent placement data has been difficult to garner and interpret. Discussions with program students and local employers seem to maintain that our students continue to be employed in their area of study at a high rate. Workforce demand in the building and construction trades and hospitality and tourism industry that our students seek employment in is projected to continue to gain traction in the long-term future, supporting excellent employment prospects for our students.

What is the target student or service population?
The program has multiple target populations. The first is the older adult or nontraditional who is looking for a career change or upgrade. These students are at least 4 years past high school and are very diverse in educational backgrounds but are generally motivated to learn and have goals.
The second target audience is recent high school graduates. The program spends considerable time in communication with the seven Maui County high school counselors and students to promote awareness of building and construction and facilities maintenance and management as a potential career. A third group are professionals in the field who come for specialized training, for instance taking a carpentry, plumbing, welding, or electricity class, who are not degree seeking but may be seeking advancement with their current employer or seeking training to prepare them for transition in the workforce. We also have some Liberal Arts and other non-program majors who take one or two courses as electives.

CTEC program students compete for positions at entry or intermediate levels in many trade fields outside of the confinement of the University of Hawai'i's programs to one Classification of Instructional Programs (CIP) Code, as in the case of UHMC's Construction Technology Program:
Detail for current CTEC Program CIP Code 46.0415
Title: Building Construction Technology.
Definition: A program that prepares individuals to apply technical knowledge and skills to residential and commercial building construction and remodeling. Includes instruction in

construction equipment and safety; site preparation and layout; construction estimating; blueprint reading; building codes; framing; masonry; heating, ventilation, and air conditioning; electrical and mechanical systems; interior and exterior finishing; and plumbing.

The CTEC 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 to include, but not limited to:

46) CONSTRUCTION TRADES.
46.00) Construction Trades, General.
46.01) Mason/Masonry.
46.02) Carpenters.
46.03) Electrical and Power Transmission Installers.
46.04) Building/Construction Finishing, Management, and Inspection.
46.05) Plumbing and Related Water Supply Services.
46.99) Construction Trades, Other.
47) MECHANIC AND REPAIR TECHNOLOGIES/TECHNICIANS.
47.00) Mechanics and Repairers, General.
47.01) Electrical/Electronics Maintenance and Repair Technology.
47.02) Heating, Air Conditioning, Ventilation and Refrigeration Maintenance Technology/Technician (HAC, HACR, HVAC, HVACR).
47.03) Heavy/Industrial Equipment Maintenance Technologies.
47.04) Precision Systems Maintenance and Repair Technologies.
47.99) Mechanic and Repair Technologies/Technicians, Other
52) CONSTRUCTION MANAGEMENT, OTHER
52.2001) Construction Management, General.
52.2002) Construction Project Management.

https://nces.ed.gov/ipeds/cipcode/default.aspx?y=56

See Section 6. Optional: Edits to Occupation List for Instructional Programs, for request for additional program CIP codes.

Check all that apply for the program:

_X_ Articulated Pathways for 4-year or graduate pathways: Construction Technology AAS-FMGT Concentration to UHWO BUS-FMGT BAS
___ Articulated Pathways for High school: _____
_X_ Articulated Pathways for Other: Non-credit to Credit through Prior Learning Assessment (PLA)

What effect has this program had on closing equity gaps?

Equity gaps continue to persist as nontraditional workers in the fields of construction and facilities engineering and maintenance represent little more than 10% of employees in the fields. Further discussion of this obstacle and the program's ability to close gaps in this area are contained in other areas of this document addressing Perkins Indicators and in Section 2, Perkins Indicators.

2. Analysis of the Program/Unit

Discuss the Program's or Unit's strengths and areas to improve in terms of Demand, Efficiency, and Effectiveness based on an analysis of the program's Quantitative Indicators or comparable unit-developed measures or program-developed metrics. Include a discussion of relevant historical-trend data on key measures (i.e., last three years).

Discuss significant program or unit actions (new certificate(s), stop outs, gain/loss of position(s), results of prior year's action plan, etc.). Include external factors affecting the program or unit.

Instructional programs must include ARPD health indicators with benchmarks to provide a quick view on the overall condition of the program; CTE programs must include an analysis of Perkins Core indicators for which the program did not meet the performance level.

[insert ARPD data table, if available; else, insert unit or program specific data used for review]

All data tables shown in this report are screenshots taken from https://uhcc.hawaii.edu/varpd/.
Keyword Search Entry:

- *Step 1- Report Year: 2022*
- *Step 2- Campus: Maui*
- *Step 3- Category: Career & Technical*
- *Step 4- Program/Area: Construction Technology (ID=2632)*

Demand Indicators: Healthy

#	Demand Indicators	2019 - 20	2020 - 21	2021 - 22
1.	New & Replacement Positions (State)	2991	2959	2945
2.*	New & Replacement Positions (County Prorated)	291	287	287
3.	Number of Majors	66	54	52
3a.	Number of Majors Native Hawaiian	15	14	15
3b.	Fall Full-Time	35%	32%	34%
3c.	Fall Part-Time	65%	68%	66%
3d.	Fall Part-Time who are Full-Time in System	0%	2%	0%
3e.	Spring Full-Time	26%	25%	23%
3f.	Spring Part-Time	74%	75%	77%
3g.	Spring Part-Time who are Full-Time in System	0%	2%	2%
4.	SSH Program Majors in Program Classes	729	544	465
5.	SSH Non-Majors in Program Classes	115	130	147
6.	SSH in All Program Classes	844	674	612
7.	FTE Enrollment in Program Classes	28	22	20
8.	Total Number of Classes Taught	27	21	21
	Demand Health		Healthy	

NOTE: New & Replacement jobs updated (View Methodology).

Job prospects remain strong for CTEC graduates and students that earn program certificates. With the addition of the Facilities Management Concentration in the CTEC program map, students are able to choose from an even broader range of careers. CTEC graduates regularly seek and are

successful in gaining employment in numerous trades and facilities operations and maintenance career paths throughout the state of Hawaii, the mainland, and other geographic regions, traditionally not placing limits on themselves to accepting only the new and replacement positions (County Prorated) used to calculate the Demand Indicators. Additionally, many of the CTEC Program's students are incumbent workers seeking to gain promotion or departmental transfers with their current employers through the acquisition of Certificates of Professional Development (CPDs), Certificates of Competence (COs), and Certificates of Achievement (CAs) offered in the CTEC Program Map.

According to the National Association of Homebuilders (NAHB), we continue face the largest amount of unfilled construction related replacement positions ever. The retirement of tens of thousands of baby boomer generation tradespersons each year, and now retirements, due to deaths and consequential decisions related to the Covid-19 pandemic, and a limited amount of interested replacement prospects over the next several years represent an ever-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.

Efficiency Indicators: Progressing

#	Efficiency Indicators	2019 - 20	2020 - 21	2021 - 22
9.	Average Class Size	14	14	12
10.*	Fill Rate	74.1%	74.3%	66.7%
11.	FTE BOR Appointed Faculty	1	1	1
12.*	Majors to FTE BOR Appointed Faculty	66	54	52
13.	Majors to Analytic FTE Faculty	33	27	26
13a.	Analytic FTE Faculty	2	2	2
14.	Overall Program Expenditures	$189,584	$144,129	$132,580
14a.	General Funded Budget Allocation	$144,765	$134,831	$124,001
14b.	Special/Federal Budget Allocation	$184	0	0
14c.	Tuition and Fees	$44,635	$9,298	$8,579
15.	Cost per SSH	$225	$214	$217
16.	Number of Low-Enrolled (<10) Classes	3	1	6
	Efficiency Health	Progressing		

While in the past several years Efficiency Indicators showed as “Healthy,” current ARPD data indicates a “Progressing” rating, and student to faculty ratio is an ongoing concern for the sustainability of the program.

With one Full-Time (FT) Faculty position representing more than 50, and up to 73 students for the last several years, the CTEC Program Advisory Committee has regularly declared and still maintains their position that the workload of one FT Faculty and the current program Lecturer staff does not support scheduling of classes and curriculum to meet industry educational requirements for specific trades, and has strongly recommended that UHMC’s administration approve a second FT Faculty position for the CTEC Program. Maui College’s own accreditors, the WASC Senior College and University Commission (WSCUC) recommended additional faculty for the CTEC

program in their initial accreditation visit and in every accreditation report since. Approval for the second position was granted in Fall 2021. However, administration chose to use a position number that was involved in reorganization, holding up the process and ability to advertise and hire, and as of the writing of this report, no qualified trades persons have applied for the position.

Prior to 2014, the CTEC program's faculty duties were shared between two full-time faculty with less than 60 students, and produced significantly less productive results than the current sole faculty in efficiency and effectiveness. 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 such, the current coordinator and sole-faculty that is responsible for the support of approximately 60 CTEC majors on average, required to maintain and develop curriculum for an extremely diverse group of trades courses; and finds, hires, and provides logistical and procurement support for the lecturers involved in the CTEC Program is now scheduled to retire at the end of the Fall 2022 semester. Additionally, the current University of Hawaii salary structure for faculty in the construction trades cannot compete with what these individuals can earn in their industry, making this is an extremely difficult position to fill.

Concerns of the Advisory Committee are that Maui College's administration will only fill one of the two positions upon the retirement of the current single faculty. With the retirement of the current faculty and potential loss of institutional and programmatic knowledge, it is the utmost priority of the CTEC program that UHMC's administration begin to search for qualified predecessors and continue to budget and fill **both** positions to capitalize on the programs potential for growth and to ensure a sustainable future for the program (see Section 5, Resource Implications).

Effectiveness Indicators: Needs Attention

#	Effectiveness Indicators	2019 - 20	2020 - 21	2021 - 22
17.	Successful Completion (Equivalent C or Higher)	85%	91%	94%
18.	Withdrawals (Grade = W)	22	4	11
19.*	Persistence Fall to Spring	62%	72%	54%
19a.	Persistence Fall to Fall	34%	39%	25%
20.*	Unduplicated Degrees/Certificates Awarded	27	21	20
20a.	Degrees Awarded	6	3	6
20b.	Certificates of Achievement Awarded	7	3	4
20c.	Advanced Professional Certificates Awarded	0	0	0
20d.	Other Certificates Awarded	80	57	41
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
	Effectiveness Health		**Needs Attention**	

[1] Campus to include in program analysis if applicable.

The decline in persistence fall to fall over the last few years, while a concern, mimics what is noticed in most programs during this time frame. Covid-19 and the uncertainty associated with social distancing guidelines, vaccine mandates and regulations has played havoc with the

University's ability to deliver "hands-on" courses in the trades. Although the program was able to shift an abundance of coursework to online and Zoom platforms, much of what is taught in the program must be instructed and observed in person. As such, students followed trends and quarantined through county and state lockdowns and many decided against returning until more stable guidelines and mandates were provided. As we move forward with consistent Covid policies, it should be expected that a goal of 50% in fall to fall and 65% fall to spring should be attainable in the next couple of years. Degrees and Certificates Awarded should also be expected to follow this trend.

Perkins Indicators

#	Perkins Indicators	Goal	Actual	Met	
29.	1P1 Postsecondary Placement	33	93.33	Met	
30.	2P1 Earned Recognized Credential	33	64.1	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	

Although the Perkins Indicator 3P1 (formerly 5P1) indicates N/A, nontraditional program concentration continues to be a focus of CTE recruitment for the program. Previous goals in this area always indicated as 'Unmet" due to inflated nontraditional goals that were always out of reach according to industry trends.

With Perkins goals in this area that often exceeded 20%, and actuals ranging from 7-11% in previous years, the CTEC Program Advisory Committee suggest that a goal of 12-15% would be a more realistic goal to strive for. According to industry resources, "Of all the people working in construction, women comprise only 10.3 percent. Even smaller is the number of women on the front lines of a job site—only one for every 100 employees in the field. Considering that women make up 47 percent of all employed individuals, this means that the construction industry is only benefitting from about 1.25 percent of women in the workforce".

Other obstacles that nontraditional students face in the construction industry also need to be considered and addressed:

- Pay Gap- 43% of organizations do not actively monitor gender pay gaps
- Advancement- 73% of women feel passed over for roles because of their gender
- Injury- Women have a higher risk of injury due to poorly fitted equipment
- Discrimination- 80% of gender discrimination victims in the workplace are women
- Exclusion- 8 out of 10 women feel left out at company social events
- Role Models- 47% of women have never worked with a manager who is a woman

https://www.bigrentz.com/blog/women-construction
Women in Construction: The State of the Industry in 2021

Ultimately, we need to do a better job of telling the stories of women in construction. When young women see themselves reflected and hear the real stories of other women doing these jobs, they are more likely to consider it as a career. As such, the program has recently recruited women in the industry to serve on the Advisory committee continues to look into support for our students through organizations like the National Association of Women in Construction (NAWIC).

Distance Indicators

#	Distance Indicators	2019 - 20	2020 - 21	2021 - 22	
23.	Number of Distance Education Classes Taught	0	5	4	
24.	Enrollments Distance Education Classes	0	66	57	
25.	Fill Rate	0%	59%	58%	
26.	Successful Completion (Equivalent C or Higher)	0%	89%	95%	
27.	Withdrawals (Grade = W)	0	0	1	
28.	Persistence (Fall to Spring Not Limited to Distance Education)	0%	95%	46%	

CTEC Program Outreach and Support

Over the course of the last few years, students on the island of Molokai have been able to take several CTEC program CARP, MAIN, and ELEC courses coordinated and collaborated through Molokai Outreach Center CTE Transition Coordinator and the UHMC CTEC Program Coordinator resulting in numerous certificates being awarded and helping CTEC major numbers to remain stable during the Covid19 pandemic.

Molokai's CTEC Transition Program Coordinator position has allowed our CTEC program to extend our reach to vulnerable populations that are traditionally underrepresented in higher education. The position is extremely crucial to the ability of the CTEC program to offer courses through outreach on Molokai and in counseling the Outreach Center's students through our program's in-person, online, and hybrid offerings.

Due to the "hands-on" nature of building and construction trades courses, travel and budget restrictions, and materials and equipment procurement and transportation, offering these courses to UHMC's Outreach Center on Molokai would be impossible without the support of the Molokai Outreach Center CTE Transition Coordinator. While also facilitating other CTE programs, including Nursing Assistant and Early College, to offer courses through the Outreach Center, Molokai's Transition Coordinator has been instrumental in the search and hiring of lecturers on Molokai to teach the CTEC program courses being offered there, securing equipment and materials from local and off-island resources, and arranging for the transportation of items shipped from the Kahului campus to Molokai.

The CTEC Program supports all requests for continued funding for this Perkins Grant funded position and other Perkins initiatives that support CTEC course offerings on our outer islands and communities and looks forward to the opportunity to offer further outreach opportunities, with the assistance of this position, for our students on the islands of Molokai, Lanai and community of Hana.

3. Program Student Learning Outcomes or Unit/Service Outcomes

a) List of the Program Student Learning Outcomes or Unit/Service 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 or Unit/Service Outcomes that have been assessed in the year of this Annual Review.
Courses scheduled for assessment during this program review period include ENRG 101 Into to Sustainable Technology and ENRG 103 Energy Production Systems.

c) Assessment Results
   a. PLO: Provide a summary of the method used for assessment i.e., exit project or capstone results, proficiency standards, stakeholders participating in the assessment process, how the data was collected/analyzed, and the results. For brevity, include a link to complete assessment reports from the Academic Affairs website or include your write-up in the appendix.

Industry partners and CTEC Advisory Committee members met to assess the courses and compared assignments and outcomes from courses in both the CTEC Program and those from two courses in the Sustainable Science Management (SSM) Program with similar Student Learning Outcomes (SLOs). Students in the current catalog are allowed to substitute theses SSM courses for their counterparts in their program map:

Requirement: ENRG 101 Introduction to Sustainable Technology
Substitution: SSM 101 Introduction Science of Sustainability

Requirement: ENRG 103 Energy Production Systems
Substitution: SSM 275 Basic Energy Production

In consideration of the difficulties in finding qualified lecturers to teach industry related courses at the current lecturer rates, program costs, and potential for low enrollment in these

courses, the assessment team was also tasked with discussing the potential and ramifications of requiring the SSM courses and dropping the ENRG courses in the program map.

b. OPTIONAL CASLO: Provide a summary of CASLO assessment in the year of this annual review.
    i. Identify CASLO and program's assessment method CASLOs
    ii. Provide a summary of the analysis, results, and recommendations

In the process of evaluating the outcomes and CASLOs for the ENRG 101 and 103 courses, members of the assessment team concluded that the courses that were originally designed to meet industry basic training requirements for employment in the photovoltaic and wind industry on Maui were not best suited for employment in the currently saturated installer job market. The team also found that most outcomes and skills for employment in the energy production and installation field are now covered in other Construction Technology courses such as ELEC 100 and 110, MAIN 150, 155, 160, and 170.

The assessment team also found that the SSM courses' outcomes met higher level industry requirements and knowledge base for employment in the construction and facilities maintenance and management industries and provided relevant and current curriculum to meet industry employment needs in Hawaii and specifically Maui County.

d) Changes that have been made as a result of the assessment results.

The current CTEC Program Coordinator will drop ENRG courses from the schedule effective Spring 2022 and the incoming coordinator shall revise the program map through proper curriculum submissions in the following academic year. Counselors will be advised to direct students to take SSM 101 and 275 in lieu of ENRG 101 and 103 in the interim. This will allow students and employers of our graduates to ensure they are receiving up-to-date information and skills, and reduce program costs for CTEC program lecturers and increase student seats in previously low enrolled SSM courses.

4. Action Plan

Based on findings in Parts 1-3, develop an action plan for your program or unit from now until your next Comprehensive Review date. Be sure to focus on areas to improve identified in ARPD data, student learning or unit/service outcomes, results of survey data, and other data used to assess your program or unit. This plan should guide your program/unit through to the next program/unit review cycle and must detail measurable outcomes, benchmarks and timelines. Include an analysis of progress in achieving planned improvements.
* CTE programs must include specific action plans for any Perkins Core Indicator for which the program did not meet the performance level.

Specify how the action plan aligns with the College's Mission and Strategic Plan.
Provide an update of last year's action plans, program advisory committee recommendations, and/or dean recommendations.

Address opportunities for re-envisioning the program. How does the plan address emerging or future economic opportunities? What is the projected industry/community demand in 5-6 years?

Discuss how these recommendations for improvement or actions will guide your program or unit until the next Comprehensive Review. Be sure to list resources that will be required, if any, in section 5 below.

*The action plan may be amended based on new initiatives, updated data, or unforeseen external factors.

At the time of the writing of this Program Review, the revision of both the UH Strategic Plan and UHMC Strategic Plan are in the process of being proposed and submitted for approval. However, all previous and current actions herein align with current and future UH and UHMC Strategic Plan objectives related to workforce development and meeting community educational and employment needs, including the acquisition of current industry training equipment and resources to meet those needs. Perkins Core Indicators for the CTEC program continue to be "Met"

Results of Previous Year's Action Plan:

The previous year's Action Plan placed emphasis in the following areas: Online and Hybrid Course Options; Prior Learning Assessment (PLA); Full-time Faculty and Lecturers; CTEC Program Outreach and Support; Operational Budget and Physical Resources. Many objectives and goals in the previous Action Plan were able to be achieved in the last year.

Online and Hybrid Course Options- During the height of the Covid pandemic, our CTE faculty transitioned many lecture/lab courses to a hybrid format. As many CTEC students are considered kinesthetic learners, it was expected that there might be some difficulty in retaining a portion of students in the courses that were moved online. Both students and instructors proved to adapt well overall, with minimal retention issues. However, conversations with students indicate that a large portion of our CTEC student body prefer in-person instruction as opposed to hybrid or online.

After considering the input of instructors, students and program advisors, lecture courses and lecture portions of lecture/lab courses previously offered "face-to-face" in the CTEC Program curriculum that may continue to be offered in online or hybrid platforms in the 2022-2023 academic year include: AEC 110 (4 credits), ELEC 100 (3 credits), FMGT 100 (2 credits), MAIN 155 (2 credits), MAIN 166 (1 credit), OSH 100 (1 credit) and OSH 110 (1 credit).

Prior Learning Assessment (PLA)- CTEC program coordinator records show at least 35 credits having been awarded to students through the Building Maintenance articulation with our non-credit courses since 2017 and more are in progress for award in Fall 2022. As course offerings in both credit and non-credit programs are updated, the CTEC Program will continue to maintain and expand articulation agreements to the benefit of both programs and their students. Additionally,

CTEC program advisors are in discussion to consider PLA for Department of Education (DOE) building and construction course students to qualify for PLA for either the CARP 120 or FMGT 100 courses through testing.

Full-time Faculty and Lecturers- Finding full-time program faculty and lecturers continues to be a struggle because of the limited number of qualified tradespersons on Maui that are capable of teaching multiple trades and the salary structure for faculty and lecturers in competition with the salaries that those individuals can earn in their fields. The CTEC program has run a continuous ad for lecturers over the last several years with minimal response and regularly relies on advisory committee members to lecture and recommend strategies for recruitment in this area. The program will continue to find ways to broaden the appeal to our community's journey-workers and tradespersons for support in this area. Please see Section 2, Efficiency Indicators

CTEC Program Outreach and Support- Please see Section 2, Distance Indicators.

Operational Budget and Physical Resources- The CTEC Program has been fortunate to have benefitted from a couple of requests and benefactors in the last Program Review to include the following:

- **Increase CTE General Fund Department Operating Budget from $23,250 to $35,000-** While this increase is substantial, it must also be noted that the cost of materials, tools, and equipment for all the programs covered by this operating budget continues to rise and the cost of delivering proper training for our students to meet employer expectations still cannot be sustained by the amount the department receives.
- **12 ea. Multi-process Welding Machines 1/3 Phase 408/250 Volt: Estimated Cost $125,000-** Obtained through Carl Perkins Grant funding. Allowed for complete replacement of aged and obsolete welding equipment and allowed for additional seating for program and general community members. Included 3 welding simulation machines to reduce expendable material costs, and new gauges, hoses, and torches to retrofit the gas welding lab.
- **Establishment of the Patricia J Adams Memorial Fund UH Foundation-** This account was established through a $50,000 private donation to the CTEC Program. This donation is now responsible for the recent acquisition of specialty tools being used to upgrade the Carpentry lab to the latest industry standards.

Proposed 2022-2023 Action Plan

In discussion of opportunities for re-envisioning the program, combining the CTEC program with others in not an option. While the program incorporated courses in business, economics, and sustainable sciences into the recent addition of the Facilities Management concentration, trades classes require specific skills and resources to be used. Also, UH system changes during the administrative prioritization and re-envisioning process over the last two years now have other campuses modeling their programs after the UHMC CTEC program.

Projections for industry and community demand over the next several years show that careers in the fields of facilities maintenance and building and construction will remain in high demand. Projected retirements in these fields reflect that for every 3 industry professionals that are currently retiring,

only one is entering the trade. With an ever-deteriorating infrastructure in our roadways, energy systems, buildings and facilities, and other key areas all involving careers our students train for, professionals in these fields will always be in high demand. This is especially true in competing with the work-from-home culture many have adapted to over recent years. Most of the careers in our curriculum require hands-on attention and skills. As such, salaries to entice persons into the industry are also projected to rise. Program graduates and certificate recipients continue to remain in high demand, even in times of economic crisis. When construction projects wane, students are directed towards jobs in facilities maintenance and management, always in demand in the local and global market. It should be noted that during the entire Covid pandemic, when many employment sectors were downsized, construction and facilities positions remained active and even recruited throughout the event.

Ultimately, many of the CTEC program's needs have not changed over the years and items asked for in previous budget requests for faculty and resources still need to be addressed. As noted in previous sections, the program advisory committee has extreme concerns over the sustainability and ability of the program to perform without the employ of qualified industry professionals in a wide variety of construction and facilities trades, especially at the modest salary offered by UHMC. (See Section 5, Resource Implications, FTE C-2 Construction Technology (CTEC) Instructor Position, 9-month, tenure track)

Ever-rising costs for updating tools and equipment to industry training standards will continue to be addressed through Perkins grants and UH Foundation donor contributions. However, additional consideration for increase in the general fund department budget allocation will be necessary to make up for some of the rising costs of expendable materials and other resources, all contributing to students being able to achieve specific Student Learning Outcomes (SLOs). Additionally, there will always be a need to replace aging equipment and tools to keep up with industry safety and currency in skills and processes. (See Section 5, Resource Implications, Secondary Program Budget Requests Still Needed as Requested in Previous Program Reviews)

5. Resource Implications

Detail any resource requests, including reallocation of existing resources (physical, human, financial). *Note that CTE programs seeking future funding via UHCC System Perkins proposals must reference their ARPD Section 4. Action Plan and this ARPD Section 5. Resource Implications to be eligible for funding.

What is the cost? How can your program plan to reduce cost and streamline? Could elements of this program be combined with another program? Discuss any potential system partnerships and/or opportunities for collaboration.

☒ **I AM requesting additional resources for my program/unit.**

PREVIOUS PROGRAM REVIEWS:

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

Base Salary: Current UHPA/BOR contract rate + fringe.

It is expected that a portion of CTEC program lecturer Teaching Equivalencies (TEs) would be converted to facilitate this request, creating some cost savings for the program.

Although it is acknowledged that there are significant budgetary obstacles for the University of Hawai`i to overcome; and as the University of Hawai`i System, Hawai`i Department of Education, the U.S. Department of Labor, and UHMC's Chancellor's office continue to request and champion partnerships and initiatives that involve CTEC program offerings and resources; and that the current faculty is already serving at maximum capacity in their position and will be retiring: in not asking for additional faculty resources and in not keeping a second program position, it will be understood by UH Maui College and UH System administration that there would be no room for program growth and the program will run at a deficit, or, although highly unlikely, status quo at best. Acquisition of this position is also time sensitive. It should be considered that many qualified candidates that might fill behind in the place of someone leaving the current faculty position as coordinator will still require extensive training and knowledge of policies and procedures gained over time to establish the collegiate and community alliances to maintain a vibrant program.

UH Maui College and UH System administration would be remiss to ignore the potential for growth and the long-term sustainability of a program that provides ample evidence for the continued request and maintain a second full-time faculty, especially considering the impending retirement of current faculty and past accreditation team and advisory committee recommendations:

"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 are 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 …. a program serving more than 60 students …, such as the CTEC Program, cannot rely on one individual for perpetuity."

Construction Technology Program Advisory Committee
Letter of Support for CTEC Program

NEW PRIMARY PROGRAM BUDGET REQUEST:

Increase CTE General Fund Department Operating Budget to $42,000

Although the general fund department budget shared by the Construction Technology, Automotive/Auto Body, and Fashion Technology programs was recently increased, the current budget still severely reduces our ability to replicate real-world construction tasks and scenarios. Over the last three years, costs of practically all material resources, especially expendables, for the aforementioned programs have increased exponentially due to material shortages, production and transportation costs, and an extremely competitive construction and housing market. For example: one sheet of ½" plywood for a basic carpentry class that cost $29-$32 two years ago now sells for $48, a cost increase of more than 30%. Additionally, the Automotive program is facing rising disposal costs for hazardous materials such as fluids, tires, and batteries. These examples are par for the costs of all our CTE programs. The current budget allocation is the practically the same as what

the department operated on in the early 2000's. Although rapidly rising costs for products and services used for instruction and operation of these programs is projected to eventually level off in the future (at a higher cost than before budget cuts), these programs cannot be expected to continue to offer quality instruction and curriculum operating on a budget of less than what is being requested.

SECONDARY PROGRAM BUDGET REQUESTS STILL NEEDED AS REQUESTED IN PREVIOUS PROGRAM REVIEWS:

Carpentry Shop Workbenches (10 each)

Estimated Cost: $12,000-$14,000 ($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 55-70 CTEC Program students each semester.

Appropriate workbenches should include:

- Heavy Duty Steel Legs (adjustable height 29"-39")
- Minimum size of 30" x 60" x 2" Oak Butcher-block top
- 2 ea. Carpenter's Woodworking Vice

Dust Collection System for Carpentry Shop

Estimated cost including infrastructure improvements: $20,000-$30,000

The Carpentry Shop serves approximately 150 Carpentry Apprenticeship Training Program and 65-70 CTEC Program students each semester. The defunct 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 health and safety concerns 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.

6. Optional: Edits to Occupation List for Instructional Programs

Review the Standard Occupational Classification (SOC) codes listed for your Instructional Program and verify that the occupations listed align with the program learning outcomes. Program graduates should be prepared to enter the occupations listed upon program completion. Indicate in this section if the program is requesting removal or additions to the occupation list.

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

Current CTEC Program CIP code applies and is appropriate for the following concentrations:

AAS CTEC, Building Maintenance & Construction (BUCO) Concentration
AAS CTEC, Facilities Mechanical (FMEC) Concentration
Detail for CIP Code 46.0415
Title: Building Construction Technology/Technician.
Definition: A program that prepares individuals to apply technical knowledge and skills to residential and commercial building construction and remodeling. Includes instruction in construction equipment and safety; site preparation and layout; construction estimating; blueprint reading; building codes; framing; masonry; heating, ventilation, and air conditioning; electrical and mechanical systems; interior and exterior finishing; and plumbing.

While the above CIP code applies and is appropriate for two of the concentrations in the CTEC Program, the addition of the Facilities Management concentration to the program map in Fall 2020 requires proposing the addition of second CIP code to be associated with the CTEC program. Although students pursuing this concentration may take some of the courses in the above BUCO and FMEC concentrations, the following CIP reflects the qualifications and jobs for graduates of the FMGT concentration and is requested in addition to the above program CIP.

Requesting **ADDITIONAL** CIP code for the following active concentration:

AAS CTEC, Facilities Management (FMGT) Concentration
Detail for CIP Code 52.2002
Title: Construction Project Management.
Definition: A program that prepares individuals to apply project management knowledge, skills, tools, and techniques in the construction and facility management industries. Includes instruction in facilities operations and maintenance, construction estimating, OSHA standards, sustainability, drafting, construction plans, project planning, risk management, cost and time management, contracts and procurement, accounting, statistics, decision making, and human resources.