Construction Technology (CTEC) Program

2020
ANNUAL REVIEW OF PROGRAM DATA

UNIVERSITY of HAWAI'I®
MAUI
COMMUNITY COLLEGE

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.

What is the target student or service population?

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, however, 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:
46.0000) 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

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.

Demand Indicators: Healthy

	Demand Indicators	2017 - 18	2018 - 19	2019 - 20	Demand Health
1.	New & Replacement Positions (State)	465	440	443	Healthy
*2.	New & Replacement Positions (County Prorated)	58	58	55	
3.	Number of Majors	67	73	66	
3a.	Number of Majors Native Hawaiian	13	17	15	
3b.	Fall Full-Time	41%	37%	35%	
3c.	Fall Part-Time	59%	63%	65%	
3d.	Fall Part-Time who are Full-Time in System	0%	0%	0%	
3e.	Spring Full-Time	40%	38%	26%	
3f.	Spring Part-Time	60%	62%	74%	
3g.	Spring Part-Time who are Full-Time in System	2%	0%	0%	
4.	SSH Program Majors in Program Classes	820	618	729	
5.	SSH Non-Majors in Program Classes	81	81	115	
6.	SSH in All Program Classes	901	699	844	
7.	FTE Enrollment in Program Classes	30	23	28	
8.	Total Number of Classes Taught	24	19	27	

Screenshot ARPDV 2020 Report
UHMC Construction Technology Program
https://uhcc.hawaii.edu/varpd/index.php?y=2020&c=MAU&t=CTE&p=2250

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 which over the last three Program Review cycles reflects as "Healthy".

As noted in Section 1, in addressing multiple CIP codes, CTEC graduates regularly seek and are successful in gaining employment in these 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 aquisition of Certificates of Professional Development (CPDs), Certificates of Competance (COs), and Certificates of Achievement (CAs) offered in the CTEC Program Map.

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.

Efficiency Indicators: Cautionary

	Efficiency Indicators	2017 - 18	2018 - 19	2019 - 20	Efficiency Health
9.	Average Class Size	17	16	14	Cautionary
*10.	Fill Rate	87.1%	86%	74.1%	
11.	FTE BOR Appointed Faculty	1	1	1	
*12.	Majors to FTE BOR Appointed Faculty	67	73	66	
13.	Majors to Analytic FTE Faculty	67	73	66	
13a.	Analytic FTE Faculty	2	2	2	
14.	Overall Program Budget Allocation				
14a.	General Funded Budget Allocation				
14b.	Special/Federal Budget Allocation				
14c.	Tuition and Fees				
15.	Cost per SSH				
16.	Number of Low-Enrolled (<10) Classes	3	3	3	

Screenshot ARPDV 2020 Report
UHMC Construction Technology Program
https://uhcc.hawaii.edu/varpd/index.php?y=2020&c=MAU&t=CTE&p=2250

From 2008-2013, the CTEC Program was supported with 3-9 faculty positions (high school based UHMC Construction Academy program instructors also taught courses for the Sustainable Construction Technology program), always meeting or exceeding the "Healthy" rating for student to faculty ratio in the scoring rubric. With the release of 5 instructors from the Construction Academy program in 2012, changes in program full-time faculty and administrative budget decisions in Fall 2013, this left the CTEC Program with one FT Faculty position representing more than 60 students for the last seven years. Additionally, this has severely limited the program's ability to grow and thrive and has resulted in a "Cautionary" assessment of the Program's efficiency in each of the years after administrative cuts to an otherwise healthy and stable program.

Data Set from ARPD and ARPDV Reports	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20
New & Replacement Positions (State)	19	24	92	135	135	90	74	50	465	440	443
New & Replacement Positions (County Prorated)	3	3	10	15	15	9	1	4	58	58	55
Number of Majors	102	106	106.5	89	70	73	62	62	67	73	66
FTE BOR Appointed Faculty	9	9	7	3	1	1	1	1	1	1	1
Majors to Analytic FTE BOR Faculty	11.3	11.8	15.2	29.6	69.5	73	62	62	67	73	66

Compiled from ARPD and ARPDV Reports 2009-2020
Clifford Rutherford, Assistant Professor, CTEC Program Coordinator

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 continually made recommendations to UHMC 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 every program and department budget request from 2013 to present.
For more than 7 years, the CTEC Program Advisory Committee has declared and still maintains their position that the workload of one FT Faculty and the current Program Lecture staff does not support scheduling of classes and 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 greater than 60 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 capitalizes on the programs potential for growth and ensures a sustainable future for the program.

Effectiveness Indicators: <u>Cautionary</u>

	Effectiveness Indicators	2017 - 18	2018 - 19	2019 - 20	Effectiveness Health
17.	Successful Completion (Equivalent C or Higher)	89%	88%	84%	Cautionary
18.	Withdrawals (Grade = W)	16	7	22	
*19.	Persistence Fall to Spring	65%	70%	62%	
19a.	Persistence Fall to Fall	53%	48%	35%	
*20.	Unduplicated Degrees/Certificates Awarded	43	27	27	
20a.	Degrees Awarded	11	10	6	
20b.	Certificates of Achievement Awarded	12	9	7	
20c.	Advanced Professional Certificates Awarded	0	0	0	
20d.	Other Certificates Awarded	133	61	80	
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	

Screenshot ARPDV 2020 Report
UHMC Construction Technology Program
https://uhcc.hawaii.edu/varpd/index.php?y=2020&c=MAU&t=CTE&p=2250

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.

Enrollment and Associate of Applied Science graduation rates in the CTEC Program have remained relatively stable over the past five years. And, 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 is being 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.

With industry safety guidelines only allowing for class sizes of 16-18 students 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.

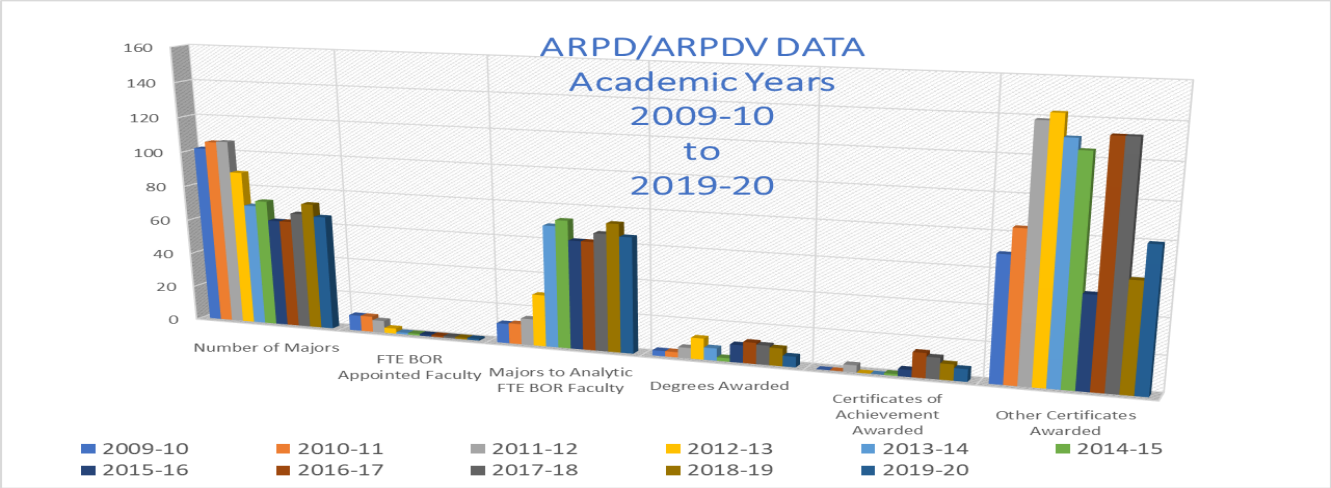
Perkins Indicators

	Perkins Indicators	Goal	Actual	Met
29.	1P1 Technical Skills Attainment	94.75	89.47	Not Met
30.	2P1 Completion	61	36.84	Not Met
31.	3P1 Student Retention or Transfer	86	97.56	Met
32.	4P1 Student Placement	66.75	76.19	Met
33.	5P1 Nontraditional Participation	23.75	7.06	Not Met
34.	5P2 Nontraditional Completion	23.25	5.88	Not Met

Screenshot ARPDV 2020 Report
UHMC Construction Technology Program
https://uhcc.hawaii.edu/varpd/index.php?y=2020&c=MAU&t=CTE&p=2250

1P1 Technical Skills Attainment:
Based on the following Definition/Description: Numerator: Concentrators who have a cumulative GPA > = 2.0 in CTE courses and who have stopped program participation in the year reported. Denominator: Concentrators who have stopped program participation in the year reported.

The Perkins indicator data relies on data that reflects only CA and AAS as completion. As noted throughout this program review, many of the CTEC Program students rely on the program so that they may obtain "short-term" Certificates of Completion (COs) in exploring their employment interests and goals, are seeking basic skills for employment opportunities in building construction and facilities maintenance that do not always require a degree, and as a means to gain promotion in their workplace.



Compiled from University of Hawai'i ARPD and ARPDV Reports 2009-2020
Clifford Rutherford, Assistant Professor, CTEC Program Coordinator

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.

3P1 Student Retention or Transfer: MET

4P1 Student Placement: MET

5P1 Nontraditional Participation:

The UH system goal of 23.75 percent nontraditional participation is excessive and presents an unreasonable expectation of the CTEC program in this area. While the current percentage of non-traditional participation reflects 7.06 percent of CTEC program students in this category, which is less than the national average of nontraditional participation in the construction and facilities maintenance industry, a goal of 11-12% might prove to be more realistic.

> 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 National Association of Homebuilders (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 program faculty to make a real difference.

5P2 Nontraditional Completion: In consideration of the data discussed in 5P1, the UH System goal of 23.25 percent nontraditional completion is excessive and presents an unreasonable expectation of the CTEC Program in this area, as well. If nontraditional participation of 5.88% represents approximately 25% of the system goal in the area of nontraditional completion, a goal of 10-15% in completion of nontraditional students may be considered as a reasonably fair goal in this area.

Performance Indicators

	Performance Indicators	2017 - 18	2018 - 19	2019 - 20	
35.	Number of Degrees and Certificates	14	19	13	
36.	Number of Degrees and Certificates Native Hawaiian	2	4	0	
37.	Number of Degrees and Certificates STEM	Not STEM	Not STEM	Not STEM	
38.	Number of Pell Recipients[1]	5	8	6	
39.	Number of Transfers to UH 4-yr	0	0	0	

Screenshot ARPDV 2020 Report
UHMC Construction Technology Program
https://uhcc.hawaii.edu/varpd/index.php?y=2020&c=MAU&t=CTE&p=2250

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. By Fall of 2019, the HC&S displaced students supported by this funding had either graduated the program or had 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.

Provide high school and/or 4-year or graduate pathways articulation?
What effect has this program had on closing equity gaps?

Since the closing of the DOE based Construction Academy program in 2012, The CTEC Program has had no articulation with DOE courses. However, UHMC's Extended Learning and Workforce Development (ELWD) program coordinators have worked with the CTEC program coordinator to create an articulation agreement for high school students taking the ELWD offered "Career Pathways" summer courses in Building Maintenance, Carpentry, HVAC, OSHA, and First Aid/CPR to gain credit through Prior Learning Assessment when registering and enrolling in the CTEC program. Four students were awarded a total of 24 credits during the 2019-2020 academic year. This agreement is currently being updated to reflect changes in credit course curriculum to 100 level and above.

In the Fall 2020 semester an articulation agreement between the UHMC CTEC and UHWO BAS-FMGT program becomes effective. While it will take a couple of years for student to matriculate, based on student interviews, it is expected that 5 to 10% of CTEC students will do so withing the next three years.

What is the industry/higher ed path value of the certificate versus degree level?
Provide graduate highlights based on recent graduate placement data.

While not all careers served by the CTEC program require degrees or certificates, program graduates have gained employment with employers such as Dorvan Leis, Johnson Controls, Andaz, Grand Wailea, Castaway Construction, Goodfellow Bros., Sherwin Williams Paints, multiple Photovoltaic companies, Kaheawa and Auwahi wind farms, MECO/HECO, Hawaii'i Carpenters' Union, County of Maui, and countless other positions throughout the county, state, and mainland. Additionally, a significant amount of CTEC students take classes to gain departmental transfers at their current jobs through the acquisition of Certificates of Completion (COs) and Certificates of Achievement (CAs) that are also recognized by local employers for promotion.

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

3. Program Student Learning Outcomes or Unit/Service Outcomes

a) List of the Program Student Learning Outcomes or Unit/Service Outcomes - Bloom's taxonomy is a well-known description of educational objectives. At the Program Level, outcomes aim for application, analysis, evaluation, and synthesis.
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 or Unit/Service Outcomes that have been assessed in the year of this Annual Review.
No assessment of Program SLOs was performed this year. All PSLOs were completely assessed in prior two (2) years in planning for restructuring of entire CTEC program map to better meet industry needs, course curriculum for all program courses, including reassessed course SLOs, was initially submitted in the Spring 2019 semester and all major program map changes were submitted and fully approved in Fall 2019 to be effective Fall 2020. Reassessment of PSLOs and course SLOs are scheduled to begin Spring 2021.

PLO MAP by COURSE	AEC 110	BLPR 101	CARP 120	CARP 121	CARP 122	ELEC 100	ELEC 110	ENRG 101	ENRG 103	FMGT 100	FMGT 120	FMGT 200	FMGT 201	MAIN 130	MAIN 140	MAIN 150	MAIN 155	MAIN 160	MAIN 165	MAIN 166	MAIN 167	MAIN 170	OSH 110	OSH 110	WELD 119D
PLO 1	X	X	X	X	X	X	X		X	X				X	X	X	X	X	X	X	X	X	X	X	X
PLO 2	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	
PLO 3	X	X			X	X	X		X	X	X		X	X	X	X	X	X	X			X		X	
PLO 4		X		X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X			
PLO 5	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X		X	X
PLO 6	X	X	X	X	X	X	X		X	X	X		X	X	X	X	X	X	X	X	X	X	X		X
PLO 7		X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X		X	X
Last PLO Assessment	SP 2017	SP 2017	SP 2019	SP 2019	SP 2019	FA 2019	FA 2019	SP 2017	SP 2017	SP 2018	SP 2018	SP 2018	SP 2018	FA 2019	FA 2019	FA 2019	FA 2019	FA 2019	SP 2019	SP 2019	SP 2019	FA 2019	SP 2018	SP 2018	SP 2018
Next PLO Assessment	SP 2021	SP 2021	SP 2024	SP 2024	SP 2024	FA 2023	FA 2023	SP 2022	SP 2022	SP 2023	SP 2023	SP 2023	SP 2023	FA 2022	FA 2022	FA 2022	FA 2022	FA 2022	FA 2023	FA 2023	FA 2023	FA 2022	SP 2022	SP 2022	SP 2022
Last Course Approval Start Date	FA 2018	FA 2018	FA 2020	FA 2020	FA 2020	FA 2020	FA 2020	FA 2018	FA 2018	FA 2020	FA 2020	FA 2020	FA 2020	FA 2020	FA 2020	FA 2020	FA 2020	FA 2020	FA 2020	FA 2020	FA 2020	FA 2020	FA 2020	FA 2020	FA 2020
Next Course 5-Year Review	FA 2022	FA 2022	FA 2024	FA 2024	FA 2024	SP 2024	SP 2024	FA 2022	FA 2022	FA 2023	FA 2023	FA 2023	FA 2023	SP 2023	SP 2023	SP 2023	SP 2023	SP 2023	SP 2024	SP 2024	SP 2024	SP 2023	FA 2022	FA 2022	FA 2022

c) Assessment Results. Include 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.
Methods used to assess CTEC PSLOs and course SLOs include: CTEC Advisory Committee evaluation of course assignments, lab exercises, and learning outcomes in comparison with industry standards and employer expectations of technical skills attainment for specific industry trades entry level employment; interviews with students that have successfully completed the program's courses; and analysis of industry trends in the fields of building maintenance and construction, and facilities and project management.

d) Changes that have been made as a result of the assessment results. Other questions that resulted from the assessment and how you will follow up?
Evaluation of PLSOs by the Advisory Committee during restructuring of program curriculum found that some CTEC students may not have been exiting the program with industry expectations in computer and information literacy and no courses in the program map provided specific focus in this area. As such, PSLOs were updated to include: Use math, "computer", and oral and written communication skills to solve construction project problems, and the program map was updated to include requirements for ICS or BUSN courses in all CA and AAS pathways in the program. Additionally, SLOs in many courses were updated to include coverage of industry expectation in these areas.

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.

Address opportunities for re envisioning your program? How does your 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.

Actions to Address Unmet Perkins Indicators

	Perkins Indicators	Goal	Actual	Met	
29.	1P1 Technical Skills Attainment	94.75	89.47	Not Met	
30.	2P1 Completion	61	36.84	Not Met	
31.	3P1 Student Retention or Transfer	86	97.56	Met	
32.	4P1 Student Placement	66.75	76.19	Met	
33.	5P1 Nontraditional Participation	23.75	7.06	Not Met	
34.	5P2 Nontraditional Completion	23.25	5.88	Not Met	

1P1 Technical Skills Attainment
As noted throughout this program review, while the majority of CTEC students come to the program to gain their AAS degree of CTEC Certificate of Achievement, a significant percentage of CTEC students take our courses for professional development within their current career field. Retention of these students remains a program priority. Program faculty is working with the Maui Facilities Engineering Leadership Council (MFELC) to organize scholarships for continuing students and to have local employers encourage continuation for their employees through addressing scheduling and economic concerns of their employees taking UHMC courses.

2P1 Completion
(See 1P1 Technical Skills Attainment)

5P1 Nontraditional Participation and 5P2 Nontraditional Completion
As noted in Section 2, Perkins Indicators, the percentage of nontraditional participants in the CTEC program continues to be addressed through DOE and community outreach efforts. The Advisory Committee has recruited new members that are considered nontraditional in their fields to provide mentorship and leadership in the area of recruitment. However, all of these things were significantly interrupted by the Covid-19 pandemic and no major outreach efforts were able be performed after the 2020 Spring Break. Additionally, the goal for this indicator remains far above actual industry

participation statistics for this demographic and the CTEC Advisory Committee requests that the goal be adjusted as such.

Prior Learning Assessment (PLA) and Non-Credit to Credit Articulation
Over the last 4 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 in the 2020-2021 academic year will include: OSH 100- First Aid/CPR (1 credit), OSH 110- OSHA 10 for Construction Trades, (1 credit), FMGT 100- Intro to Building Maintenance and Construction (2 credits), MAIN 166- HVACR Refrigerant Recovery (1 credit), and CARP 120- Basic Carpentry Skills (3 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, 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.

Exploratory Majors and CTEC Courses
Effective Fall 2020, all CTEC courses will be taught at the 100 and 200 level. This will allow students that are Liberal Arts and undecided majors to explore CTEC course options as electives. In past semesters, from 3 to 5+ of these students would take CTEC courses with no option for the class to be included in their degree plan as an elective, as it was taught at what is considered to be less than a 100 level. Now that the CTEC program has updated its curriculum, it is estimated that at least 10 students taking CTEC courses in the Fall 2020 semester will be from programs outside of the CTEC program. This option is also expected to encourage undecided students to investigate living wage careers in the trades and to choose CTEC as their major.

Online and Hybrid Course Options
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, in adapting to "the new normal" during the onset of the Covid-19

pandemic in the Spring 2020 semester, the CTEC program courses were completed using various hybrid and online methods. 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. However, both students and instructors proved to adapt well overall, with minimal retention issues for the remainder of the semester.

While "hands-on" labs continue to be taught in person on campus, in many cases instructors that teach the lecture/lab CTEC program courses are now offering the lecture portion of courses online using Laulima and Zoom, bringing students to the campus in smaller groups for the lab portion of the course.

Lecture courses and lecture portions of lecture/lab courses previously offered "face-to-face" in the CTEC Program curriculum that will be offered in one of the aforementioned online or hybrid platforms in the 2020-2021 academic years include: AEC 110 (4 credits), BLPR 101 (3 credits), ELEC 100 (3 credits). ENRG 101 (3 credits), ENRG 103 (3 credits), FMGT 100 (2 credits), MAIN 155 (2 credits), MAIN 160 (2 credits), MAIN 166 (1 credit), OSH 100 (1 credit) and OSH 110 (1 credit).

5. Resource Implications

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

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 NOT requesting additional resources for my program/unit.**

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

Primary Program Budget Request:

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

Base Salary: $55,858 (2017-2021 UHPA/BOR Contract), or current rate + fringe. It is expected that a portion of CTEC program lecturer Teaching Equivalencies (TEs) would be converted to facilitate this request.

Although it is acknowledged that there are significant budgetary obstacles for the University of Hawai`i to overcome as a result of the economic effects of the Covid-19 pandemic; 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: in not asking for additional resources, 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 status quo at best.

However, 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 for another full-time faculty, especially in light of 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 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."*
>
> *Construction Technology Program Advisory Committee*
> *Letter of Support for CTEC Program*