

HAWAI`I COMMUNITY COLLEGE ANNUAL INSTRUCTIONAL PROGRAM REVIEW TEMPLATE

AEC

November 27, 2013

July 1, 2012 to June 30, 2013

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Program/Unit Review at Hawai'i Community College is a shared governance responsibility related to strategic planning and quality assurance. It is an important planning tool for the college budget process. Achievement of Program/Unit Outcomes is embedded in this ongoing systematic assessment. Reviewed by a college-wide process, the Program/Unit Reviews are available to the college and community at large to enhance communication and public accountability.

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CERC Comments and Feedback (If you submitted a Comprehensive Program Review in 2011 or 2012, please complete this section)

CERC gave recommendations intended as suggestions for improvement. Provide a brief response to the suggestions made. i.e. Were suggestion(s) valid? Were change(s) made as a result of the suggestion(s)?

N/A

Program Description (Use the official description from catalog then give more in depth explanation of what the program does, who it serves and generally describe it's accomplishments)

This program prepares students for employment with architectural firms, contractors, engineers, surveyors, or government agencies. Job responsibilities range from making accurate working drawings of buildings to assisting a survey crew.

Course work includes manual drafting, 2d CAD drafting, residential design and working drawings, land surveying, civil engineering, zoning and building codes, construction materials, architectural studio design, 3d design and printing, sustainability in architecture, commercial working drawings and building services. Blueprint reading courses are offered for other trade programs such as Electricity, Welding, and Carpentry.

Students have varried backgrounds and life experiences. Some are recent high school graduates, or have prior work experience in a variety of related and unrelated fields, may have earned a prior degree in another major, or have military backgrounds. Some are focused on engineering, others in architecture. It is common that some are not sure, or just want a technical occupation.

Within the courses, students develop manual and computer skills in architectural design development and contract document preparation, build physical study models, create 3d imaging and fabricate 3d additive technology models, do research, produce written papers, create and deliver slide presentations.

Students also learn about geomatic concepts, land information systems and its history in Hawai'i. AEC provides training using surveying tools and equipment, electronic field instruments, office and civil software, GIS and GPS applications to create maps, and 3d model views from point cloud field data.

All skills are applied to the design and creation of contract drawings to include topographic information for the building of the Annual Model Home Project, on a property in Hilo for the Department of Hawaiian Home Lands.

Students may also have extracurricular opportunities to earn USGBC's LEED Green Associate credential.

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Part I: Quantitative Indicators

NO ENTRY

Part II: Analysis of the Program

Alignment with College Mission and ILOs

Write a brief narrative describing the program and how it supports the College's mission and Institutional Learning Outcomes (ILOs).

College's mission:

Hawai'i Community College (Hawai'iCC) promotes student learning by embracing our unique Hawai'i Island culture and inspiring growth in the spirit of "E `Imi Pono." Aligned with the UH Community Colleges system's mission, we are committed to serving all segments of our Hawai'i Island community.

Program Mission:

The AEC Program is designed to inspire student learning by providing training in graphic technological applications and the use of equipment and instruments to expand all students' potential to create the future built environment in our community. Students are prepared to enhance these employment skills by remaining sensitive to our unique culture and natural environmental resources of our Hawaii State.

Describe how this program supports the College's mission.

AEC's program mission is in alignment with the mission of the College by focusing on student learning, Island culture, and contributing to the community.

Describe how this program supports the College's Institutional Learning Outcomes below.

ILO 1: Our graduates will be able to communicate effectively in a variety of situations.

Describe how the Program supports ILO1:

By the time the AEC students graduate, they have gained skills in various forms of communication.

Graphically: from free hand sketching and rendering to technical computer aided drafting; in written form through essays and research papers; and verbally through multiple opportunities developing and delivering powerpoint presentations. These learning experiences support the College's ILO1 and is part of AEC's PLO #6: Demonstrate communication, critical thinking, research, and problem-solving skills.

ILO 2: Our graduates will be able to gather, evaluate and analyze ideas and information to use in overcoming challenges, solving problems and making decisions.

Describe how this Program supports ILO 2:

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The nature of the architectural and engineering profession is problem solving. Students develop solutions to many design problems throughout the courses each semester. These assignment activities and exercises support the College's ILO 2 and again alignment is through AEC's PLO #6. Demonstrate communication, critical thinking, research, and problem-solving skills.

ILO 3: Our graduates will develop the knowledge, skills and values to make contributions to our community in a manner that respects diversity and Hawaiian culture.

Describe how this Program supports ILO 3:

Throughout AEC's sustainable focused curriculum, student lessons are infused with topics on native elements and natural resources which our island ancestors respected and preserved generations ago. Exposure through research, presentations and exercises students gain an understanding and an appreciation for our island culture, community and environment. Students in the AEC 126 course also participate in preservation volunteer activities. ILO3 is embraced within AEC's PLO#7: Understand the balance between cultures, community and the environment.

Annual Report of Program Data (ARPD)

Based on the data from this Program's ARPD, analyze this program's strengths and weaknesses in terms of demand, efficiency, and effectiveness.

Overall Health-- Cautionary

Demand -- Unhealthy

The number of AEC majors (*3), is 37. This numerator of 37 is divided by the number of positions: $37 \text{ majors} / 1 \text{ County positions} = 37$, imbalance resulting in the Demand indicator as "unhealthy".

Ratings: HEALTHY -1.5 to 4.0/ CAUTIONARY- .5 to 1.49, or 4.1 to 5.0/ UNHEALTHY- <.5 or > 5.0

The Strategic Plan indicates the construction field continues to remain in a slump due to the downturn in the economy. Historically, and because of the economic situation many AEC graduates start their own businesses doing contract drafting projects and permit routing for the smaller private sector firms on the Big Island. Unfortunately these counts are not included in the demand computations.

Also, AEC's CIP Code:" Architectural Drafting and Architectural CAD/CAM", needs reassessment. This code represents only half of our curriculum. The other half is in engineering and land surveying. Almost all of our graduates who have been hired during this period by a firm or utility company is in the engineering/land surveying industry. Again this is not reflected in the County positions under our current CIP Code.

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Efficiency -- Healthy

#10) The class fill rate is at 95.2%

HEALTHY = 75 to 100 %

#12) The Student/Faculty Ratio is: 18.5

HEALTHY= 15 - 35

Effectiveness -- Cautionary

#17 & #18) Successful Completion is at 85%, Withdrawals were 2

AEC did okay in this category

#19) Persistence Fall to Spring category was good at 80.4%

#19a) Persistence Fall to Fall reflects graduates leaving at the end of Spring resulting in 36.5% remaining

#20) Unduplicated Degrees and Certificates Awarded is: 9

9 degrees awarded/County position of 1 = 9

HEALTHY = .75 to 1.5/ CAUTIONARY = .25 to .75, or 1.5 to 3/ UNHEALTHY= <.25 or >3.0

AEC reflects poorly in this category. Will implement CIP code reassessment for truer representation of jobs filled. Current CIP reflects only architectural positions.

[Note: the 31 withdrawals reflected in year 10-11 was due to a curriculum change of adding a sustainable experimental course. Our students first needed to be disenrolled through the withdraw process from the existing course, to then be enrolled in the new course, resulting in the high number of 31 withdrawals.]

Distance Education: Completely On-Line Classes

If applicable, based on the data on Distance Education (DE) from this Program's ARPD, analyze this program's strengths and weaknesses in terms of its DE offerings. Include future plans (i.e. will increase/decrease offerings; CARP 100 was not effective online, will try CARP 101 instead; increase professional development for faculty).

Currently, the AEC program does not provide any qualifying DE courses. However, the AEC 115 Intro to Architecture course is currently under consideration of being delivered through the DE format. Faculty training must be intact prior to this offering.

Perkins IV Core Indicators

If applicable, provide an analysis for any Perkins's Core Indicator for which this program did not meet the goal.

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The Perkins IV Indicator #32, 4P1 Student Placement goal of 60.0 was "NOT MET".

Due to the lack of job positions, those who stopped program participation but did not find employment, join military service, or an apprenticeship program, may be part of the below concentrators.

Concentrators in the previous Perkins year who did not return consisted of the following:

2 two students who transferred to a 4-year college in Architecture, one on Oahu and the other moved to the mainland. 3 'dropped' due to personal hardship, though of them has returned to continue this year.

Performance Funding

Briefly describe initiatives/strategies that this program has or will implement to increase any or all of the Performance Funding outcomes.

As the AEC program work towards its goals of creating transfer level pathways, Performance Funding outcomes should reflect improvement.

Previous Program Actions

From the Academic Master Plan (AMP), list the Program Actions for this program. Give a progress report for each Program Action, describe the degree of achievement. Indicate "Delete" if this Program Action will no longer be a priority Program Action

Program Actions	Progress Evaluation
4.1 Add Engineering courses to the AEC curriculum, attracting students, meeting workforce needs and providing additional options for students interested in earning a baccalaureate degree.	Course content and descriptions have been developed. Communication with the proposed UHH Engineering Program is currently taking place.
4.2 Create stackable certificates leading to a higher degree, provides students more options, allowing them to progress in manageable steps. (The AEC program currently offers only an AAS degree.)	The AEC program has since added a CA degree. We are in the process of researching stackable certificate formatting to assess the "fit" of our land surveying coursework as a separate certificate.
4.3 Develop multiple levels of certification/training in Green Building Technology	The AEC program had in place the means to promote green technology training and certification through a combination of course work delivered in the AEC 126 Sustainable Architecture curriculum plus other training venues through OCET.

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	<p>In addition, faculty worked one-on-one with individual students interested in pursuing their professional certification through the U.S. Green Building Council. Over the past several years 2-3 students per year (8 total) took on this demanding/challenging opportunity. Thus far the AEC program has 4 graduates who have earned the LEED Green Associate credential.</p> <p>AEC credits HawCC's Service Learning program and the State's Workforce Development agency who provided funding for the students to travel to Oahu for the Green Associate exam, which also included funds for registration and exam fees.</p> <p>This challenge involved a heavy focus on STEM areas of study including environmental studies, math computations, engineered sustainable building materials, etc.</p> <p>This program also served under-represented populations of females in the construction field. Of the four successfully credentialed graduates, 3 are female. One of them is now working towards the next level of certification, LEED Accredited Professional.</p> <p>Currently, sources of funding are no longer available. AEC would like to continue to pursue support for graduates to attain their professional certifications.</p> <p>For expansion and growth in applying green concepts, AEC is seeking applicable projects throughout the college, the UH system, and the community.</p>
<p>4.4 Create an AS degree as an additional pathway, providing an opportunity for a transfer level degree targeting students seeking a bachelor degree</p>	<p>Although with no AS degree in place as of yet, an articulation agreement between UHM's School of Arch and the AEC program is in place.</p> <p>This involves their acceptance of transfer credits, and/or a waiver from having to take two Manoa ARCH courses, provided the student has taken and passed, with a C or better, four AEC courses: AEC 115 Intro to Architecture, AEC 118 Construction Materials, AEC 130 Residential Working Drawings, AEC 138 Structural Drawings.</p> <p>AEC plans to further develop implementing a pathway to UHM's School of Architecture and the College of Engineering.</p>

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Significant Program Actions for 2012-2013. (include curriculum changes, new certificates, stopout, gain/loss of positions)

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| 1. Added a Certificate of Achievement degree. |
| 2. Raised the entry level requirements into the AEC program to: placement into Eng 100 and Math 100. |
| 3. Secured an articulation agreement with UH Manoa's School of Architecture program. |
| 4. Filled a vacant full-time tenured tract faculty position. |

Analysis of Strengths and Weaknesses

Briefly describe this program's top 3 strengths and 3 weaknesses. Provide an explanation and supporting evidence for each strength and weakness (e.g. assessment results, data elements from ARPD, surveys, etc.)

Strengths	Using supporting evidence, describe why this is a strength
S1. In the past four years, the AEC program has consistently scored at least 40% to 80%, above State goals in the number of non-traditional participation; and (with one exception 2010-11) scored at least 40% to 200% above the State goals for non-traditional completion.	The Perkins IV Core indicators reflect these numbers based on participants and graduates in the AEC Program, from underrepresented gender groups that leads to employment in non-traditional fields.
S2. Over the past four years, the AEC program has remained "Healthy" in the Efficiency Indicator of Fill rate to BOR appointed faculty.	Per the Annual Report of Program Data and Health Indicators. Range of Fill rate, over the last 4 years: 86% to 95.2% Range of Majors to FTE BoR appointed Faculty: 18.2 to 29.3
S3. A majority of AEC graduates who seek positions on Hawaii Island are typically able to secure jobs with firms in the engineering and land surveying fields. No other institution in the State of Hawaii offers a curriculum with a series of coursework training in the profession of Land Surveying.	AEC has tracked students informally after graduation and is in the process of compiling a data base with this info. Engineering type companies who typically hire our graduates are: Helco, County of Hawaii Engineering, and the engineering private sector. On several occasions these remarks were from individuals outside of the college and by Advisory

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	Council members. Online research confirmed no other degree granting program in the State.
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Weaknesses	Using supporting evidence, describe why this is a Weakness
W1. Old CAD software, and utilization of Civil software not common by local industry standard.	<p>Current AutoCAD Suite software would bring the architectural and engineering courses in alignment with the majority of local industry firms and agencies.</p> <p>Having the appropriate software would reduce the retraining learning curve that becomes necessary with our graduates as they obtain job positions with companies whose software is a more recent version. Having to 'catch=up' to the job market sets our students at a great disadvantage.</p>
W2. Termite droppings and antiquated facility, driving the need for renovations to create a safer learning environment with usable space and a more inspiring study environment.	<p>Plastic sheets draped from the ceilings in the CAD Labs and Lecture Room to capture termite droppings has been the remedy for the past 4 years. New suspended acoustic ceilings and lighting was scheduled for two past summer construction projects, but now has been pushed back another year. A new and updated electrical layout is also part of this project. This will lessen the visibility of cables, wiring, power strips, and hazardous accessibility to the 7ft. high dangling electrical outlet boxes from the ceiling at each students' workstation, etc. in both CAD labs and Main Lecture Room.</p> <p>There is unusable space within AEC's designated program area which AEC needs to utilized more efficiently. Approval to renovate this area was requested in prior Program Reviews.</p> <p>This semester, POM assisted by installing 2 recycled light fixtures in the existing dark room. AEC would like to propose minimal additional improvements to this approximately 480 sq. ft. space by converting this into a "Green" student work room for recycled model building activities, energy device demos, sustainable product displays, and an example of natural lighting concepts, low voc paints, possibly natural ventilation, and putting to use the existing obsolete drafting table tops and tall chairs for</p>

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	<p>use in this green lab.</p> <p>These improvements will enable AEC to overcome this weakness, while improving and promoting sustainability within our own program.</p>
<p>W3. Lack of GIS/GPS already in the curriculum and robotic equipment and software.</p>	<p>In pursuit of strengthening AEC's STEM focus, equipment and software needs are ever present. Currently we are limited to the availability of Forest TEAM's GIS lab. Software in AEC's existing labs would increase hands-on time to enhance the quality of the students growth in this area. Coupling the software with GPS tracking equipment would make the skill level and knowledge in GIS/GPS and robotic tracking complete.</p>

Trends and Other Factors

Describe trends including comparisons to any applicable standards, such as college, program, or national standards from accrediting associations, etc. Include, if relevant, a summary of Satisfaction Survey Results, special studies and/or instruments used, e.g., CCSSE, etc. Describe any external factors affecting this program or additional program changes not included elsewhere.

1. An upcoming trend announced during a recent architect's office visit, described a 7 to 10 year projection (yr. 2020) of a major shortage of 25,000 architectural professionals and drafters in the construction industry, due to a combination of vacancies and the repercussion of the economic downturn which is causing people to switch majors and change careers related to the construction industry. This local architect's message encouraged our students to continue their pursuit and not give in to the current temporary situation.

DBEDT's data on population growth projections for Hawaii County states a 76% increase in population by the year 2020. 26% growth in East Hawaii plus 50% in West Hawaii. It stated growth leads to expanding industries... such as growth in the building industry.

The ongoing scientific discoveries and projections impacting climate change continues to accelerate the movement towards sustainability worldwide. This force is driving the demand for awareness and for knowledgeable workers in the industry. AEC's goals to advance in this area of our curriculum continues development in the area of sustainable design and concepts. In addition, AEC is seeking opportunities for our students to plan an integration of green concepts into live projects.

Part III: Action Plan

Goals and Planning

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List additional Program Action(s), not included in the AMP to be implemented for program success. Identify the AMP Priorities, College's ILOs, Strategic Plan Action Strategies, and UH System collaboration (if applicable) to which these Program Action(s) align.

Program Action 1		ILO Alignment (select up to 3)	Strategic Plan Alignment (select best alignment; max 3)		UH System Collaboration
			Performance Measure	Action Strategy	
Provide access to current technology that supports student learning.	Workforce	ILO 1	B.1	e.	
	Stem	ILO 2	B.3	d.	
	Program Development	ILO 3	B.3	c.	

[Link to Hawaii Community College Institutional Learning Outcomes](#)

[Link to Hawai'i Community College Strategic Plan](#)

[Link to Hawaii Community College Academic Master Plan](#)

Narrative of New Strategy for Strategic Plan:

1. Seek funding for current technology CAD software and equipment which will enhance graduate's employable skills and strengths.
2. Encourage student diversity in STEM areas.
3. Program development in providing extra academic support in areas students typically experience difficulty.

Briefly explain how **Program Action 1** aligns to the College's AMP Priorities, ILOs, Strategic Plan, and UH System collaboration (if applicable):

This direction is part of the stated imperatives in the mission of the College: "Provide access to current technology that supports student learning." It is also in alignment with the Information Technology Strategic Plan's -Vision Statement, and current technology is imperative to STEM areas of the industry.
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Calendar of planned activities for **Program Action 1** – In chronological order, briefly describe the procedures/activities planned to achieve **Program Action 1**

Activity(ies)	When will the activity take place
Example: Nursery design development Shade replacement Irrigation design and installation	September 2014 Fall 2014 Spring 2015
Pursue funding	Spring 2014
Faculty training	Fall 2014
Course modifications/syllabi/lesson plans	Spring 2015
Launch in Labs	Fall 2015

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Program Action 2		ILO Alignment (select up to 3)	Strategic Plan Alignment (select best alignment; max 3)		UH System Collaboration
			Performance Measure	Action Strategy	
Curriculum & facilities modifications in green technologies and engineering.	Program Development	ILO 2	E.3	b.	UHH
	Stem	ILO 2	B.3	a.	
	Stem	ILO 1	D.1	a.	

Narrative of New Action Strategy for Strategic Plan:

1. Further develop green curriculum.
2. Develop geomatics curriculum and incorporate 3d printing of topography models.
3. Facilities modifications.

Briefly explain how **Program Action 2** aligns to the College's AMP Priorities, ILOs, Strategic Plan, and UH System collaboration (if applicable):

In alignment with AMP's priorities to improve STEM programs, AEC will focus on the current engineering curriculum in geomatics, GIS and GPS for further development. In addition, AEC's will continue to pursue sustainable curriculum upgrades, and additive manufacturing 3d printing training.

Calendar of planned activities for **Program Action 2** – In chronological order, briefly describe the procedures/activities planned to achieve **Program Action 2**

Activity	When will the activity take place
Finalize experimental courses for engineering.	Fall 2013
Propose experimental courses for admin approval, develop course modifications for sustainability and pursue advanced 3d printing training.	Spring 2014
Begin engineering course upgrades, propose modifications in sustainability.	Fall 2014
Begin sustainable course and 3d printing curricular upgrades.	Spring 2015

Program Action 3		ILO Alignment (select up to 3)	Strategic Plan Alignment (select best alignment; max 3)		UH System Collaboration
			Performance Measure	Action Strategy	
Alignment - Enhance program effectiveness and	Program Development	ILO 2	B.1	a.	UHM School of Architecture
	Stem	ILO 2	B.3	a.	

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student success through pathways to higher STEM goals.	Transfer	ILO 2	A2.4	c.	and UHH Proposed Engineering
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Narrative of New Strategy for Strategic Plan:

1. Encourage students with potential for success to pursue transfer pathway to a higher degree.
2. Continue STEM field discussions with UHH program developer to identify possible alignment and potential future pathway development in focus area of engineering.
3. Besides Math and writing, provide additional support for students in specialty areas such as in-class tutoring in CAD.

Briefly explain how **Program Action 3** aligns to the College's AMP Priorities, ILOs, Strategic Plan, and UH System collaboration (if applicable):

Communicate with UHH Proposed Engineering program Program action aligns with HawCC's Strategic Plan goal B.1 for articulation and ease of transfer for students through UH System collaborations. Funding through the B.1.e and A2.4.a strategies also would assist AEC students who need specialized tutoring opportunities for skills needed in the fields of architecture and engineering.

Calendar of planned activities for **Program Action 3** – In chronological order, briefly describe the procedures/activities planned to achieve **Program Action 3**

Activity	When will the activity take place
Develop pathway schedule of courses	Spring 2014
Communicate with UHH Proposed Engineering Program	Spring 2014

List specific action plans for any Perkin's Core Indicator for which this program did not meet the goal.

Perkin's Indicator	Action Plans	When will the activity take place
4P1	Develop Recruitment, retention plan	Spring 2014
4P1	Identify funding for implementation of recruitment promotion/retention in-class tutor	Fall 2014
4P1	Recruitment and in-class tutor in effect	Spring 2015
None		
None		
None		

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Part IV: Resource Implications

List Top 3 Cost Items needed for program success. Identify alignment to the AMP Program Actions, Strategic Plan Action Strategies and/or Strengths and/or Weaknesses to address.

Cost Item 1	Type	Cost	Strategic Plan Alignment (select best alignment; max 3)		Academic Master Plan Alignment (select best alignment; max 3)	Strength	Weakness
				Action Strategy	Program Action from AMP (ie 4.3) or write "New Strategy"	From Part II above	From Part II above
Software and hardware	Equipmen	\$67,000	B.3	a.	31.15	None	W1
			B.3	d.	New Strategy	None	W1
			D.1	a.	New Strategy	None	W1

[Link to Hawaii Community College Institutional Learning Outcomes](#)

[Link to Hawai'i Community College Strategic Plan](#)

[Link to Hawaii Community College Academic Master Plan](#)

Briefly explain why **Cost Item 1** is necessary to meet priorities of program and/or to address strengths and/or weaknesses.

A priority of the AEC program is to remain as current as possible technologically in order to develop the skills and abilities for the students to remain competitive in the field or when transferring to another campus with higher academic goals. The current situation with AEC's software is a major weakness in our program which can no longer be ignored. New software indicates higher powered hardware.

The CAD labs are running AutoCAD 2008. To keep up with our rigorous course work, students accomplish their drawing assignments in the CAD lab, at Hale Kea, and at home. Outside of the institution, students have personal access only to the latest 2014 (soon to be 2015) AutoCAD Suite = Student Version. Older versions are obsolete and no longer available. Students struggle through the difficulty, frustration and inconvenience of converting to the old version back in the classroom daily. We are 6 (soon to be 7) versions behind the times. To a student entering from high school, our technology is back in the day when s/he was in 'elementary' school. This is AEC's first priority to keep up with fast changing technology in the Labs and retain qualified faculty through update training.

Cost Item 2	Type	Cost	Strategic Plan Alignment (select best alignment; max 3)		Academic Master Plan Alignment (select best alignment; max 3)	Strength	Weakness
				Action Strategy	Program Action from AMP (ie 4.3) or write "New Strategy"	From Part II above	From Part II above

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Green Workroom	Facility	\$20,000	E.3	b.	4.3	None	W2
			B.1	a.	4.3	None	W2
			D.2	a.	4.3	None	W1

Briefly explain why **Cost Item 2** is necessary to meet priorities of program and/or to address strengths and/or weaknesses.

The W2 weakness is an under-utilized space in the AEC designated area which AEC would like to transformed into a green workroom for students. This will strengthen the existing green curriculum in AEC 126, and provide the opportunity to further infuse sustainability concepts and understanding within other courses. This would become a place for energy device demos, green product displays/information/samples and contain project workspaces for individual and team assignments. This hands-on exposure will inspire students to consider possible new occupations in the green industry. Displays in this room would also be educational for outside visitors such as high school students, and function as a positive recruitment feature, etc.

Cost Item 3	Type	Cost	Strategic Plan Alignment (select best alignment; max 3)		Academic Master Plan Alignment (select best alignment; max 3)	Strength	Weakness
				Action Strategy	Program Action from AMP (ie 4.3) or write "New Strategy"		
GIS,GPS, Robotics	Equipmen	\$45,000	B.3	a.	4.1	None	W3
			B.3	b.	4.2	None	W3
			B.3	d.	4.4	None	W3

Briefly explain why **Cost Item 3** is necessary to meet priorities of program and/or to address strengths and/or weaknesses.

To increase exposure and training in a STEM area. Also providing steps to support student success in transferring to a baccalaureate program in pursuit of an engineering profession. Strengthening weakness W3, would assist in accomplishing AEC's academic master plan goals to increase engineering coursework, meet workforce needs, and provide higher degree pathways.

Part V: Program Student Learning Outcomes

List the Program Learning Outcomes and check mark those assessed for the 2012-2013 program year.

	Check mark if Assessed this year	Program Student Learning Outcomes
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1	<input checked="" type="checkbox"/>	Demonstrates entry-level skills for accuracy in drawing geometric shapes, axonometric pictorials, orthographic projections, and identify the relationship of features to demonstrate visualization proficiency.
2	<input checked="" type="checkbox"/>	Identify or describe the characteristics and uses of construction materials, building products and systems, and research these materials for use based on a prescribed design project requirement.
3	<input checked="" type="checkbox"/>	Use with reasonable competence our two-dimensional and three-dimensional CAD programs to create architectural and engineering drawing documents for use in the Construction Technology Capstone DHHL Model Home Project.
4	<input type="checkbox"/>	Use with reasonable competence our surveying hand tools/equipment, theodolite, total stations, and GPS Garmin's safely on campus and at the DHHL Model Home Project site.
5	<input type="checkbox"/>	Formulate, design, revise, and construct projects of knowledge and comprehension based on design criteria requiring recall of past courses/experiences and be able to defend, explain, and discuss design.
6	<input checked="" type="checkbox"/>	Demonstrate communication, critical thinking, research, and problem-solving skills.
7	<input type="checkbox"/>	Understanding the balance between cultures, community, and the environment.
8	<input checked="" type="checkbox"/>	Demonstrate computational and reasoning skills.
9	<input type="checkbox"/>	
10	<input type="checkbox"/>	

A) Evidence of Industry Validation for CTE Programs – Provide documentation that the program has submitted evidence and achieved certification or accreditation from an organization granting certification in an industry or profession. If the program/degree/certificate does not have a certifying body, the recommendations for, approval of, and/or participation in, assessment by the program’s advisory council can be submitted. – Describe the documentation; i.e. 9/27/2013 Minutes of ACC Advisory Council; Completed Rubrics by Advisory Council Members.

Minutes of AEC Advisory Council meeting and Completed Rubrics by Advisory Council Members.
Advisory Council Members:

Jordanah Ah Puck: Architect Intern at a local private architectural firm, and is a graduate of the AEC program.

Rodney Chinen: local business owner of a drafting and surveying retail & equipment training establishment.

Alan Inaba: Licensed Land Surveyor and business owner of a local Engineering firm.

James McKeague: Licensed Architect and business owner of a local architectural firm.

B) Expected Level of Achievement – Describe the different levels of achievement for each characteristic of the learning outcome(s) that were assessed. What represented “excellent,” “good,” “fair,” or “poor” performance using a defined rubric and what percentages were set as goals for student success; i.e. 85% of students will achieve good or excellent in the assessed activity.”

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See scoring and rubrics description below.

C) List Course(s) Assessed – List the courses assessed during the reporting period.

AEC 117 - Intro to Surveying & AEC 127 - Civil Engineering Drawing

D) Assessment Strategy/Instrument – Describe what, why, where, when, and from whom assessment artifacts were collected.

AEC 117: Artifacts collected was a 2-page exercise activity.

This lesson was selected as an example of the basic skill of measuring distances of different lengths drawn on an 8.5 x 11 sheet of bond paper, utilizing a variety of different engineering scales. (1" = 20.0', 1" = 30.0', etc.) Using the proper scale indicated, the students were instructed to measure each line length, or distance on a site plan drawing, and indicate its distance in decimal feet on the blank line provided.

This engineering scale exercise was an in-class activity in the Fall of 2012.

100% of all students' work was collected and assessed by each committee member utilizing a rubric assessment tool. (10 students)

AEC 127: The objective of this one-page exercise activity was for students to test their abilities of understanding and creating a section profile view of an irregularly sloped property, using manual drafting tools to project grade elevations.

This was an in-class activity in the Fall of 2012 and 100% of the work was collected and assessed by all 4 advisors using a rubric assessment tool. (10 students)

E) Results of Program Assessment – The % of students who met the outcome(s) and at what level they met the outcome(s).

AEC 117: The method of capturing the results was computed on a percentage of answers as follows:

10% of the answers - Did Not Met Expectations

72.5% of the answers- Met Expectations

17.5% of the answers - Exceeded Expectations

*Conclusion: 90% of the answers Meets or Exceeds Expectations

AEC 127: 15% of the answers - Did not meet expectations

65% of the answers - Met Expectations

20% of the answers - Exceeded Expectations

*Conclusion: 85% of the questions Meets or Exceeds Expectations

F) Other Comments – Include any information that will clarify the assessment process report. Student achievement in both courses exceeded the 80% threshold set by the AEC program faculty.

Advisors added comments to the bottom section of the rubrics sheet as follows:

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AEC 117:

- 4 out of 4 advisors commented that the measuring activity is a good introduction to learning scales.
- 50% of students did better in applying the engineering scale to a site plan drawing.
- 40% of students did better in applying the engineering scale to a line.
- 10% of students did well in both forms of the exercises.
- Based on the percentages, students were able to apply their learning to real life situations , a vital part in the industry.
- Please continue to give assignments that will allow students to make this application, encouraging and developing critical thinking.
- Student X should focus on letter shape/darker pencil.
- Student X nice vertical lettering, in decimal reading there should be no feet & inches, only decimal feet.
- Student X measurement errors appear consistent (w/incorrect) addition of a 0 before the decimal. But this should be an easy fix for the student to then understand.

AEC 127:

- Good introduction to learning contours.
- Students understand the assignment and are able to apply teaching to real life situations. 80% of the students did very well.
- Should be neater drawings and dark.
- All students understand contouring and profiles.
- Remind students -answers need to be checked and re-checked.

G) Next Steps – Describe what the program will do to improve the results. “Next Steps” can include revision to syllabi, curriculum, teaching methods, student support, and other options.

Per recommendations from one advisory council member, more clarity in the lesson prior to the activity should be focused upon. A few students seemed to make the same error. Instructor to remind students that answers need to be checked and re-checked for accuracy. This same activity is scheduled to be collected this Fall 2013, and reassessed by the council members again next Spring 1014.