

HAWAI‘I COMMUNITY COLLEGE PROGRAM COMPREHENSIVE 3-YEAR REVIEW REPORT

Architectural, Engineering and CAD Technologies Program

Date November 15, 2015

Review Period

July 1, 2012 to June 30, 2015

AY 2012-13, AY 2013-14, and AY2014-15

Initiator: Joni Onishi

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Program/Unit Review at Hawai‘i Community College is a shared governance responsibility related to strategic planning and quality assurance. Annual and 3-year Comprehensive Reviews are important planning tools for the College’s budget process. This ongoing systematic assessment process supports achievement of Program/Unit Outcomes. Evaluated through a college-wide procedure, all completed Program/Unit Reviews are available to the

College and community at large to enhance communication and public accountability. Please see <http://hawaii.hawaii.edu/program-unit-review/>

PART I: ANALYSIS OF PROGRAM

For this section, analyze your Program for the 3 year period from July 1, 2012 through June 30, 2015. Provide a narrative analysis that, at a minimum, describes and discusses the following aspects of the Program:

- ARPD indicators: health factors, trends and other factors, strengths and weaknesses.
ARPD website: <https://www.hawaii.edu/offices/cc/arpd/index.php>
- College Mission: how the Program aligns with and supports the College Mission and the Program's effectiveness in its support/assistance in achieving the College Mission.
- Institutional Learning Outcomes (ILOs): the Program's effectiveness in its support/assistance in achieving the College's ILOs.
ILO website: <http://hawaii.hawaii.edu/assessment/outcomes.php#ilo>
- 2008-2015 Strategic Plan: the Program's alignment with the 2008-2015 Strategic Plan and the value of the Program to the College in terms of achieving that Strategic Plan's goals and initiatives.
[Hawaii Community College Strategic Plan: 2008-2015](#)
[HawCC Strategic Outcomes and Performance Measures 2008-2015 listed with funding sources and responsible parties.](#)
- Assessment results: discuss how the overall results of course-level assessments during the 3-year period under review demonstrate the Program's achievements or challenges in meeting its Program Learning Outcomes (PLOs).
PLO website: <http://hawaii.hawaii.edu/assessment/outcomes.php#plo>
- CERC comments and feedback: based on the CERC comments and feedback from your most recent Comprehensive Review, discuss CERC's recommendations and your Program's successes and/or challenges in implementing them.

- Other successes, challenges/barriers, concerns, and/or other issues not addressed elsewhere in this Comprehensive Report.

PART I: ANALYSIS OF PROGRAM

ARPD Indicators:

Overall: Cautionary

The overall indicators reflect the same status as the prior review. AEC has been busy making many improvements to the program curriculum and in methods of course delivery to strengthen this area. Therefore, we look forward to better results in the next review.

Demand: Unhealthy

The number of new and replacement State positions have dropped since the last Comprehensive Program Review period from 11 positions, down to 7 positions. The number of County positions has remained the same at 1.

AEC's overall enrollment of majors has also dropped over this same 3-year period from 37 to 26. In our assessment, this reduction may be associated with a change made to raise the AEC Program's entry requirement. This change requires students to place into ENG 100 and Math 100 to meet AAS degree requirements of "college level" work. Additionally, with the reduction in numbers of positions at the State and County levels, the status call of UNHEALTHY continues to reflect unfavorably as in the previous comprehensive review.

Although State and County government positions are limited, AEC graduates are obtaining private sector opportunities. AEC faculty does have knowledge of where our students are being hired. However, AEC will develop a formal format of communication and departmental documentation for reporting purposes. (G1)

Efficiency: Cautionary

The class fill rate over the past 3 years has dropped and the FTE BOR faculty ratio has remained the same, resulting in a call that had been Healthy in both the last Comprehensive Program Review (2010) and the last Annual Program Review (2015), but now reflects Cautionary. However, in comparison to last year's fill rate, this year there has been a slight increase from 67.3% to 70.6%. We will continue with recruitment efforts to further increase this category. However, a concern regarding recruitment/enrollment is the recent modifications to the physical space in both the 1st and 2nd year student CAD Lab/classrooms. In the summer of 2013, ceiling and lighting renovation improvements were made in the AEC department. This included the addition of multiple interior power/data full-height columns installed throughout the two CAD lab classrooms. These columns now limit the physical space available for arrangement and numbers of student workstations. This has impacted the class capacity which was initially at 16 students, to the now current cap of 12 students in CAD Lab I, and 10 students in CAD Lab II. In addition, we continue to maintain one ADA CAD workstation space in each lab.

There is a lecture area within the 1st year classroom/CAD lab. The AEC faculty has found the students to be more successful in obtaining/retaining information and knowledge during lecture sessions when lectures are held away from the distractions of their computer screens, and have been practicing the strategy of moving students to a separate lecture table for many years, since the onset of incorporating computer aided drafting and design. In the department, there is also a separate lecture room for 2nd year students which is shared with 1st year, when presentations address both groups at the same time, such as with guest speaker presentations.

Effectiveness: Healthy

3 years ago the persistence rate from Fall to Spring was a cautionary call at 71% with an advisory from CERC to address this issue. This year reflects positive figures of 84% and the upgrade to a Healthy call. AEC will continue efforts in keeping the students interested and engaged in course activities and accommodating student schedules through the recent offerings of online distance education courses.

College Mission:

A major way in which the AEC program aligns and supports the mission of the college is through the commitment and continued participation in the annual Model Home Project. It is through this venue that the AEC program achieves effectiveness in the mission to embrace our Hawaii Island culture by supporting the initiative of the Department of Hawaiian Homelands to provide a family of Hawaiian ancestry a home every year.

The AEC program students study the design process and submit proposals of various floor plans. In the preliminary design phase this year, the students will embrace the language by giving each room its name, in Hawaiian. The students also study construction materials and methods, plus CAD drawings to develop the set of construction documents. Through the Kauhale process of working together across disciplines, the Carpentry and Electricity Program students study blueprint reading through our AEC program course offerings. Both programs then utilize the drawings produced by the AEC students to construct the Model Home dwelling. This project further extends out into the community with the processing of the drawings by Engineering firms, and the County of Hawaii agencies of Planning, Engineering, and Building departments. The annual Model Home project solidifies the mission of the College within the AEC program, as our students and faculty continue to embrace our unique Hawaii Island culture while infusing sustainable design principles and practices, in the spirit of seeking excellence through this single project.

Institutional Learning Outcomes (ILOs):

The following information also addresses comment #1 from CERC regarding our prior failure “to show some alignment with ILOs and how AEC develops within the students’ important critical thinking and written and verbal communication skills and respect for the environment.”

- A) AEC students learn to “*communicate effectively in a variety of situations*” in preparation to function in the community after graduation. They experience this through training to utilize a variety of computer software programs to compose

written papers communicating in words, writing business transmittals, completing computer generated CAD drawings and also by developing hand drawing skills to communicate their 2d and 3d design ideas in graphic representation format. The curriculum also requires many assignments for students to conduct research and create slide presentations along with verbal delivery to the class. These are the various methods of communication experienced throughout all courses in the AEC curriculum. By the 3rd and 4th semesters of this intense training, the students grow comfortable and become quite adept at delivering effective communication on paper in written words, communicate artistically in creative graphic format, and verbally in project presentations throughout their four semesters in the program. AEC has also implemented a formal critique and feedback system where peers must review each other's work prior to submission on a rotational basis for each assignment.

- B) ***“Our graduates will be able to gather, evaluate and analyze ideas and information to use in overcoming challenges, solving problems and making decision”.*** This profession is all about “problem-solving”. Architects and engineers are problem solvers. The work in the AEC program involves seeking and gathering information, for example in the case of working with clients. Students are taken through the steps of the analytical design process; which includes the study of room relationships, circulation, code compliance, material choices, construction methods, aesthetic and sustainable value, and budgetary considerations. The training throughout the program dispenses this information, and requires the students to put these pieces together, to gain problem solving skills, and then are tested with project assignments and exams for comprehension.
- C) Over the semesters, our students are evaluated to determine if they are developing the knowledge, skills and values to make contributions to our community within the construction industry in a manner that also brings understanding and respect for diversity with future clients. They receive this experience through real world situations as may become available and in working with real people in the college community through a variety of small and large project assignments. Past real world examples are space planning for Palamanui's staff and departments, documentation of existing floor plans of buildings on the Manono Campus and off-campus facilities, working together to overcome the challenges faced with producing the design and drawings of the Model Home Project each year, etc. Through coaching, grooming and by explaining the values of proper respect, and what is expected in the office environment is enhanced by taking students on field trips to visit firms to meet and interview the principles, inviting guest speakers to address these areas in the

classrooms, as well as visiting jobsites under construction, are examples of how we strive to “*develop the knowledge, skills and values (in our AEC graduates) to make contributions to our community in a manner that respects diversity.*”

2008-2015 Strategic Plan:

The AEC program aligns with goals of the 2008-2015 Strategic Plan’s mission and philosophy in the following ways:

Access: AEC has developed the momentum of offering online courses to broaden accessibility to post-secondary education on Hawaii Island by providing opportunities for students to access information from their own local communities as well as regionally and internationally.

Learning and Teaching: AEC specializes in this industry area by maintaining faculty with pre-professional and professional credentials; working experience in the field; maintaining currency in the trade areas of sustainability, health, safety and welfare of the general public through regular training; enabling informed teaching in introductory and advanced courses of which several have been articulated with UH Manoa’s School of Architecture program.

Workforce Development: Students are prepared to enter the workforce directly upon graduation. Many students have been successfully hired by local engineering and architectural firms, including County agencies and Helco. Validation statements by employers in the field include the following:

Validation 1: *The team at Engineering Partners supports the AEC Program at Hawaii Community College. As our economy continues to grow, so does our need for qualified drafters, engineers and architects. The AEC program helps generate jobs for our local residents, as well as contributes to the economic growth of our island. Those who wish to pursue a career in the AEC industry are able to get the education they need right here at home. 5 of our team members are graduates of the AEC Program at HCC. We are truly grateful for the program and look forward to welcoming more HCC AEC graduates to our team of professionals in the future.*

Thank you from the team at Engineering Partners,

Bri Simonia

Bri Simonian

Engineering Partners | HR & Administration

455 E. Lanikaula St. Hilo HI 96720

Direct [808.930.7821](tel:808.930.7821) | Fax [808.933.3533](tel:808.933.3533)

Hawaii | Las Vegas | Orlando

Validation 2: *As you know that in over 25 years of professional architecture, design, and planning practice in Hawaii County many, many of your students and graduates have worked in my office and, now, in some capacity at the County of Hawaii Department of Public Works. The groundwork provided has launched the careers of young people to pursue a variety of careers related to the AEC program. Drafting, design, construction management, planning, architecture, and engineering all have opportunities for careers or continuing education. The program at East Hawaii CC provides an easy and affordable entry point to these "ladders" to success.*

Neil Erickson, Architect

Plans Examining Manager, Department of Public Works Building Division, County Of Hawaii

Validation 3: *We have at least four employees working for us that have come from your AEC program. They are all doing well for us.*

Having the AEC program at HCC has definitely assisted in our successful recruiting efforts.

Ben Ishii, Division Chief

Department of Public Works, County of Hawaii

Validation 4: *My name is Hans Santiago and I am currently employed by the County of Hawaii Planning Department. Being a Hawaii Community College graduate (AEC program) and subsequent University of Hawaii at Hilo graduate (BA in Geography), I would like to express my support for the AEC program at the Hawaii Community College. Education opportunities for local kids are limited here on the Big Island. Being born and raised in Hilo, from a low income family, meant that options were very limited for me growing up. I never expected to get a higher education but managed to work part time to pay for my tuition at the Hawaii Community College (which was more affordable back then and is still cheaper than the UH). I can't tell you what that educational opportunity meant for me, my career, and my life. My AS degree from the AEC program opened opportunities to become more than my socioeconomic background promised. It was the starting point of not only a successful employment career but an educational one as well. The skills and knowledge I gained from the AEC program was just what I needed to get placed in a job where I could grow and learn. The AEC program placed me with an employer while in my last semester of school which lead to me being picked up full time when I graduated. The experience I gained from that employer lead to another employment opportunity where I received several promotions.*

The confidence and experience I gained at HCC emboldened and encouraged me to return to school a few years later. I subsequently enrolled at the University of Hawaii and eventually earned a BA degree in Geography. This additional degree then lead to another promotion to the current position I hold as a Planner V with the County of Hawaii Planning Department. Prior to my recent promotion I held the title of Tax Maps and Records Supervisor here at the Planning Department. In that capacity I supervised several employees, all of them with drafting (AEC) backgrounds. I also interviewed and hired personnel to fill vacant positions, which was difficult at times and would have been more so if not for candidates with an AEC degree. Having an AEC degree is often the "ticket" to qualifying for entry level work in both the public and private sectors. Without the AEC degree opportunity local residents would be at a disadvantage to filling available positions within organizations. Absent of any other programs here in Hawaii County that provide drafting, design, or engineering degrees, the AEC program is invaluable because it provides the skills and knowledge necessary to fill positions across multiple fields and occupations.

Again, I fully support the AEC Program and recognize the need for well educated people with the skills this program provides. I am available to discuss my experiences with the AEC program and knowledge about the opportunities the degree provides. Please feel free to contact me at [\(808\) 938-8358](tel:8089388358) as necessary.

Thank you,

Hans Santiago, Planner V

County of Hawaii, Planning Department

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The following is an excerpt from an ad created for the College and was published in the Hawai'i Tribune Herald. It included a photo of an AEC graduate and contained his personal statement: “ *The AEC program gave us so many different routes to take after graduating: engineering, CAD drafting, landscape design, architecture and of course land surveying, which I got into.*” Tyrel Cuyo, 2005 AEC Graduate, Land Surveyor Technician, Hawaii Electric Light Company.

An informal text conversation with a recent graduate is stated here:

“Thank you so much! Going through the AEC program was such a blessing, it was well worth the two years and I am just thankful for the knowledge that I gained through the program and it has really helped me succeed at my job. Not only the technical skills but the life skills that I gained and sharpened through my time in AEC has really served me well! One day when I have time I’ll come by the campus to visit so I can tell you all about what I’ve been doing. It’s going really good! I got to go out with the survey crew and run the robotic total station and I’m just finishing up the topo drawing of that survey. I’m going to Oahu on Sept. 14-18 for asphalt, aggregate, and compaction classes and certifications. I think I got concrete testing certified but I didn’t get the results of the written test back yet (I’m confident that I passed.) My supervisor mentioned last week that I’ll soon be going out to jobsites and compiling daily reports (right now I’m just tag along on.) I’ve learned a lot so far and have enjoyed my time working. I still have a lot more to learn and I carry my notebook with me all the time so I can take notes on procedures and just stuff I think I need to know. I think I’m going to learn how to do construction drawings

for the survey and topo that I'm doing (road sections and profiles) I'm working hard to do you guys and the AEC program good! ~8/22/2015 Matt Okuno, 2015 AEC graduate~County of Hawaii, Inspector- Engineering Department

Personal Development: In addition to credit coursework, the AEC program on occasion offers AutoCAD non-credit opportunities for individuals upgrading their skills in the workplace.

Community Development: Through the AEC program, interested students and past graduates have been recruited regularly over many years for an opportunity to contribute in creative ways to non-profit organizations such as the American Cancer Society, by being part of the design team for the event's sub-committee where AEC graduates annually volunteer for the opportunity to utilize their CAD drawing skills, artistic design skills and hands-on surveying field skills to assist ACS. Other activities include volunteer work for the County of Hawaii Planning Department, and outings with the Department of Land and Natural Resources to assist in their effort to replant native Hawaiian trees and preserve/restore the natural environment of the declining Palila native Hawaiian bird species.

ASSESSMENT RESULTS:

AEC's Program Learning Outcomes:

Upon successful completion, students are prepared to:

1. Demonstrate entry-level skills for accuracy in drawing geometric shapes, axonometric pictorials,

orthographic projections, and identify the relationship of features to demonstrate visualization proficiency.
2. 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. Use with reasonable competence HAWCC's 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. Use with reasonable competence HAWCC's surveying hand tools/equipment, Theodolite, total

stations, and GPS Garmin's safely on campus and at the DHH Model Home Project site.

5. 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 designs.

6. Demonstrate communication, critical thinking, research, and problem-solving skills

7. Understand the balance between cultures, community and the environment.

8. Demonstrate computation and reasoning skills.

Below is a discussion on the overall results of course-level assessments during the 3-year period under review demonstrates the Program's achievements or challenges in meeting its PLOs.

Over the past three years, AEC has accomplished many tasks to enhance student learning. This was in part due to previous course assessments as well as expert advice given by AEC's Advisory Council members. The biggest challenge for AEC was to be able to schedule a meeting with all Advisors at the same time due to many conflicting schedules. To overcome this challenge AEC has requested services from additional community professionals to become advisors as well as input from former AEC students, this will allow for a better outcome from each assessment done.

All Advisors have agreed that all graduating students should have a strong background in the very basics such as lettering and manual drafting skills. AEC's curriculum has been drastically changed to incorporate these skills into each semester allowing time for students to continue practicing these skills. Students continue to draw out geometric shapes, axonometric pictorials, and orthographic projections before focusing on construction drawings which would achieve the outcome for PLO #1.

Students are given lectures on construction materials, products, and processes. Students are also required to do research for more information and all information gathered are used to create construction drawings. After reviewing students' working drawings, Advisors were impressed with their progress but also suggested that it be mandatory that students take notes whenever necessary to help them retain more information. AEC has always stressed the importance of this and since receiving their feedback, have incorporated mandatory note taking into our courses. This allows students to create a personal folder with information that will be used throughout the entire four semesters and beyond. These methods allow the students to achieve the outcomes for PLO #2 as well as PLO #5.

AEC students are also required to learn how to use AutoCAD to create working drawings. AEC has been using AutoCAD 2008 for many years and students purchasing their own software were unable to acquire this outdated software. Having to purchase newer software to do their assignments at home was becoming a challenge. To overcome this problem, AEC applied for a Perkins grant to obtain a newer version of AutoCAD. After the grant was issued, AEC was able to receive AutoCAD 2015 educational software at no cost. The updated software has made it a lot easier for students to follow along.

After meeting with Advisors, suggestions were made regarding the artifact that was used for AEC 110B which was a Basic AutoCAD command quiz and students did not do as well as expected. To overcome this challenge, AEC 110B, which is now AEC 112 has become an online class with many videos created for each command. Students are now able to watch each video as many times as needed to be able to understand how it works. This process should allow students more time to retain what is needed. With this improved strategy, students should achieve the PLO #3 outcome in all four semesters.

In all four semesters, students learn how to use surveying hand tools as well as equipment. They are also required to create Site Maps and Topography Maps. Students learn how to operate the total station and GPS outside on campus grounds. PLO #4 also states that students operate the Theodolite, which we no longer use. Since AEC's surveying equipment was also outdated, the Perkins grant allowed AEC to purchase newer equipment which was highly suggested by Advisors. AEC's PLOs will be changing to reflect the non-use of the Theodolite. AEC was also advised to enhance the surveying portion of our AAS degree. The curriculum has been changed. Two new certificates have been created for students interested in that field only.

AEC's PLOs #6, 7, & 8 are achieved throughout all four semesters within the majority of its courses. Students are required to communicate with each other and use their reasoning and problem-solving skills to meet the project assignment's design criteria and create their full set of working drawings. They are also required to do research and apply critical thinking to complete their assignments. Students are encouraged to consider a variety of concepts and features within the community and environment when creating their designs.

2015-2016 ASSESSMENT PLANS:

For the **Fall 2015** semester, AEC will be assessing **BLPR 22** (Blueprint Reading and Drafting), **BLPR 30D** (Blueprint for Machine Trades I) and **BLPR 30F** (Blueprint Reading for Carpenters). The artifacts chosen for each course will be an exam taken by students. All students' work will be collected for use as an artifact (100%). AEC hopes to achieve at least 85% meeting or exceeding expectations. The CLO's assessed will be as follows:

- BLPR 22 –
1. Able to use basic manual drafting tools
 2. Able to read the Architectural and Engineering scale
 3. Able to create pictorial drawings – Orthographic, Isometric, & Oblique
 4. Can identify the building components of a simple residential structure.

- BLPR 30D – 1. Able to use basic manual drafting tools
2. Able to read the Architectural and Engineering scale
3. Able to create pictorial drawings – Orthographic, Isometric, & Oblique
4. Able to find dimensions of objects from a simple welding drawing.

- BLPR 30F - 1. Able to use basic manual drafting tools
2. Able to read the Architectural and Engineering scale
3. Able to create pictorial drawings – Orthographic, Isometric, & Oblique
4. Can identify the building components of a simple residential structure.

For the **Spring 2016** semester, AEC will be assessing **BLPR 30C** (Blueprint Reading for Electricians), **BLPR 30B** (Blueprint for Welders) and **BLPR 40** (Blueprint Reading and Estimates). The artifacts chosen for each course will be an exam taken by students. All students' work will be collected for use as an artifact (100%). AEC hopes to achieve at least 85% meeting or exceeding expectations. The CLO's assessed will be as follows:

- BLPR 30B – 1. Able to understand Detail, Assembly and Sub-assembly prints.
2. Can identify different weld symbols and structural shapes

- BLPR 30C – 1. Recognize Alphabet of Lines
2. Apply Alphabet of Lines to residential drawings
3. Able to draw out "As Built" drawings
4. Read and interpret electrical circuitry & residential building blueprint drawings
5. Design residential electrical layout in compliance to NEC.
6. Complete a full electrical print for DHHL Model Home 2014

- BLPR 40 - 1. Able to understand a full set of working drawings.
2. Able to construct a small scale model of a one bedroom dwelling by reading measurements off of a set of working drawings.

CERC COMMENTS AND FEEDBACK: In response to the CERC comments and feedback from the latest Comprehensive Review (2010), AEC responds with the following:

CERC comment #1. *"Would have been helpful to see PLOs and attempt to show alignment with ILOs. Wanted to know how they plan to develop within the students important critical thinking & written & verbal communication skills & respect for the environment."*

Please refer to paragraphs A), B), and C) above in the ILO section for an explanation of PLO and ILO alignment and the method by which communication skills are developed in the AEC students.

CERC comment #2. *“Have taken steps to teach responsibility and sustainability of the environment. Focus on sustainability.”*

The goal to reduce paper copies continues. AEC is in the process of obtaining devices that receives students electronic drawing AutoCAD files which can then be marked up with instructor comments and corrections on screen and sent back electronically to the students. We are scheduled to receive these devices before next Spring semester and look forward to finally implementing “no paper” drawing submissions. Techniques of utilizing photo electronic images of manually drafted assignments can also be implemented and processed through the Microsoft Surface devices.

CERC Comment #3. *“Technology upgrades is a serious challenge. Adding Certificates of Competence and Completion and software replacement schedule.”*

Software replacement schedule is no longer an issue. AutoDesk has recently started a program of providing free software upgrades to educational institutions. The AEC program has taken advantage of this and are now up to date utilizing AutoCAD 2015 in both CAD Labs. In addition we have acquired Civil 3d and Revit software also included in the courses.

AEC has successfully modified our curriculum by adding Certificates of Completion to the program this academic year. Surveying options have expanded the curriculum to offer short term and stackable certificates.

CERC comment #4. *“ Program has changed its priorities but has no planned schedule for equipment and software upgrades, have not made progress with articulation with UH Manoa, and have not taken steps to improve graduation rates.”*

Software upgrades are no longer an issue as previously explained. Computer equipment in the CAD Labs are on a rotating replacement schedule controlled by the Academic Computing Unit.

AEC has in fact articulated several courses with UH Manoa’s School of Architecture program as stated in the previous review.

On an experimental basis with temporary funding for a peer tutor over a span of a few months did prove to be helpful as many students took advantage of this service. A past graduate of the AEC program was hired by the Rural Hawaii Grant Program and her services were in high demand by the current 1st year students. With funding, AEC could continue this program which would positively impact our graduation rates. (G/2)

CERC comment #5. *“Besides a Certificate of Competence and Completion, may also want to consider Certificate of Completion.”*

“2006/G1 of a technology plan not addressed.” Other 3 goals are appropriate. Goal 1 is based on current industry and societal needs (sustainability); G2 is based on community/industry needs (expand surveying curriculum) and a continuation of Goals from 2006; G3 is a health/safety priority to have a safer space for students to build models; G4 to develop certificates is continuation of 2006.”

G/1 technology plan has been resolved as explained above.

G/2 & G/4 has been accomplished by adding more surveying courses and two Cos plus one CA in this topic area.

G/3 remains the area of focus for this review. This is both a health and safety issue for our students working on their projects on the lawn and on the exterior walkway areas, often needing a place to leave projects which due to lack of dedicated space indoors, leave their projects outside to dry with use of glue/paints. Some have experienced projects blowing in the wind and to rush outside at the onset of rain. Others worry for the safety of their projects sitting outside in the public walkways.

OTHER SUCCESSES:

- The AEC program accomplished the offering of online/hybrid/accelerated classes. It was a challenge to modify the existing f2f courses, into distance education format but are now offering this form of delivery for five AEC courses.
- The AEC curriculum has incorporated two new Certificates of Completion and one new Certificate of Achievement all with a focus on surveying technology. A newly modified Certificate of Achievement was also developed with a concentration in architecture.

PART II: ACTION PLAN

For this section, describe and discuss your Program's Action Plan for the 3 year period from July 1, 2015 through June 30, 2018. For each action strategy or tactic, provide details about the goal, expected level of success, implementation timeline, and any challenges or barriers you anticipate may affect implementation or success.

Action Plans must align with the new Hawai'i Community College 2015-2021 Strategic Plan. Discuss how the Program's Action Plan aligns with and supports the 2015-2021 Strategic Plan's Initiatives, Strategies, and Tactics.

<http://hawaii.hawaii.edu/docs/hawcc-strategic-directions-2015-2021.pdf>

PART II: ACTION PLAN GOALS

G/1: As requested in the prior Comprehensive Program Review of 11/2010, and subsequent Annual Program Reviews since then, the AEC Program would like to efficiently use our existing walk-in closet by transforming it into a GREEN LAB, for multiple uses. a) incorporate green concepts into the design to minimize energy usage of the space such as with natural lighting and ventilation utilizing light shelves, wind vanes and solar exhaust fans; b) radiant barrier in ceiling to reduce heat from the exterior; c) create a healthy environment with low v.o.c. paints and greenery for natural air filtration. d) Provide a clean-up sink with plumbing connection to existing sink plumbing water and drain. e) Reactivate existing electrical outlet and add 1 new outlet. AEC strives to further develop existing instructional studies in sustainability by experimenting and applying features and measures to include Green demonstration projects, display of sustainable student projects, while providing a safe and healthy area for students to build their project models. Included will be space to also feature a student recognition display identifying past students who have earned LEED credentials, as a goal to inspire all students to pursue sustainability in their daily lives and in their architectural and engineering professions.

Goal aligns with: UHCC Strategic Directions, Goal: Modern Teaching and Learning Environments.

G/2: Replace aging printers to keep up with reproduction of plans for the Model Home Project and other instructional drawing sets for class work and the college.

Goal aligns with: UHCC Strategic Directions, Goal D: Investment in Faculty, staff, Students and their Environment.

G/3: Seek funding to hire peer tutors to support student success in our specific rigorous trade to increase graduation rates, in response to an area of concern as reflected in our ARDP assessment.

Goal aligns with: UHCC Strategic Outcomes and Performance Measures, Goal A: Student Success

PART III: Budget Items

For this section, describe and discuss your Program's cost-item "budget asks" for the 3 year period from July 1, 2015 through June 30, 2018. For each budget item, describe the needed item in detail, including cost(s) and timeline(s).

Budget asks for all categories of cost items may be included in the 3-year Comprehensive Review. Explain how the item aligns with the Hawai'i Community College 2015-2021 Strategic Plan (see link above in Part II). Identify and discuss how each item aligns with the Strategic Plans Initiatives, Goals, Action Strategies, and Tactics.

PART III: BUDGET ITEMS

G/1 - Item 1: GREEN LAB to efficiently utilize existing walk in storage room of approx. 320 sq. ft. In the modifications, incorporate features and measures for energy efficiency, and a healthy environment. Include space for sustainable energy demonstrations, and project displays with studio spaces for building project models w/ worktables.

Cost: \$17,000.00

G/2 - Item 1: Replace older (8+/- years) model Xerox printer/copier that produces 24" x 36" sheets of the Model Home drawing sets for the EIMT, Carpentry, Ag, and AEC programs, including the engineers' working sets, building permit sets and any sub-contractor sets. This machine has recently caused disruptive 'traffic' on the university's internet system throughout the State and had to be shut down for a time-frame on two occasions thus far. Xerox technicians replaced the CPU during the 1st disturbance and again worked with HawCC's ACU Technicians on a recent 2nd incident.

Besides producing copies of the finished drawings, this machine is a vital part of the Model Home drawing preparation process within the AEC department for student instruction as it is also used in the rough draft stages of the drawing for check sets and classroom lecture sets.

Cost to replace 24x36 printer: \$ 8,500.00

Goal/2 - Item 2: In addition, both CAD labs currently have student project printers which is jamming, leaking, and failing due to age. (20 yr. old equipment). To save on cost, we propose to replace existing two printers, with 1 centrally located new CAD printer.

Cost for one CAD printer: \$3,400.00

Goal/3 - Item 1: Budget allowance to hire one or two tutors (with specialty and expertise, AEC graduate) to provide one-on-one appointment times as needed for up to 10 hours per week, one tutor, at the rate of \$15.00 per hour, for 14 weeks a semester. This past semester AEC was able to hire one tutor through the Rural Hawaii Grant Program, which proved highly successful for the students who took advantage of this in the Fall of 2015. This tutor was paid \$25.00/hr. by the Rural Hawaii Grant.

Cost to maintain 1 peer tutor: \$2,100.00/semester