# ANNUAL
## REPORT OF PROGRAM DATA
# 2023

UNIVERSITY of HAWAI'I
## HAWAI'I
### COMMUNITY COLLEGE

**July 1, 2022 through June 30, 2023**

# Architectural, Engineering & Construction Technologies

# 1. Program or Unit Mission

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 surveying crew.

# 2. Program Student Learning Outcomes or Unit/Service Outcomes

1. Using computational and reasoning skills, demonstrates entry-level skills for accuracy in drawings, and identifies the relationship of features to demonstrate visualization proficiency.

2. Formulate, design, revise, and construct projects utilizing knowledge of proper construction materials and resources based on design criteria, and be able to defend, explain, and discuss.

3. Design and generate Architectural and Engineering documents using two-dimensional and three-dimensional CAD programs.

4. Demonstrate operational competence in using surveying hand tools and equipment.

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

6. Illustrate within the design process an understanding of the balance between cultures, community, and the environment.

Currently, the Architectural, Engineering & Construction Technologies program is on a "stop-out" and is under revision.  Due to the "stop-out" and phase out of second year students, no assessments were done this past year.  However, prior assessment results along with Advisory Board and Industry members have contributed to what the revised program will offer.  Using these results helped Faculty determine what needed to remain, what was obsolete, and how we could add curriculum to the program that would be beneficial to students for better employment opportunities upon graduation from the program.  Program Learning Outcomes will be revised slightly for the upcoming program (Engineering Technologies) which will begin in the Fall semester of 2024.

Program Coordinator will meet with the Assessment Coordinator upon completion and approval of new courses/certificates to develop a Five-year Assessment plan.  Faculty will continue to meet with Assessment Coordinator to be sure that all assessments are done as needed and program remains on schedule.

# 3. Analysis of the Program/Unit

**Demand** - For years the ARPD data has not justified the AEC Tech program accurately.  The CIP code (15.1303/17.3011) identifies "Architectural and Civil Drafters" as being the main goal of the program, however our program offers a variety of job opportunities for our students, not just within the State and County of Hawaii.  Due to COVID and the immediate modality change to online delivery, the program has suffered a significant lost in enrollment.  Due to this event, AEC Tech

was put on "Stop-out" until 2024.  We were no longer able to enroll students into the program for the next academic year.  We did offer a Certificate of Competence in Geospatial Technologies which did not do well due to the ineligibility of financial aid.

**Efficiency** – The AEC Tech program began as a two-faculty program.  Upon retirement of one full time faculty, the position has been deleted.  We are now a program with one full time faculty and lecturers are hired as instructors for the remaining courses.  We were on a stop-out and were servicing the remaining students (2$^{nd}$ year) that needed to graduate, thus explaining the small class size.  Our program offers an Associate in Applied Science as well as four Certificates which many students choose to complete instead of the two-year degree.  Therefore, our enrollment numbers vary and semester to semester numbers change drastically.  However, this offers the students flexibility around their personal circumstances (employment, family, transportation, etc.) which would otherwise hinder their ability to complete their education.

**Effectiveness** – Our program's "Successful Completion" was at 90% and "Degrees and Certificate of Achievement" improved significantly, most likely due to the different opportunities our program offers students.  Also, the number of degrees for this academic year has more than doubled from last.  This is justification of the dedication given to students by the one faculty and lecturers of the AEC program who works together with the main goal of student success.

**Overall** – During the past several years, AEC has gone through a lot of significant changes.  The program lost a full-time faculty position.  Then we needed to delivery courses completely online due to COVID.  This is a difficult skill to learn online for many students and our enrollment began to drop. As it subsided and we were given the okay to return to face-to-face modalities, we were put on a stop-out.  Prior to this stop out, AEC faculty had numerous meetings with HonCC faculty during the summer to try and articulate courses, possibly entering into a Hub and Spoke agreement. The program name was changed for both campuses, from Architectural, Engineering & CAD Technologies to Architectural, Engineering & Construction Technologies. However, the courses on both campuses proved to be significantly different and therefore no articulation could be agreed upon.  The demographics between the two islands and the industries that we each serve are totally different and require students to learn specifics to address the needs of their island's industry.  This would also temporarily hinder the continuation of discussions referring back to the 2+3 program with UH Manoa.

It was decided by Administration and UH System that HawCC's AEC program would be on a temporary stop-out until Fall 2024.  Since then, the one faculty have been exploring ways to re-design the entire program's curriculum to better accommodate our students and the industries that we serve.  Numerous meetings were held with Industry members, peer faculty, and Administrators on campus to discuss options and directions that AEC would move towards.  The omission of the two-year degree would hinder all employment within the State and County departments who require at least an Associates degree to apply for any position.

There were also two National Science Foundation grants that were awarded for two new certificates (Geospatial Remote Sensing Hawaii, Work 4 Water) that would be included in the revised program. The program name was the first change that took place and will be called Engineering Technology.

Secondly, all revised and new courses have been entered into the Kuali system and is currently being reviewed by the Curriculum Review Committee.  Further changes will be discussed in the Action Plan below.

https://uhcc.hawaii.edu/varpd/index.php?y=2023&c=HAW&t=CTE&p=2765

# 4.  Action Plan

**Last Comprehensive Review -**
Action Item 1:
To promote exposure in the community and generate interest to increase enrollment.
Action Item 2:
Continue working with Honolulu CC to align our common architecture and drafting courses.
Action Item 3:
Continue collaboration with UHM's School of Architecture on their proposal of the 2+3 concept.

Action Item #1:
Prior to the stop out, there was many students wanting to enroll into the program along with many complaints from DOE employees and parents that heard of the stop out.  They did not agree that HonCC's delivery of online courses would be good for our students.

Action Item #1 and #3:
The unsuccessful attempt at trying to articulate courses between two completely different programs hindered the successful attempt at a 2 + 3 articulation with UH Manoa.

Although AEC faculty has tried very hard to complete these action items, as stated above, there was several roadblocks that kept the program from successful completion.  Below are action items that faculty would like to accomplish going forward for the Engineering Technology program.

**Action Item AY 2023 – 2024** :

**1. Promote "Engineering Technology" (Continuous):**
    Faculty has created a "postcard" for the revised program and continues to attend career fairs to advertise and promote the program.  Once the program is approved, faculty would like to contact counselors at the High Schools to highlight the changes to make students aware of the employment possibilities within our program.

**2.  Integrate Electronics into Engineering Technology:**
    Faculty within both programs will work together to create curriculum that would allow students the opportunity to graduate with a two-year degree in different, but related, fields. This gives students an option in the direction they choose.

**3.  Incorporate drone technology into other programs:**

       Discuss and create ways to incorporate drone technology into their programs as part of their curriculum.  This is the beginning of cross-campus learning.

**4. Continuous Advisory Board meetings:**
       Continue to meet regularly (group or individual) with Industry to create a strong program with up-to-date technology and skills that provides Engineering Technology students with more than entry level skills upon graduation from the program.

The mission of HawCC is to strive for lifelong learners and employment readiness which is exactly what Engineering Technology will provide.  Our flexible schedule and numerous degree/certificate options allows for all students (from high school graduates to retirees to employees already in the workforce) the opportunity to graduate with more than one skillset which would make them more "attractive" than the normal applicant.

# 5.  Resource Implications
**Special Resource Requests <mark>not included in operating "B" budget</mark> ***

☐  **I am NOT requesting additional resources for my program/unit.**
X  **I AM requesting additional resource(s) for my program/unit.**
**Total number of items being requested:  _____4_____(4 items max.)**

UNIVERSITY of HAWAI'I®

# HAWAI'I
## COMMUNITY COLLEGE

# MEMORANDUM

May 10, 2023

TO:        Rachel Solemsaas, EdD
           Chancellor

FROM:      Kimberley P. Collins
           Vice Chancellor for Academic Affairs

SUBJECT:   Request to Rename the Architecture, Engineering and Construction Technologies
           (AEC) Program and Reactivate the Program

## SPECIFIC ACTION REQUESTED:
The Architecture, Engineering and Construction Technologies (AEC) program requests your approval to rename its Associate of Applied Science (AAS) degree to Engineering Technologies and Certificate of Achievement (CA) to Drafting and Design, effective Fall 2024. The program also requests its program code be reactivated under its new name and available to admit or recruit students, effective Fall 2024.

The program will retain its Certificate of Achievement (CA) in Geomatics and GIS and the Certificate of Competence (CO) in Geospatial Technologies. A new (CO) Geospatial Remote Sensing Hawaii will be added. This CO is being designed through an NSF grant. Currently AEC is the "parent" to these CA and COs.

Hawai`iCC's AEC program emphasis will shift from SOC 17-3011 to SOC 17-3022 Civil Engineering Technologists and Technicians. https://www.bls.gov/oes/current/oes173022.htm

## ADDITIONAL COST:
No additional costs are incurred by this action.

## RECOMMENDED EFFECTIVE DATE OF NEW CURRICULA:
Fall 2024

## BACKGROUND INFORMATION:
Hawai`iCC's AEC program was initially identified as the "Spoke" with HonoluluCC serving as the "Hub" in the "Hub and Spoke" model. As a result, effective Fall 2022 HawaiiCC's AEC program was placed on temporary Stop-Out for two years. During this time faculty Donna De Silva put her efforts in reimagining the areas of construction technologies.

After many meetings and a thorough review of both programs, it became evident that the programs differ with HonoluluCC focusing on Architecture and Design and HawaiiCC on drafting and surveying with an emphasis on Geospatial technologies.

HawaiiCC continues to offer Blueprint Reading courses as required by other construction-type programs. The certificate in Geospatial Remote Sensing will be offered through EdVance (non-credit) for the AY 2023-2024 term. A request for Hana funding was submitted to cover the cost due to the timely process of the CRC.

The curriculum for all remaining AEC courses and certificates are being modified to update content, align skills to prepare students for jobs across industries, and innovate delivery modalities including exploring short-term training based on Industry needs. Collaboration with faculty from other disciplines is happening to eliminate duplication of similar courses and to create courses that can benefit and serve other CTE programs. Faculty Donna De Silva is participating in an NSF grant that aims to modify and develop courses that will prepare students for careers in advanced technologies, such as Lidar, ground/aerial photogrammetry, and geospatial surveys.

With the rapid growth of the ground and aerial surveying industry using technologies such as Unmanned Aircraft Systems (UAS) and support from Program Advisory Councils, there is a need to ensure that new technology is integrated into the current AEC courses and programs. This will ensure a pipeline of qualified professionals to meet the increasing demand in the various industry sectors.

The median salary base for all occupations listed on the SOC code from the US Bureau of Labor Statistics is at $58K annually.


Attachments:  AEC Course-Curriculum Changes Summary
              AEC Course Descriptions Revised
              Engineering Technologies Advising Sheet Proposed