College Mission Statement

The mission of Honolulu Community College is to:

- Serve the community as an affordable, flexible, learning centered, open-door comprehensive Community College that meets the post-secondary educational needs of individuals, businesses, and the community.

- Serve the Pacific Rim as the primary technical training center in areas such as transportation, information technology, education, communications, construction, and public and personal services.

Program Mission Statement

The mission of the Architectural, Engineering and CAD Technologies program is to:

- Provide students with state-of-the-art technical training in preparation for employment in architectural, engineering, and related jobs.

- Meet the needs of students with specialized interests and objectives who need or desire similar training.

- Provide students with the general education skills, attitudes, and values for effectively working with others, contributing to the AEC industry, and accepting the responsibilities implied in support of a safe and sustainable natural and built environment.

Part I: Quantitative Indicators for Program Review

<table>
<thead>
<tr>
<th>DESCRIPTION</th>
<th>QUANTITATIVE VALUES</th>
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<tr>
<td>Fall of Year</td>
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<tr>
<td>Annual new and replacement positions in the State</td>
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<td>Annual new and replacement positions in the County</td>
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<td>SSH for non-program majors in all program classes</td>
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<td>Number of degrees earned (prior year data)</td>
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### Part II: Analysis of the Program

- **What are the names of instructional faculty who taught in Fall 2007 or Spring 2008?**
  - Michael Jennings, Professor, AEC
  - Douglas Madden, Professor, AEC
  - Dianne Caulfield, Professor, Cooperative Education

- **What are the names of instructional lecturers who taught in Fall 2007 or Spring 2008?**
  - None

- **What are the names of non-instructional faculty or staff who taught in Fall 2007 and/or Spring 2008?**
  - None

- **What are the strengths of this program?**
  - The AEC program is perfectly aligned with the mission of the college and is an important part of the technical training focus of the institution.
  - The program supports the only authorized Autodesk Training Center in the State.
  - It enables all graduates of the program to obtain the employment for which it is designed to prepare them.
  - It serves the local AEC industry and the community with a trained workforce.
  - It is the only AEC program on Oahu where 90% of the architectural and engineering offices in the State are located.
  - All beginning AEC classes were fully enrolled in the 2007-2008 academic year (as well as in years before and in the following school year).
  - Retention of students from the first to the second years is strong (the persistence figure above is not accurate; it was actually ).
  - AEC students provide out-of-classroom services to the school and community in fulfillment of a program-related school and community service requirement.
  - The program engages local companies, organizations, and individuals with the college through outreach activities, a portfolio review, field shadow placements, advisory committee involvement, etc.
  - AEC faculty provide separate non-credit training to companies and individuals.
  - All AEC classes are taught by full-time, tenured faculty. There has been no faculty turnover in the past 16 years or more.
  - Both AEC faculty members are now, or have been, Autodesk certified.
All students have reasonably dependable and up to date equipment for computer drawing, plotting, presentation, and model building involved in their classes.

Faculty provide design and drawing services to other programs and entities at the college.

The program oversees drafting instruction at Pearl Harbor and coordination and supervision of Blueprint Reading courses that serve other HCC trade programs.

AEC faculty assist the Construction Academy as well as SkillsUSA and the Hawaii Technical Education Association during each school year.

The program offers two distance education courses that serve students from other islands and other colleges as well as Oahu and our own students.

Resources for all first-year fall courses have been created in Sakai.

Student satisfaction with the program is high.

Students who continue to five- and eight-year university programs in architecture and engineering are invariably successful in those programs.

The program continually upgrades training as software and industry practices change.

Employer satisfaction is high, and graduates frequently advance quickly in employment for which the program has prepared them.

The program uniquely enables people in the hard trades who have been injured on the job to retrain in a closely related area but without risk of further injury. A number of graduates have been able to remain union members during retraining and return to their trades at a higher level than before they were injured.

The program maintains a fairly strong connection with alumni. Plans were laid at the end of the annual review period for an AEC alumni newsletter to strengthen this connection still more (the AEC Alumni Newsletter was launched this Fall 2008 semester).

What are the weaknesses of this program?

Although beginning AEC classes are regularly fully enrolled, there are not enough additional program applicants to justify a third instructor to satisfy the local industry demand for trained employees. 15 to 20 graduates each year is insufficient to simply match attrition of similarly responsible people in the industry.

The replacement and maintenance of computer hardware along with installation, removal, repair, etc. of software take needed time away from class preparation and other faculty obligations. This is also true for faculty in other trades programs with other types of equipment, but it is not true for most Liberal Arts faculty whose student contact requirements are 30% to 40% less, do not have lab maintenance responsibilities, teach material that is not significantly different from year to year, and do not have program responsibilities (involving advisory committee, job placement, career fair, and other such obligations) in addition to actual teaching. Teaching load inequity is a systemic problem, but it negatively impacts the AEC program nonetheless.

Peripheral responsibilities and tasks have become major distractions from instruction. Projects intended to improve instruction often seem to interfere with it more than improve it. Many reports ask for the same information, and productive use of the information is usually not clear.

The program has not moved as far and quickly as anticipated to develop needed assessment tools. Lack of time is an important impediment. Due to the unavailability of substitute instructors in particular subject areas, it has been impossible for AEC instructors to take advantage of union negotiated teaching load reductions to make these and other needed program improvements. Special projects, lab maintenance, department activities and responsibilities apart from instruction, and non-credit teaching are also impediments.
Weak student reading, writing, and research skills in spite of 100-level general education requirements are hampering what can be taught. Students enjoy drawing, building, etc., but many simply refuse to read anything more than a sentence long. And probably because they do not read, most students cannot write satisfactorily. This shows up most clearly in the online AEC courses where reading and writing are essential. Some students repeat these courses as many as six or seven times.

Although graduates are currently paid much more than just a few years ago, industry pay in Hawaii is still quite low for the amount of training and level of skill required. This is a disincentive for people considering construction-related careers where union pay and benefits in other fields are much more attractive, especially to younger people looking at supporting families and purchasing cars and homes.

Hawaii lacks heavy industry and mechanical and industrial engineering opportunities that would strengthen the program. Also with the advent of new technologies that make instant exchange of high quality graphic documents commonplace, more architectural and engineering firms are outsourcing production work to the Philippines and other eastern countries, which limits growth in the segment of the industry for which we train students in the AEC program. Easier-to-use CAD software and the gradual influx into the industry of younger architects and engineers trained in the software have also resulted in many of these people doing their own production work rather than handing it over to others with the specific production skills we teach.

Ongoing weaknesses in the Distance Education program at the UH system and HCC levels make maintenance and delivery of AEC online courses difficult. Delivery platforms are abandoned very soon after they are adopted and required, and interest in supporting distance education courses at this college is weak. Instructors who were encouraged to use WebCT were recently required to switch to Sakai essentially because it is open source and free. The PHBB bulletin board program that everyone was required to switch to in place of Hypernews just a few years ago has recently been abandoned. Preference for the latest and cheapest support systems and resulting quicksand of requirements is time-consuming, disruptive, and non-productive for instructors. We will see how long Sakai lasts.

**What opportunities exist for the program?**

The success of the Construction Academy is expected to impact the AEC program as more secondary school students become acquainted with AutoCAD® and other drawing and modeling software programs – and as they become aware of the HCC program and opportunities in the field. So far, impact of the Construction Academy on AEC enrollment has been negligible, however.

More secondary schools appear to be replacing mechanical drawing courses with courses that involve CAD, and there appears to be increased State support for construction-related training that will impact the AEC program.

Rapid model prototyping will likely be integrated into the AEC curriculum as it becomes better known and industry demand develops.

An ongoing possibility or opportunity exists for introducing a kitchen-bath design phase to the program as suggested by the National Kitchen and Bath Association (NKBA). This would, however, involve major curriculum changes, new industry partnerships, software site licensing, instructor training and certification, etc.

There appears to be growing State and local interest in developing space-related industry and tourism. As evidenced by the 2007 involvement of the AEC program with the new Pacific International Space Center for Exploration Systems (PISCES), design technologies and skills will very importantly accompany this development, and the AEC program could play a greater role. A meeting and
continued conversation about developing a system-wide space studies certificate program has grown out of the PISCES project, and the AEC faculty is participating.

- **What challenges (threats) exist for the program?**
  - One challenge is preparing students for jobs that require teamwork, leadership, and self-sufficiency as well as simply drawing and following directions. Overcoming barriers to workplace survival that are sometimes cultural is an ongoing challenge.
  - Balancing report writing, committee work, special assignments, ordering of equipment, installing software, troubleshooting computer problems, tracking community service hours, upgrading skills, teaching non-credit courses as expected, maintaining web sites, etc. with class preparation and classroom teaching is a challenge for program instructors and limits program development.
  - Industry outsourcing of production drawing that is a principal focus of the AEC program (also mentioned above) is a growing threat.
  - Quantifying every desired outcome is a challenge without simply giving up on soft skills and other outcomes that are important but that are also difficult to test and document in clear and objective fashions.
  - The AEC industry is changing so rapidly that it is a challenge to keep up. New software, new emphases on sustainability and economy, new materials, new science, and expanded professional services are forcing firms to specialize to a degree never before so necessary. But a single program that serves the industry as a whole cannot limit itself in the same way, and providing students with at least an introduction to so many aspects of such a burgeoning industry is a challenge in a two-year program.

- **Are the measurement of your Program and Course SLOs providing adequate information to evaluate student learning or should new measures be developed?**
  - The best measures are student employment upon graduation; success in employment; acceptance to related, bachelor-level, university programs; and success in those programs. The AEC program tracks these outcomes.
  - Various tools are in place to measure course and program learning outcomes. More are needed, especially for individual courses. A soft skills assessment tool was developed and used during the 2007-2008 school year and has since been improved.

- **How do you know that students are achieving your stated Program SLOs?**
  - Records of employment and acceptance to further training upon graduation.
  - End-of-program student surveys.
  - Completed student projects seen and judged by advisory committee members.
  - Field shadow reports from industry representatives.
  - Portfolios presented at an end-of-program portfolio review attended by advisory committee members, earlier graduates, employers, and others.
  - Employer competition for graduates following the end-of-program portfolio review.
  - Graduate feedback (which has actually resulted in course modifications).

- **What kinds of evidence can you provide?**
  - Records of employment and acceptance to further training upon graduation.
  - End-of-program student surveys.
- Completed student projects seen and judged by advisory committee members (although they would need to be retrieved from the students).
- Field shadow reports from industry representatives.
- Student portfolios (although they would need to be retrieved from the students).
- Employer testimonies (not written, but obtainable).
- Graduate feedback reports.
- Field shadow reports completed by industry shadow sponsors.

**Does the program have sufficient resources to promote student learning? Are other resources needed such as personnel, facilities, or equipment? If additional resources are required, what evidence/rationale is there to support this?**

- Resources are roughly sufficient.
- Additional resources would be needed for program expansion. At this point, a simple greater offering of current courses is not justified by the number of applicants for admission. Additional program options, however, would likely increase program demand. These options might include a kitchen-bath design option, evening-weekend option, accelerated program option, or short-term certificate options.
- Lab computers upon which almost all of the courses in the program heavily depend need to be replaced more often. Replacement on average every five years is inadequate for keeping pace with software taught and for essentially a computer-based program that represents itself as a state-of-the-art program.

**Do all of your instructors (both faculty and lecturers) include the course (not program) SLOs into their syllabus? How do you ensure that everyone is doing so?**

- Yes. All instructors include course SLO’s in their syllabi.
- Course SLO’s are also posted online for both current students and those considering enrollment (hono\(lulu.hawaii.edu/aec\)).
- There are only two faculty in the AEC program, and the syllabi of each are frequently seen by the other.

**Where do the instructors get the course SLOs?**

- Each instructor has a record of the SLO’s after having created them himself. There has been no faculty turnover since the SLO’s were developed.
- SLO’s are also available from an AEC master list of them for all program courses.
- SLO’s are also posted online (stated earlier).

**Are all safety issues addressed?**

- Yes. The program has a Safety Liaison who regular participates in training, etc.
- Personal injury, however, is not a great risk in the AEC program.

**Part III: Action Plan**

**What tasks/goals have you accomplished from your previous action plan items on last year’s annual review report?**

- Knowledge surveys for all first-year courses have been developed, although use of them has been off and on.
- The soft skills assessment tool developed during the 2007-2008 school year has been improved and will be used during the 2008-2009 school year.
The goal to move the end-of-year portfolio review to the W.H. Loui Conference Center was met (May 14, 2008), and it resulted in a much more professional and successful presentation of student portfolios.

The goal to hold another advisory committee was met (May 14, 2008 in conjunction with the portfolio review event), and since HCC committee meeting dates have very recently been finalized, plans are being made to hold a fall advisory committee meeting on an open date. This will be a meeting in addition to the regular spring meeting.

The goal to look closely at continuing involvement of the AEC program with the PISCES organization is underway. A meeting of interested people from the UH community met April 24, 2008 at UH to begin planning for a space studies certificate program. The design competition is different this year, however, and AEC students will not participate as they did the year before.

The goal to consider requiring elective general education courses that are writing intensive was not met. The goal has not been abandoned, however.

The goal to change AEC 81 from a one-credit course to a two-credit course will be accomplished by the Division Curriculum Committee deadline.

The goal to move the online AEC 118 course to the Sakai format was accomplished in late summer of this year.

The goal to ensure the success of all graduating students interested in employment in the field or transferring to a related bachelor’s level program has been met to the extent possible. A student who moved to the mainland, and another who moved back to Guam, however, had to essentially fend for themselves. We are currently working with another student to find employment for her after her self-chosen “break.”

What tasks/goals have you set for the upcoming year (Fall 2008/Spring 2009)?

Create knowledge surveys for still more of the AEC courses.

Further improve the soft skills assessment tool developed earlier.

Continue the end-of-year portfolio review.

Hold two advisory committee meetings this year.

Engage advisory committee members more in classes (suggested by members at the May 2008 meeting).

Continue to participate in the development of a space studies certificate program in which this program may play a part.

Consider requiring elective general education courses (one or more) that are designated writing intensive (carryover from the last report).

Change the AEC 81 course from one credit to two credits, change the AEC 80 course from three credits to two, and revise curricula accordingly.

Ensure that the new AEC Alumni Newsletter is published three more times in the 2008-2009 school year as promised to establish its continuation.

Develop resources for spring semester courses for placement in Sakai.

Consider developing a mechanism by which students with the greatest aptitude for success are identified and admitted to the program. A number of students have been turned away each of the last few years, while others who have simply enrolled early and without any screening lack basic computer skills, basic visualization skills, and the degree of mental agility needed for success. Such a mechanism might involve evaluation of common computer tasks, interpretation of written instructions, writing exercises, visualization exercises, and background and professional goals assessments.

Continue to ensure that all graduating students interested in employment in the field or transferring to a related bachelor’s-level program meet their objectives.

Work with Administration to develop a plan for replacing all computers every two years.
• **Who will be responsible for completing these tasks/goals?**
  - The program instructors, principally the one who completed this report.
  - Instructors have been responsible for creating and using knowledge surveys for the courses they teach.

• **What is the timeline for achieving these tasks/goals?**
  - Attempts will be made to accomplish all goals by the end of the 2008-2009 school year.
  - All goals should be accomplished before the next Annual Assessment Report is submitted.

**Part IV: Resource Implications (physical, human, financial)**

• **Are there any budgetary impacts for carrying out your action plan?**
  - Yes. A more frequent replacement of computers would approximately double the expenditure for computer replacement.
  - No other significant budgetary impacts are anticipated.

• **Do any of your action plan items require integration into the strategic plan? If so, have you notified your division chair / Dean of this action?**
  - No.
  - We would, however, like to see participation of the college with UH space-related initiatives institutionalized in some way. With the AEC program and its success in participation with PISCES, and with aeronautics, flight training, and appropriate science programs, the college as a whole could be an important player.

**Part V: Strategic Planning Items**

• **Does your program have any funding requests on the current strategic plan (equipment, positions, etc.)? If yes, please write an explanation on how your program review report supports the need to fund the program’s strategic plan request.**
  - None is known.

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d.madden,09-24-08