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 VALUE</th>
</tr>
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<tbody>
<tr>
<td>Annual new and replacement positions in the State</td>
<td>-7 / 184</td>
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<tr>
<td>Annual new and replacement positions in the County</td>
<td>-31 / 131</td>
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<tr>
<td>Number of majors (Fall count only)</td>
<td>98</td>
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<tr>
<td>SSH for program majors – all program classes</td>
<td>646</td>
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<tr>
<td>SSH for non-program majors in all program classes</td>
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<tr>
<td>SSH for all students in all program classes</td>
<td>646</td>
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<tr>
<td>FTE program enrollment</td>
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<tr>
<td>Number of classes taught</td>
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<tr>
<td>Average class size</td>
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<tr>
<td>Class fill rate</td>
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<tr>
<td>FTE (head count) of BOR-appointed program faculty</td>
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<tr>
<td>Student/faculty ratio (calculated field)</td>
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<tr>
<td>Number of majors per FTE (workload) faculty</td>
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<td>Program budget allocation</td>
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<tr>
<td>Cost per SSH (calculated field)</td>
<td>$255</td>
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<tr>
<td>Number of classes that enroll fewer than 10 students</td>
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<tr>
<td>Persistence Fall to Spring</td>
<td>66.33</td>
</tr>
<tr>
<td>----------------------------</td>
<td>-------</td>
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<tr>
<td>Number of degrees earned (prior year data)</td>
<td>14</td>
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<tr>
<td>Number of certificates earned (prior year data)</td>
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<tr>
<td>Number of students who transferred</td>
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<td>Perkins Core Indicator – 4P2</td>
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</table>

### Part II: Analysis of the Program

- **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 2006-2007 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).
  - 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 15 years or more.
  - Both AEC faculty members were Autodesk certified during 2006-2007.
  - 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 VICA-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.
  - 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.

**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. The program needs an IT specialist (possibly shared with other programs).

- Peripheral responsibilities and tasks have become major distractions from instruction. This program review report being due in the very middle of a final exam period is only one of many examples. 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. Stating program strengths and weaknesses a gazillion times, for example, is overkill and wasteful of resources.

- 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.

- 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 will now be 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 year or two ago is now being abandoned. Preference for the latest and cheapest support systems and resulting quicksand of requirements is time-consuming, disruptive, and non-productive for instructors.

An assessment tool developed by David Cleveland at (I believe) the start of the 2006-2007 school year is now unusable because he either took the software with him or prepared nobody to take over where he left off. It was operational for exactly one semester. What was officially “very important” at the time seems to unimportant now that it is gone.

• **What opportunities exist for the program?**
  
  o 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.
  
  o 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.
  
  o Rapid model prototyping will likely be integrated into the AEC curriculum as it becomes better known and industry demand develops.
  
  o 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.
  
  o There appears to be growing State and local interest in developing space-related industry and tourism. As evidenced by recent 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 be a long-term player in this along with the Aeronautics, Aviation, and science programs at the college.

• **What challenges (threats) exist for the program?**
  
  o 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.
  
  o 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.
  
  o Industry outsourcing of production drawing that is a principal focus of the AEC program (also mentioned above) is a growing threat.
  
  o 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.
  
  o 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 this year but was not used during the 2006-2007 school year.

- **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.
  - An IT specialist is recommended in the area of equipment and software
    maintenance and would make it possible for full-time faculty to make needed
    program improvements. Such a person might be shared with other programs or
    (if qualified) combine IT duties with evening instruction and/or instruction to
enable current full-time instructors to take advantage of spring semester teaching load reductions to work on program improvements.

- **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 (honolulu.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 for the courses he teaches and for which he himself developed the SLO’s.
  - SLO’s are also available from an AEC master list of SLO’s for all program courses.
  - SLO’s are also posted online (as 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?**
  - The goal to further develop knowledge surveys was met, but not according to the timeline, and more still need to be developed and used.
  - The goal to continue the new program in which second-year students mentor or tutor first-year students was met, although not as prominently as expected. First-year students seemed less interested this year. AEC Club activities likely diminished some of the mentoring that first-year students would otherwise have taken advantage of separately.
  - The goal to ensure the continuation of a re-established AEC Club was met. It is now an HCC-recognized club and is much more active than the previous year.
  - The goal to ensure that the AEC Advisory Committee meet at least once during the school year was met. Attendance was not good, however, and membership stability and involvement need to be improved.
  - The goal to continue and refine an end-of-year portfolio presentation was accomplished. The format was different from the previous year, and attendance was smaller. But employers were more intent on actually hiring than on the previous year’s guest presentations, and the event was judged a greater success. Several employers actually wound up competing for graduates.
  - The goal to figure out a use for our ovular program map in which we, along with most of the rest of the faculty, invested so much time in training to develop and then to actually create was not met. It is still claimed that a purpose will be announced at some point, but that has not occurred.

- **What tasks/goals have you set for the upcoming year (Fall 2007/Spring 2008)?**
  - Create knowledge surveys for all courses for which surveys are still needed.
- Develop a soft skills assessment tool (the tool itself was developed and used after the 2006-2007 school year, but it is too subjective and needs to be refined).
- Move the end-of-year portfolio review to the Kapalama Multimedia room and make it a better event with a more professional look.
- Hold another advisory committee meeting and move to an annual two-meeting routine.
- Ensure that students complete the 2007 PISCES design competition project and present it at the PISCES Conference in November (now accomplished).
- Look closely at continuing involvement of the program with the PISCES organization (which will depend on the subject of its student design competition).
- Consider requiring elective general education courses (one or more) that are designated writing intensive.
- Change the new AEC 81 course to two credits (currently one credit) and add non-drawing content to improve student achievement and retention in the course.
- Move the online AEC 118 course to the Sakai format as required.
- Ensure that all graduating students interested in employment in the field or transferring to a related bachelor’s-level program succeed.

- 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 2007-2008 school year.
  - All goals should quite certainly be accomplished before the next Annual Assessment Report is due.

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

- Are there any budgetary impacts for carrying out your action plan?
  - Yes. The cost for airfare and lodging for students to attend the PISCES Conference in November 2007 will be (“was,” at this point) approximately $2,600.
  - 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 PISCES institutionalized in some way. The college is unique in having aeronautics, aviation, CAD technology, visual arts, and other programs that are well suited to regular involvement with the organization. Hawaii participation is important, and if HCC does not step up, another community college or other UH entity will take the place that could now be HCC’s.

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.