College Mission Statement

- 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

- To provide students with the opportunity to gain the documented knowledge and experience to qualify for certification as aircraft mechanics as required by Part 65 and in the manner prescribed by Part 147 of the Federal Aviation Regulations, as approved by the Honolulu Flight Standards District Office.
- To enable students to attain their personal educational goals by becoming highly qualified aviation maintenance technicians, meeting the needs of the aviation industry and thereby promoting safety in aviation.
- To provide specialized training as necessary for prospective aircraft technicians and industry.

Part I. Quantitative Indicators for Program Review

External Demand
Labor Market & Student Applications

Available data show that the current annual jobs and projected 2005-2012 job outlook for the general occupational cluster aircraft mechanics and service technicians are 929 and 17 respectively in Honolulu County and 1122 and 56 within the State of Hawai’i

There were 47 applicants to the Aeronautics Maintenance Technician program in Fall 2004, and 13 applicants to the program for the Spring 2005 Semester. Overall, among those Fall and Spring applicants, 60 appear to have been accepted by the college and admitted to the program, while 4 appear to have cancelled applications, or been redirected etc. Among those accepted and admitted, available data show that 34 actually enrolled in the semester initially applied for.

- Overall, our sense of the labor market and its relationship with the number and enrollment yield of applicants to our program differs from the figures provided. Our experience with local hiring trends as well as the news that
Hawaiian and Aloha will be recovering from their difficulties, plus the addition of go! to the market would indicate that the figures for future employment for aircraft mechanics in Hawaii are much too low. We currently have six job listings posted in our facility, our Advisory Committee members complain of the difficulty of finding aircraft mechanics, and additional traffic will mean additional positions opening up. Hawaii is also noted for having a number of smaller operators who lose aircraft mechanics to larger carriers, either here or on the mainland, and that causes a continual demand for aircraft mechanics. Barring some world-wide economic downturn, projected industry growth, new aircraft sales, industry demographics, and a reduced training capacity, may cause a shortage of aircraft mechanics, providing a world of possibilities for our future students, noting that a U. S. mechanic certification is accepted almost world-wide. If the economy remains healthy, there will be a shortage of aircraft mechanics and our enrollment and completion figures will have to increase in order to fill both local demand and provide for those Hawai`i students who want certification to work in other parts of the country or overseas.

Internal Demand

Registration headcount of actively enrolled students in Fall 2004 and Spring 2005 show that the Aeronautics Maintenance Technician Program Major carried 53 majors in the fall and 47 majors in the spring.

Available data show that of 100 students in the major for Fall 2004 and Spring 2005, 38 were enrolled in Department classes in Fall--and 32 enrolled in Department classes in Spring.

Program major’s enrollment in department classes generated 376 student semester hours in Fall 2004 for an average of 9.89 semester hours, 347 student semester hours in Spring 2005 for an average of 10.84. The resulting credit hours generated equate with 25.1 and 23.1 respective Fall 2004 and Spring 2005 Full Time Equivalent (FTE) enrollments.

There were also program non-majors enrolled in Department classes 6 and 4 respectively in Fall 2004 and Spring 2005--29 and 12 student semester hours overall respectively.

We see from available data these students are primarily from OKAP, AMT2, AVIT, and LBRT.

Overall, students under our program major enrolled for totals of 554 semester hours in Fall 2004, and 513 in Spring 2005. As mentioned above, they generated 376 and 347 in Fall 2004 and Spring 2005 respectively within the department.
Then, augmenting coursework within the department, 25 Program Majors were enrolled in a total of 178 student semester hours of coursework in other departments in the Fall 2004, while 21 enrolled for 166 student semester hours outside the department in the Spring 2005 semester.

We see from additional data that program major’s coursework outside the department was primarily in the subject areas MATH, ENG, and ICS with 16, 10, and 8 of our program majors enrolling for 47, 32, and 24 student semester hours respectively in Fall 2004.

In Spring 2005, major’s coursework outside the department was primarily in the MATH, ENG, and PHYS subject areas, with 12, 9, and 6 students enrolled for 36, 29, and 24 student semester hours respectively.

- Our sense from comparing major’s average 723 credit hours within department classes and 344 outside the department is that a significant number of students enroll in order to receive the FAA certification, not a Certificate of Achievement or Associates Degree.

Internal Efficiencies
Scheduling and Instructional Faculty

With 4.67 Full Time Equivalent (FTE) faculty in Fall 2004, and 4.40 in Spring 2005—the department offered 9 active class sections in Fall and 11 in Spring.

Average Class Size in Fall 2004 was 7.8, and the Class Fill Rate was 31.1%. For Spring 2005, Average Class Size was 5.9 -- with a Class Fill Rate of 26.5%.

The department utilized 4.0 and 3.3 Full Time Equivalent (FTE) BOR approved faculty in Fall 2004 and Spring 2005 respectively. There were an additional 0.7 Full Time Equivalent (FTE) Part Time Lecturers teaching in Fall 2004, 1.1 for Spring 2005.

Overall In Fall 2004, Full Time BOR approved faculty delivered 9 sections, taught 60 course credit hours, and were associated with generating 357 student credit hours within the department. In Fall 2004, Part Time Instructors delivered 3 sections, taught 10 course credit hours, and were responsible for 48 generated student credit hours within the department.

In Spring 2005, Full Time BOR approved faculty delivered 11 sections, taught 66 course credit hours, and were associated with generating 315 student credit hours within the department. Part Time Instructors in Spring 2005 delivered 4 sections, taught 17 course credit hours, and were responsible for 44 generated student credit hours within the department.
Based respectively on student credit hours generated and course credit hours taught, the ratio of full time student equivalents (FTSE) to full time faculty equivalents (FTFE) was 5.79 in Fall 2004, and 5.44 in Spring 2005. The ratio of program majors to FTE faculty was 11.4 and 10.7 respectively in Fall 2004 and Spring 2005.

- Our sense of departmental operating efficiencies from considering these data is that efficiencies are low due to low enrollment.

**Instructional Outcomes**

As reflected in available data for the 04/05 academic year, the department awarded 7 degrees.

Available data on student grade distribution within the department subject code indicate that of all grades awarded in Fall 2004, 14.9% were A's, 40.3% were B's, 10.4% were C's, 20.9% were D's and 4.0% were F's. In Spring 2005, 8.8% were A's, 35.1% were B's, 8.8% were C's, 1.8% were D's, and 3.5% were F's.

Student Persistence within the subject code AERO from Fall 2004 to Spring 2005 was 52.3%; persistence of majors in the same period (whether enrolled in department courses or not) was 63.9%.

**Perkins Core Indicators:**

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OVERALL

Department demand for the 04/05 academic year was calculated at 1.3%, which translates to a below minimum demand status.

Department efficiency for the 04/05 academic year was calculated at 28.7%, which translates to a below minimum efficiency status.

Department Outcome for the 04/05 academic year was calculated at 14.0%, which translates to a below minimum outcome status.

• Given consideration of these demand, efficiency, and outcomes indicator data together, our sense of overall program health is that it has been strongly affected by the troubles of the major air carriers and associated bad publicity, resulting in a period of low enrollment. In the past, when times were good for the industry, the program routinely had a wait list, but the decline in enrollments was strongly associated with the decline in air travel and economic troubles of the "legacy" carriers who struggled to redefine their outmoded business model. Given that the major problems of the legacy carriers appear to be behind them, and the news about the industry is beginning to be more positive, enrollments should rise. The department has recruiting plans in place, as well, to increase enrollments.
• Additionally, we have a problem with the calculations for outcomes. As noted, a significant proportion of our students enroll in our program to obtain their mechanic certification, and do not take the necessary classes to obtain the CA or AS, upon which our completion rate is based. Indeed, some of the students who have taken enough classes for a CA don't apply for the certificate. Although our classes start with a cohort, it is rare that the cohort will make it through to the last class whole. Individuals fail a course, get out of sequence, have other demands in their lives like jobs, health, or military deployment, so they may finish up their coursework after the rest of their cohort is completed, making it difficult to track completions for an individual class. By checking our FAA required records back to 1989, when the curriculum had a major change and a new Part 147 program was approved, we find that the average completion rate over the years is 59%, counting a completion as an individual who has been qualified to take the certification exams. We tally the number of individuals who are listed on the roster in the first class (eliminating no-shows, or those who drop in the first few days) and compare that with the number of individuals who pass all of the classes. Our losses are generally greatest in the first semester, when lack of basic academic skills (math, reading, English) contributes to a failing grade, or a realization that the rigors of the industry are not what an individual had in mind for a career causes an individual to seek another career. Once the first semester is complete, most of our students stay to complete the program, barring various life-changing circumstances, even if they have to repeat failed courses.
Part II. Assessment Results for Program SLOs.

In accordance with the HCC Aeronautics Part 147 Manual, students must pass all parts of each course with a minimum of 70% in order to be eligible for certification. Given that the knowledge and practical achievement standards for the course SLOs are integrated with the course materials, passing the course means that the SLOs have been accomplished. In addition, certification testing under our Continuous Practical Testing exemption and the subsequent knowledge and oral examinations our students take as the requirement for certification is an additional assurance that the SLOs have been accomplished.

Part III. Curriculum Revision

The HCC Aeronautics Part 147 Manual contains the FAA approved curriculum as based on the current Part 147 appendices B, C, and D. Major changes to the curriculum are required when Part 147 changes as per the process required for any changes in the Federal Aviation Regulations. Our course Workbooks reflect the curriculum requirements of Part 147, but allow us to introduce technical advancements where necessary due to industry progress. Inclusion of material outside of the approved curriculum required application to the local Flight Standards District Office for review and approval, but this has not be necessary as Part 147 continues to include the major subject areas necessary for a complete aircraft maintenance curriculum.

Part IV. Analysis of Data

1. Alignment with Mission

Students have the opportunity to gain the documented knowledge and experience to qualify for certification as aircraft mechanics as required by Part 65 and in the manner prescribed by Part 147 of the Federal Aviation Regulations. They also are able to attain their personal educational goals by becoming highly qualified aviation maintenance technicians, meeting the needs of the aviation industry and thereby promoting safety in aviation. When needed we have been able to provide the specialized training required by prospective aircraft mechanics and industry. These accomplishments align with our stated mission.

2. Strengths and weaknesses based on analysis of data

The program does a good job preparing students for certification as evidenced by their pass rate for the certification exams and the reports that we have received from both graduates and employers. The level of preparedness of the individuals certified through our program is higher than that of the average beginning aircraft mechanic.
Our greatest difficulty during this assessment period has been student recruitment, as few students felt inclined to enter an industry reported in the press as being in difficulty, as news of bankruptcy, lost revenues and lay-offs dominated the stories about the aircraft industry. Mid-way through 2005, air travel reached pre-9/11 levels, and the industry had record sales of new transport aircraft, with totals of over 2000 aircraft for Airbus and Boeing combined. Throughout the past several years, regional carriers and small aircraft sales have been strong, and the U. S. Bureau of Labor Statistics projects aviation industry growth at over 6% with growth of aviation in the Pacific Basin being over 13% annually over the next ten years. As this news reaches the public, we expect more students will enroll in our classes. This will improve our outcomes and better our ratios of instructors to students.

Additionally, our experience with local hiring trends as well as the news that Hawaiian and Aloha will be recovering from their difficulties, plus the addition of go! to the market would indicate that the figures for future employment for aircraft mechanics in Hawaii are much too low. We currently have six job listings posted in our facility, our Advisory Committee members complain of the difficulty of finding aircraft mechanics, and additional traffic will mean additional positions opening up. Hawaii is also noted for having a number of smaller operators who lose aircraft mechanics to larger carriers, either here or on the mainland, and that causes a continual demand for aircraft mechanics. Barring some world-wide economic downturn, projected industry growth, new aircraft sales, industry demographics, and a reduced training capacity, may cause a shortage of aircraft mechanics, providing a world of possibilities for our future students, noting that a U. S. mechanic certification is accepted almost world-wide.

3. Evidence of quality

Our students must pass all parts of the courses to be qualified to become certificated aircraft mechanics. The grading standards are an absolute standard with 70% being the minimum passing grade. Note that in each semester, passing grades were well above 70%. Quarterly certification knowledge test results indicate passing rates of 100% with score percentages in the mid-90s. We have never been cited as having passing rates or scores which were too low. In addition, students who have completed the program courses have passes practical examinations with better than 70% scores and our pass rate for oral exams (the last exams before issuance of the aircraft mechanic temporary airmen certificates) is 100%.

Although we have no formal mechanism for assessing our students’ post completion progress, reports from Advisory Committee members, local operators and returning students indicate that our students are better prepared for the workplace than the average novice aircraft mechanic. This is in comparison to graduates of other schools and individuals with a military background in aviation
maintenance. In some cases, our students have more knowledge, practical skills, and better preparation than individuals who have been working several years in the industry.

4. Evidence of student learning

The job of an aircraft mechanic is one of making yes/no decisions, as is the job of an aircraft mechanic instructor. In preparing students to qualify for certification, the instructor has to decide, using written, oral, and practical examinations whether the students have learned the knowledge and skills necessary to be qualified as an aircraft mechanic, measured against an absolute standard. Students do not enter the program with prior knowledge and skills to qualify completely for certification, because if they did qualify, they would have no need for a Part 147 program. Most students entering the program have very little aviation knowledge or experience. As the students must average at least 70% in all parts of the courses, a passing grade indicates that the student has learned sufficiently to qualify. Subsequent work experience as reported employers, Advisory Committee members, and graduates indicates that we have turned normal individuals into qualified aircraft mechanics.

5. Resource sufficiency

Systemic limitations in budgeting have served to diminish our capability to maintain all necessary curriculum related equipment. Therefore, the necessary flexibility to align with growth in industry demands cannot be vigorously pursued to enhance the students’ career needs.

Aircraft and teaching aids have become unusable in many cases, due to the inability to fund repair or maintenance of these items. Donated items from airlines, flight schools, etc., have helped to alleviate some problems related to inoperative teaching equipment.

Many industry resources (books, manuals, parts listings, service information, etc.) are now on a variety of multimedia. Many of our resources are antiquated and have dilapidated over the years, and are greatly overdue for replacement. Computer Resource Library Multimedia requirements have been inadequate in keeping pace with the aviation industry. DVD, CD-ROM, and other extensive computer hardware requirements must grow with the fast paced, high tech digital media used for teaching in virtually all schools.

Foreseeable funding for the AERO program will seriously question our commitment to full compliance with FAR Part 147 requirements.

6. Recommendations for improving outcomes
Our biggest difficulty is recruitment. Once our students enter the program, most of those who pass the first semester remain to complete the program, barring attrition from various incidental circumstances. Our starting classes have been small, and in order to rectify some of the troubling data points presented above, we need more students starting the program.

**Part V. Action Plan**

As recruitment has been our largest problem, we are already making efforts to counter the poor publicity plaguing the industry in past years. We have been working with the director of the PATC to send mailings to personnel in the state high schools who would be in contact with prospective students to educate them about the opportunities for careers in aircraft maintenance. Contacts will be followed up with visits to the high schools and by arranging tours of the facilities for interested high school personnel. Two plans have also been submitted to the director of PATC for recruitment. The first proposes a partnership with aviation authorities in China to train aircraft maintenance instructors, as well as providing them with assistance in adapting our proven curriculum to Chinese Part 147 school equivalents. We also have a proposal to U. S. carriers operating in the Pacific Basin to qualify their foreign mechanics working in overseas stations as U. S. certificated mechanics. This was done quite successfully for NorthWest Airlines (NWA) when we qualified Japanese and Chinese NWA mechanic applicants who are now working in stations in Japan and China.

We are also continuing recruitment efforts at Job Fairs and have liaisons with ROTC, Civil Air Patrol, and other aviation related organizations in an attempt to recruit interested students.

**Part VI. Budget Implications**

FY 2004-2005 has been difficult because of fiscal restraints imposed on the AERO program. Following the disastrous flooding at UH Manoa campus in November 2004, all related University programs were forced to perform under rigorous financial cuts.

As a result, the ability to maintain and repair much of the infrastructure, aircraft, and curriculum related mock-ups to a usable condition has been difficult. Purchase of replacement parts for aircraft and related mock-ups has been minimized, and some instructional items have been rendered unsatisfactory for use. Calibration and testing of sensitive inspection equipment and special tools is severely curtailed by the current budget. Full compliance with FAA regulations, FAR Part 147.17, 147.19, and 147.37 is potentially compromised.

Consumables, such as solvents, oils, shop rags, masking paper, and others used on a daily basis, as well as Personal Protective Equipment (PPE) such as nitrile gloves, have been in short supply.
Recently, several aircraft and related assemblies have been donated to the AERO program, improving our capability to teach from a variety of aircraft and teaching aids. While this greatly enhances our instructional capability, additional fiscal responsibility will be incurred in order to maintain and repair these items.

General Maintenance on Building 52 has not been spared from consistently restricted budgeting. Long needed repairs on hangar doors have left the facility open to potential theft and deteriorative exposure of very expensive tools and special equipment. Fire Suppression Systems (AFFF) and alarms also require expensive upgrades and regular maintenance inspections to comply with the Honolulu Fire Department mandates.