College Mission
Honolulu Community College’s mission 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, and,
- Serve the Pacific Region as the primary technical training center in areas such as transportation, information technology, education, communications, construction, and public and personal services.

Program Mission
The Refrigeration & Air Conditioning Technology program's mission is to serve the community as a learning-centered, open door program that provides technical training to meet the demands of the industry and the needs of the individual. An open-exit option allows the students to identify their career objectives and participate in program exploration.

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 heating, air conditioning, and refrigeration mechanics are 522 and 53 respectively in Honolulu County…and 889 and 168 within the State of Hawai‘i.

There were 46 applicants to the RAC program in Fall 2004, and 19 applicants to the program for the Spring 2005 Semester. Overall, among those Fall and Spring applicants, 63 appear to have been accepted by the college and admitted to the program, while 2 appear to have cancelled applications, or been redirected etc. Among those accepted and admitted, available data show that 37 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 is that we appear to still have growth in this field and students seem to still be interested in this program.
**Internal Demand**

Registration headcount of actively enrolled students in Fall 2004 and Spring 2005 show that the RAC Program Major carried 65 Majors in the Fall and 59 Majors in the Spring.

Available data show that of 65 Fall and 59 Spring students in the major for Fall 2004 and Spring 2005, 39 were enrolled in Department classes in Fall—and 36 enrolled in Department classes in Spring.

Program major’s enrollment in department classes generated 460 student semester hours in Fall 2004 for an average of 11.79 semester hours, and 470 student semester hours in Spring 2005 for an average of 13.06. The resulting credit hours generated equate with 30.7 and 31.3 respective Fall 2004 and Spring 2005 Full Time Equivalent (FTE) enrollments.

Enrollment by program majors and non-majors accounted for the 460 and 470 SSH generated by the department subject code(s) RAC in Fall 2004 and Spring 2005 respectively.

Overall, students under our program major enrolled for totals of 775 semester hours in Fall 2004, and 687 in Spring 2005. As mentioned above, they generated 460 and 470 SSH in Fall 2004 and Spring 2005 respectively within the department.

Then, augmenting coursework within the department, 47 Program Majors were enrolled in a total of 315 student semester hours of coursework in other departments in the Fall 2004, while 32 enrolled for 217 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 BLPR, ENG, ICS, MATH, and PHYS with 19, 15, 8, 28, and 9 of our program majors enrolling for 57, 49, 24, 87, and 33 student semester hours respectively in Fall 2004.

In Spring 2005, major’s coursework outside the department was again primarily in the BLPR, ENG, ICS, MATH, and PHYS subject areas, with 9, 11, 6, 18, and 9 students enrolled for 27, 33, 18, 54, and 36 student semester hours respectively.

- Our sense from comparing major’s average credit hours within department classes 11.79 (Fall) and 13.06 (Spring) and outside the department 6.7 (Fall) and 6.8 (Spring) is that our students should show a high amount of credit hours within the department since it is a single course worth 12 credits. The Blueprint (BLPR) course is popular with many of our students and English and Math are standard requirements.
Internal Efficiencies
Scheduling and Instructional Faculty
With 2.20 Full Time Equivalent (FTE) faculty in Fall 2004, and 1.93 in Spring 2005—the department offered 7 active class sections in Fall and 6 in Spring.

Average Class Size in Fall 2004 was 13.3, and the Class Fill Rate was 75.8. For Spring 2005, Average Class Size was 18.8—with a Class Fill Rate of 75.2.

The department utilized 2.2 and 1.7 Full Time Equivalent (FTE) BOR approved faculty in Fall 2004 and Spring 2005 respectively. There were an additional 0.0 Full Time Equivalent (FTE) Part Time Lecturers teaching in Fall 2004, and 0.3 for Spring 2005.

Overall In Fall 2004, Full Time BOR approved faculty delivered 7 (100%), taught 33 (100%) course credit hours, and were associated with generating 460 (100%) student credit hours within the department. In Fall 2004, Part Time Instructors delivered no sections, taught 0 course credit hours, and were responsible for 0 generated student credit hours within the department.

In Spring 2005, Full Time BOR approved faculty delivered 5 (83.3%), taught 25 (86.2%) course credit hours, and were associated with generating 470 (100%) student credit hours within the department. Part Time Instructors in Spring 2005 delivered 1 (16.7%), taught 4 (13.8%) course credit hours, and were responsible for 0 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 13.94 in Fall 2004, and 16.21 in Spring 2005. The ratio of program majors to FTE faculty was 29.5 and 30.5 respectively in Fall 2004 and Spring 2005.

- Our sense of departmental operating efficiencies from considering these data is that the two full time faculty members handle most if not all of the load of courses taught. We also have a fairly high ratio of students to FTE faculty members.

Instructional Outcomes
As reflected in available data for the 04/05 academic year, the department awarded 1 certificate, and 12 degrees.

Available data on student grade distribution within the department subject code indicate that of all grades awarded in Fall 2004, 53.8% A, 18.3% B, 19.4% C, 3.2% D, and 5.4% F. In Spring 2005, 56.4% A, 13.8% B, 21.3% C, 8.5% D, and 0.0% F.
Student Persistence within the subject code RAC from Fall 2004 to Spring 2005 was 92.3%; persistence of majors in the same period (whether enrolled in department courses or not) was 75.8%.

Review of department major’s performance on the Perkins Core Indicators indicates…..

<table>
<thead>
<tr>
<th>Indicator</th>
<th>1P1</th>
<th>1P2</th>
<th>2P1</th>
<th>3P1</th>
<th>3P2</th>
<th>4P1</th>
<th>4P2</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>2003-2004 Core Standard</strong></td>
<td>81.56%</td>
<td>91.53%</td>
<td>35.7%</td>
<td>70.52%</td>
<td>90.13%</td>
<td>15.94%</td>
<td>14.34%</td>
</tr>
<tr>
<td>RAC Actual Performance 03/04</td>
<td>78.26%</td>
<td>95.83%</td>
<td>50%</td>
<td>68.42%</td>
<td>100%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td><strong>2004-2005 Core Standard</strong></td>
<td>81.81%</td>
<td>90.00%</td>
<td>36.00%</td>
<td>71.00%</td>
<td>90.00%</td>
<td>14.18%</td>
<td>12.86%</td>
</tr>
<tr>
<td>RAC Actual Performance 04/05</td>
<td>76.47%</td>
<td>84.21%</td>
<td>63.16%</td>
<td>75.00%</td>
<td>88.89%</td>
<td>1.69%</td>
<td>0.00%</td>
</tr>
</tbody>
</table>

- Given consideration of these data, our sense of instructional outcomes is that without any comparison data, it is difficult to determine if our number of degrees awarded or persistence rates are above, at, or below normal trends.

**OVERALL**

Department demand for the 04/05 academic year was calculated at 3.2, which translates to a healthy (above satisfactory) demand status.

Department efficiency for the 04/05 academic year was calculated at 75.5, which translates to a healthy (above satisfactory) efficiency status.

Department Outcome for the 04/05 academic year was calculated at 54.2, which translates to a healthy (above satisfactory) outcome status.

- Given consideration of these demand, efficiency, and outcomes indicator data together, our sense of overall program health is that we are a healthy program.

**Part II: Assessment Results for Program SLOs**

Although this department has done several informal student surveys, it has never been done on an annual basis. This is something we will look into as a way to measure learning outcomes.

Generally speaking, we get informal visits by our graduates at a rate of about one a week. It’s always a friendly visit and a good time to catch up on what they are doing and how their classmates are doing. We (instructors) look forward to these visits because this is how we gauge how our students are doing once they
graduate. These visits as well as phone calls from graduates and employers give us a feel of how our graduates are doing, good and bad.

At least half of our graduates are employed in the industry within 6 months after completing the RAC program.

**Part III: Curriculum Revision**

The Honolulu Community College Refrigeration and Air Conditioning program just underwent a major program modification this semester. Implementation will begin in Fall 2006 with the first-year, first-semester RAC students. Although we do not follow any National Standard, we do keep current by using the latest edition textbooks and are constantly revising our daily lesson plans to reflect current industry practices.

**Part IV: Analysis of Data**

Our program outcomes are aligned with the program mission and our mission is also aligned with the college mission. Some of the strengths of the RAC Program are:

- Quality of instruction
- Full classes every year, with occasional wait lists for students that could not get in, point to a program that has strong demand.
- High percentage of students that continue through the second year and on to graduation shows that the program is interesting and relevant to its students.
- Graduates have found work in many areas of this field.
  - Air Conditioning shops
  - Plumbing shops
  - Mechanical contractors
  - Engineering Firms
  - Building Maintenance
  - Hotel, restaurant, market, maintenance positions
  - Appliance repair shops

Some of the weaknesses of the RAC Program are:

- Lack of non-traditional (females) in the program
- Inadequate classroom and lab space, inadequate funding for supplies, and equipment are weaknesses that prevent this program from being a truly excellent program rather than just a strong program.

Although we do not systematically survey students or employers, evidence of program quality come in several forms:

- Comments by graduates:
  - Overwhelmingly very positive
- Comments by employers:
- Usually very positive
- Some employers offer incentives for our students (over anyone else) in the form of:
  - Higher starting wages
  - Personal van and cell phone

- This program is very projects oriented. Both instructors rely heavily on hands on projects, both for student learning and grading purposes. Approximately ¼ of each day is spent lecturing and ¾ of each day is spent in the lab.

The Honolulu Community College Refrigeration and Air Conditioning Program covers many areas of instruction. What many would consider specialties, such as electricity/electronics, welding, pipefitting, carpentry, pneumatics, metalworking, and sheet metal are all part of our trade and are covered to some extent within the program. This makes for a very large and diverse inventory of equipment and supplies. Our supplies range from a $.02 nail to an $800 dollar cylinder of R-12 refrigerant. Equipment costs range from a $2 hand tool to $65,000 for a chilled water trainer.

Through careful planning, the RAC department has been able to purchase new and replacement equipment in a timely manner. Large expenditures for hardware or equipment replacement are not expected.

Six years ago, our annual supply budget was $10,000. Our current annual budget is a little over $7,000 (30% DECREASE since 2000). The bottom line is that we need $15,000 for supplies to run our lab projects as designed without having to scrounge and/or ask for donated material.

**Part V: Action Plan**

One of the things we will try to implement by next semester (Fall 2006) is the use of a systematic surveying process to capture student and employer data that would be invaluable for writing future assessment reports.

**Part VI: Budget Implications**

As stated above, while large expenditures are not expected, there are necessary supply costs that this program incurs. If budget cuts continue at this rate, we will soon get to a point where it will be difficult to provide a quality educational program to students.