



Instructional Program Review Summary 2004-05

Instructional Area: Applied Technologies, Multimedia & Public Service

Department: HART

Discipline: Heating, Air Conditioning & Refrigeration Technology

February 16, 2005

Instructional Program Review Summary

Contents

1. Executive Summary
2. Self-Study Team Participants
3. Program Description
4. Strengths, Weaknesses, Opportunities, Threats
5. Analysis
 - [a] Relevance of the program to College mission and desired ends
 - [b] Responsiveness to community needs and satisfaction of community demand
 - [c] Accessibility to students with identification of unnecessary barriers
 - [d] Student outcomes including participation and successful-completion rates
 - [e] Measures of program quality and educational value added
 - [f] Adequacy of program resources and efficiency of resource use
 - [g] Comparison of program performance, price, and enrollment with that of alternate local suppliers
 - [h] Direct and indirect program-related revenues and costs to the College
6. Area-specific Analysis (Workforce or Transfer)
7. Conclusions
8. Program Vision
9. Recommendations
10. Additional Comments
11. References

NOTE: An external reviewer should not be required to refer to the documentation notebook to understand the Instructional Program Review

Summary. Rather, data should be clearly cited in the summary so that the reviewer can easily find the source documents if needed.

EXECUTIVE SUMMARY

Use the following guidelines to provide a concise overview/summary of the program review contained in this report.

Write a brief description of the goals and objectives of the discipline. ACC's Heating, Air Conditioning, and Refrigeration Technology Department provides a supportive learning environment to help you gain the skills needed for successful employment in the HART industry. Since many of our students work full time, we offer courses that allow flexibility in classroom instruction. Our program also arranges internships for an on-the-job experience to prepare them for the job. Students completing the Certificate diploma should have acquired entry-level skills for "residential A/C" work; by completing the Associates of Applied Science diploma, students gain entry-level skills in "commercial applications"

Overview of how the program review was conducted. A committee of Air Conditioning industry representatives and faculty and staff of the HART department met to review the IPR objectives. We reviewed the previous report for our area, conducted a SWOT meeting and reviewed the results.

Summary of findings:

Progress on previous program review recommendations. Progress was noted. Some outdated training media was replaced, but some additional funding is required. The program completed a process of "uncombining" courses. The HART program added sections to accommodate a substantial increase in students. We have not been allocated additional lab space to handle more classes or new/additional training equipment. A second full-time faculty member is now hired and were are moving toward hiring a third. Progress is noted in curriculum revisions that implement new industry standards. Additional certificates/courses have not been added to our program, but students now have an opportunity for EPA Certification Exam testing in the department. Several courses were cross-listed with continuing education but over the course of a few years we have extricated from CE.

Program strengths. The program provides valuable hands-on training and individual instruction due to small classes. Great strength is indicated in "student outcomes" as queried on internal student surveys. Noted is the high completion rates of certificates and AAS degrees. Students that take

the national EPA Certification exam rarely do not pass all three levels of certification. Student surveys of faculty are very good or excellent.

Areas for improvement. Attention to current technology is stressed. We should add new HVAC hardware when funding and space permits. So we can benefit greatest by increasing square footage and adding new equipment. Safety is a concern as there are numerous roof leaks in a vicinity of electrical service in our lab. Having only one site is a weakness that may not be improved upon. Design of the classrooms is a major contributor of interruption and confusion durin class schedule. Having an LCD projector in all 3 classrooms would be a major improvement. Intermediate course should be more challenging.

Key planning issues. Future site for the HART program-double the square footage with strategic approach to classroom/lab/faculty office orientation. Technology upgrades both hardware and software in HVACR equipment as well as delivering instruction.

Conclusions: What are the major conclusions regarding the present state of the program?

We feel that the program is well regarded by students and the industry we train students in.

Recommend future directions for the program based on this review:

- Expand services
- Maintain services
- Reduce services
- Close program

Recommendations: Summarize the self-study's recommended actions for improving the quality of the program.

Continue to press for additional space and resources in budget. Seek alternative funding for technology.

SELF-STUDY TEAM PARTICIPANTS

List the names of people who participated in the review and their association with your program.

Name Dan Foust ACC Faculty Industry Representative
Student

Name Maxime Landry ACC Faculty Industry Representative
 Student

Name Bob Warniers ACC Faculty Industry Representative
 Student

Name Jaimes Arturo ACC Faculty Industry Representative
 Student

Name Al Kaiser ACC Faculty Industry Representative
Student

Name Carl Lundsford ACC Faculty Industry Representative
 Student

Name ACC Faculty Industry Representative Student

Name ACC Faculty Industry Representative Student

Name ACC Faculty Industry Representative Student

PROGRAM DESCRIPTION

Provide a brief description of the overall history, major developments and current objectives for your program (limit to 500 words).

The Air Conditioning program began with the "Austin Model Project" and on into the College when ACC was created. Enrollments have historically been quite low and required combining sections in all certificate courses. Associate level courses were offered only once each year. Only one regular full time instructor was employed (Vincent Ted Foster) until 1995 when a second permanent position was filled. Ted retired in 2000 after the conversion to WECM and since that time the program has grown substantially and we no longer need to combine sections-a major improvement. The program began almost exclusively with donated equipment and during the last 30 years many items have been replaced and much has been added. The program received a significant donation from Central Texas Commercial A/C and Heat in the form of a complete "Industrial A/C water system, including Centrifugal liquid chiller, cooling tower, air handling unit and two centrifugal pumps (~ \$150,000 to 200,000 new). Funding for supplies required to complete the installation came from a Perkins grant. As a

result of the donation and grant, we created a new course for the AAS degree. Our program received a technology grant to purchase software and hardware for a 12-unit Dell computer lab to deliver individualized instruction. The program has a long standing relationships with local professional organizations in Austin, one of which provides a scholarship each year for one of our students. And a prominent local contracting firm recently created a scholarship for women in the HART program. Current objectives are to find more classroom and lab space; solicit private funding and equipment/software donations; cultivate additional qualified adjunct faculty; hire a third permanent full time faculty.

STRENGTHS, WEAKNESSES, OPPORTUNITIES, THREATS (SWOT)

List the names of people who participated in the SWOT and their association with your program.

- Name Dan Foust ACC Faculty Industry Representative
 Student
- Name Maxime Landry ACC Faculty Industry Representative
 Student
- Name Jaimes Arturo ACC Faculty Industry Representative
 Student
- Name Bob Warniers ACC Faculty Industry Representative
 Student
- Name Al Kaiser ACC Faculty Industry Representative
 Student
- Name Carl Lundsford ACC Faculty Industry Representative
 Student
- Name ACC Faculty Industry Representative
Student

Summarize the findings of the SWOT analysis. Focus on the top 5 or 6 issues and answer the following questions:

Strengths: In what does your program excel?

Student Outcomes

- Student achievement: High completion rate of certificates and AAS diplomas
- High student retention with graduation
- After completing the program, 90% of students obtain a job in AC industry
- Student retention – few students don't complete certificate
- Student achievement: 99% pass rate of (Federal) EPA certification

- Very high percent of students indicated by internal survey that they are completing their academic goals.

Weaknesses: What are the aspects of your program, which, if not addressed, will impede the area's future?

Lack of Space

- Program is outgrowing the size of its faculty
- Access – limited space for training, unable to expand program
- Access – restriction to present site (RVS) limits student access from parts of district
- Instruction – classroom/lab space is limited; in one room, so much so that safety is an issue
- Lack of space
- Classroom space, area to work on equipment
- Instruction – constant interference because ALL 3 classrooms are accessed by passing through another classroom and/or lab room

Opportunities: What factors does your program need to take advantage of in order to enhance the quality of the area?

Curriculum

- Introduce new technologies (equipment)
- Austin is a great place to grow support in high technology curriculum

Internships

- Expand internship programs
- Student achievement – internships
- Increase partnerships with industry and employers
- Internships program with Habitat for Humanities

Threats: What are the external factors that could negatively impact your program's future?

Lack of Space/Classes

6 dots

- Lack of space
- Area population growing faster than HART facility
- Need for the program is increasing but access remains constrained
- Other learning institutions take advantage of ACC student overflow
- Not being able to accommodate student volume
- Access – classes frequently close out, leaving students to consider other programs or venues

Discuss changes from the program's previous SWOT analysis.

Changes are best reflected in accomplishments cited under "progress on previous program review recommendations". Still there remains a common thread for the need of additional space, funding and qualified adjunct faculty.

ANALYSIS

[a] Relevance of the program to College mission and desired ends

Mission:

Review the program's purpose statement. Verify that the statement is current and accurate and reflects the mission of the college as a whole or update the purpose statement.

The Self-Study team reviewed the program purpose statement and found (select one):

The purpose statement is current, accurate, and reflects the mission of the college.

The purpose statement was revised as shown below:

The Austin Community College department of Heating, Air Conditioning & Refrigeration Technology is committed to providing access to an excellent quality program of instruction and hands-on training intended to prepare students with entry-level skills in this technology based industry. We offer a certificate diploma at the freshman level, and an Associates of Applied Sciences Degree at the Sophomore level.

Desired Ends (Board Policy A-2. Intended Outcomes)

How well does the program support the intended outcomes of the college by providing "service-area adults with the postsecondary and higher education they need and can use for productive useful lives?"

The HART Program has as an intended outcome the employment of graduates within one year or continuation of the education, and most of our graduates do become employed in this industry.

In what ways does the program demonstrate an open, responsible exchange of ideas?

Our advisory committee is the formal mechanism for this process. Much discussion revolves around of pertinent air conditioning equipment for training and the skills required by employers. The classrooms are open to a candid discussion of the state of affairs in our industry.

In what ways does the program provide an open door to educational potential?

The HART courses, while transferrable to other associate degree programs, don't lend themselves to a baccalaurate degree as there is non available in Texas in this field.

In what ways does the program take targeted action to address internal needs within available resources?

We watch our budget and allocate on a priority basis. When expensive purchases are anticipated to exceed our resources, we will solicit equipment

donations, grants and college funds such as the technology budget. Completing the IPR and Master Plan can illuminate the near term needs and spur increased budget.

In what ways does the program demonstrate a commitment to integrity and exemplary standards?

Students are encouraged to participate in open discussion with their classmates and instructor. Naturally, it is good practice and no more so than in the HART courses. This is because of a couple of factors. Many of our students are already working in this industry and in a variety of capacities, thus the combined experience of the classroom can outweigh that of their instructors. Also, designing, installing and operating systems and equipment is not just a science, but also an art. Given the nature of many generations of architectural developments, applications and continuous improvements in the HVA/CR manufacturing process, no man is an island and will have to rely on all resources, even if it is learned from a "rookie".

Our curriculum is designed to provide entry level skills in heating, air conditioning, and refrigeration in both residential and commercial applications, and utilize the National Skills Standards for heating, air conditioning, and refrigeration technicians (V-TECS, Decatur, Georgia. The program has also identified the SCANS for each course, and stress the importance of employability skills by requiring an external learning experience-Internship.

Our instructors are well experienced in the "field" and aptly capable of transferring their professional experience and knowledge in a variety of ways.

Our advisory places a great deal of emphasis on the relevance of each course required in the certificate and AAS diplomas. The need to update curriculum, textbooks and lab equipment is regularly reviewed for weakness/improvement.

In what ways does the program demonstrate personal and professional ownership that generates accountability?

Most faculty have taught many semesters and continue to work in the field full time. Receiving very good or excellent status in classroom evaluations can earn the instructor highest priority to hire which is common for this group.

[b] Responsiveness to community needs and satisfaction of community demand

In what ways does the program address a verifiable need for the student, community, and society?

By providing graduates with demonstratable ready to work skills that regularly lead to full time, year round employment in well paying jobs.

Describe the results of the program's most recent assessment of community need.

The community of HART industry employers continues to fail to meet hiring objectives. This is evident by the number of classified notices published by the Austin American Statesman each week. Many job opportunities for skilled technicians in new positions must be satisfied by promotion from within the company. This leaves a vacuum at the entry level that ACC graduates can remedy. In fact, many large and small local (and not so local) solicit my department for permission to place employment notices in the lab. They are welcomed and encouraged.

How do the program's five-year enrollment trends compare with those of the College overall?

Much larger. Air Conditioning, Heating, & Refrigeration Technology (sic) enrollment has increased since Fall 1999 when 125 students were counted. 177 students enrolled in Fall 2003. Enrollment rose by 52 students representing a 41.6% increase. I hear the approaching sound of stagnation as our classroom/lab space can not expand to accommodate increased demand!

[c] Accessibility to students and identification of unnecessary barriers

Analyze when and where courses are offered (by campus, time of day, mode of delivery).

All HART courses are scheduled at RVS, bld. C. Each semester, we schedule all certificate diploma courses in morning/ afternoon times as well as evenings. All AAS courses are scheduled in the evening, at about once each year. All courses are lecture/lab.

List the number of sections taught (by location).

(All RVS) For the period Fall 1999-Spring 2004, uncombined sections taught were 273. The number of combined sections taught were 158.

List the number of sections closed or canceled per course.

CANCELLATIONS: For the period Fall 1999-Spring 2004, CETT1402 @ 0; HART1403 @ 2; HART1407 @ 2; HART1441 @ 0; HART1442 @ 4; HART2431 @ 6; HART @ 4.

How does each of the five-year demographic trends (gender, ethnicity, age group) for this program compare to the overall college trend? (List the source of your information.)

(Source: THECB annual data profile, access by special populations, Workforce Education Program Detail - Declared Majors).

1999-2000: annual headcount unduplicated @ 133; total special population unduplicated @ 9; economically disadvantaged @ 5% (lower); individuals with disabilities @ 1% (lower); nontraditional majors @ 8% (higher); single parents @

0% (same); displaced homemakers @ 0% (same); academically disadvantaged @ 1% (lower); limited english proficiency @ 0%; (same) incarcerated @ 0% (same).

2000-2001: annual headcount unduplicated @ 126; total special population unduplicated @ 9; economically disadvantaged @ 2% (lower); individuals with disabilities @ 0% (lower); nontraditional majors @ 7% (higher); single parents @ 0% (same); displaced homemakers @ 0% (same); academically disadvantaged @ 5% (lower); limited english proficiency @ 0%; (same) incarcerated @ 0% (same).

2001-2002: annual headcount unduplicated @ 133; total special population unduplicated @ 16; economically disadvantaged @ 2% (lower); individuals with disabilities @ 2% (lower); nontraditional majors @ 4% (lower); single parents @ 0% (same); displaced homemakers @ 0% (same); academically disadvantaged @ 8% (lower); limited english proficiency @ 0%; (same) incarcerated @ 0% (same).

2002-2003: annual headcount unduplicated @ 152; total special population unduplicated @ 28; economically disadvantaged @ 1% (lower); individuals with disabilities @ 7% (higher); nontraditional majors @ 3% (lower); single parents @ 0% (same); displaced homemakers @ 0% (same); academically disadvantaged @ 14% (higher); limited english proficiency @ 0%; (same) incarcerated @ 0% (same).

Identify any unnecessary barriers to students, especially those who are educationally disadvantaged and not well served by other colleges.
We are not able to identify unnecessary barriers.

[d] Student outcomes including participation and successful-completion rates

How do course completion rates (A-B-C-D rates) for courses within this program compare to College norms?

The HART program courses have a course completion rate average for period 08/28/2000-07/30/2004 of 89%. The college norm is

What are the program completion or graduation rates (compared to intent as well as overall) for this program?

Our program aspires for 90% graduation rate. The THECB 2003 Annual Data Profile of Graduation/Persistence and Remediation Fall 1999 First time in College (FTIC) Cohort Technical Program Detail (ACC) reports 20%. This does not reflect current conditions.

How do withdrawal rates for courses compare to College norms?

The HART program experienced an average withdrawal rate of ~7.1% for period 08/28/2000-07/30/2004. The college norm is

What do the results of the program's student learning outcomes assessments (departmental final exams, exit tests, standardized tests, etc.) indicate about the program?

That 89.50% of students completing their diplomas have successfully met their academic goals.

[e] Measures of program quality and educational value added

- **Academic Standards**

What are the processes and procedures that the department uses to maintain academic standards and achieve consistency within the department?

Review of grade distribution, faculty evaluations, portfolios, industry skill standards.

- **Curriculum**

What procedures are used to assure that the curriculum is current and adequately meets the needs of students?

Peer review by industry members in the advisory committee; department chair review.

Are learning outcomes defined for courses and the program? Yes No

Are course texts up-to-date?. Yes No

Are course and program listings in the ACC Catalog up-to-date? Yes No

Do all courses have up-to-date syllabi on file? Yes No

Evaluate the use of instructional resources (including those in the library).

The LRS is our leading source of instructional resources outside the department. Although we own much of our media, LRS owns and maintains a substantial volume of video tape presentations. Also, LRS carries 2 of our industries leading periodicals. Much of the latest media is CD-ROM and requires the use of a computer lab which our department owns and LCD projector in classrooms. A great deal of manufacturer's literature is required in our program and is now (mostly) available to download. We also make extensive use of the World Wide Web to resource technical questions.

Evaluate the extent to which technology impacts the mode of instruction, including the number of courses and sections taught via distance learning.

We don't offer courses via distance learning, and haven't heard a convincing argument to do so for our type of training.

Evaluate the extent to which instruction is focused on problem solving, active learning, and work-based elements.

The hallmark of a successful HART program is intensive problem solving/corrective action hands-on activities. Situations are both simulated and real life workplace scenarios.

List below the current discipline-specific courses within the program and the date of the latest review.

CourseCETT1402, HART1407, HART2442	Date of Last Review2003
CourseHART1403, HART1445, HART2443	Date of Last Review2004
CourseHART1441, HART2431, HART2441	Date of Last Review2002
CourseHART2445, HART2449, HART1491	Date of Last Review2003
CourseHART2288	Date of Last Review2001
Course	Date of Last Review

- **Faculty**

Do all faculty teaching in the program meet SACS requirements?

Yes No (if no, please explain)

What is the ethnic diversity of the faculty?

6 adjunct faculty: 1 black, 5 caucasian. 3 full time faculty: 3 caucasian.

What evidence is there that faculty are staying current in their respective disciplines and instructional methodologies?

Vehicles such as program review, professional development, course review, student evaluations, supervisor evaluations, collegiate/professional challenges, and scuttle butt.

What recognition has been given to faculty within the last year?

None noted

Describe professional development activities in which program faculty participate.

A variety of workshops are selected by our faculty

What percent (and the total number) of faculty participate in formal professional development activities on a regular basis?

50%

Describe the types of discipline-related professional development activities offered.

Manufacturers representatives training seminars: SPORLAN, MANITOWOC

What percent of sections do full-time faculty teach?

~ 70% (12 of 17 sections are taught by full time faculty).

What percent of contact hours do full-time faculty teach?

25,312.

Are student evaluations of instruction within acceptable range? Yes No

To what extent are alternative modes of instruction incorporated into classes?
None at all.

- **Student Satisfaction**

Do student course evaluations demonstrate satisfaction with courses?

Yes No

[f] Adequacy of program resources and efficiency of resource use

Describe the overall adequacy of resources (human, technological and capital, facilities, and fiscal) available to the program for providing effective program delivery and outcomes.

Facilities is a problem. Without additional space, we aren't able to increase the quality of labs due to the space/storage requirements. We turn away students because of full sections -courses that must be taught in this department.

What is the ratio of full-time to adjunct faculty (by course and for the program overall)?

CETT1402 - 1:1; HART1403 - 2:0; HART1407 - 1:1; HART1441 - 1:1; HART1445 - 1:1; HART1491 - 0:1; HART2288 - 1:0; HART2431 - 1:1; HART2442 - 1:0; 2443 - 1:0; HART2445 - 1:0; HART2449 - 0:1

Overall, 70% of the courses are taught by full-time faculty.

How up-to-date is the equipment used by the program? Varies. We must train students using older, and newer equipment.

Identify possibilities for improving the efficiency of the program's use of resources.

[g] Comparison of program performance, price, and enrollment with that of alternate local suppliers

How is the program competitive with similar programs offered by other institutions or schools in the service area in terms of performance, cost to students, and enrollments?

Capitol City Trade and Technical School (CCT&TS) will not provide the level of training that ACC provides. In this way we are not similar. CCT&TS will charge students in their A/C program ~ 12,000.00. I don't know their enrollments.

[h] Direct and indirect program-related revenues and costs to the College

Identify the major sources of revenue for the program, including grants, partnerships, etc.

Indirect revenues: McCullough Heating & Air Conditioning Scholarship; ASHRAE Student Scholarship. Direct revenues: state funding-132,716; tuition-70,666; lab fees-3,662. Direct expenses: 276,884total.

Compare program costs to those of other ACC programs.

Our direct revenue to direct cost is 207,044 to 276,844. We are revenue negative.

Compare the program's actual expenditures to the approved program budget for the previous two years.

We have spent less than budgeted because of cutbacks. Would like to reverse the trend.

TRANSFER or WORKFORCE AREA-SPECIFIC INFORMATION

Only Workforce Programs complete the items below.

Report/status from latest external accrediting agency visit
02/03/99. Status: CI - continuation with improvement.

When was the most recent program revision?

2000

Number of declared majors intending to complete a program who complete degree/certificate requirements within 6 years

Locate resource

Average number of semesters it takes for students to gain degree/credential.

Locate resource

Number of graduates within the last three years

I have been able to obtain information I have a high degree of confidence in for only three recent semesters (203F, 204S, 204U): 16 graduates.

Demographics of graduates

Data is not clear-further resources required.

Percent of graduates who are employed within one year of graduation.

Internal survey results from last three semesters: 87.5% were employed in this industry.

What evidence exists that program completers (or near completers) are successful on the job? What, if available, are their beginning salaries?

Satisfaction survey. Employers respond very favorably when asked how effective are our graduates in their job?

Percent of employers indicating satisfaction with graduates.

Employers satisfaction rating of ACC HART graduates is 87.9%

Discuss the most recent results of Focus Group or internal survey of employers.

Number of employers indicating need for more graduates

Provide evidence of SCANS competency integration into course syllabi and programs.

Course master syllabi indicate SCANS competencies for each HART course in the catalog.

How often does the program's advisory committee meet to discuss curriculum issues?

Twice each year.

When and where are advisory committee minutes maintained and posted?

Posted on the ACC web. They are linked at our website and posted shortly after each meeting.

Evidence of recent review of curriculum by external advisory committee.

Advisory committee validation of entry level skills

Committee approved the application of a National Skill Standard for our program on October 1996.

Only Transfer Programs complete the items below.

Number and percent of graduates who transfer within one year of graduation.

Number of articulation agreements with universities and colleges

Number of courses that transfer

Number of student complaints about problems with course transfer

Discuss the results of the most recent Survey/focus group of transfer institutions.

Discuss data from transfer institutions if available.

Number of students transferring successfully.

CONCLUSIONS

Based on the information collected and analyzed during the program review process, what are the major conclusions of this review of the program? Summarize them here and complete the *Program Status* form.

The HART program offers courses reviewed and approved by advisory committee to provide the entry-level skills required for successful employment in residential and commercial HVA/CR companies and employers. Our faculty are well experienced in the field and curricula, and evaluations are excellent. Our faculty engage in professional development to maintain their professional caliber of instruction. We utilize resources effectively and efficiently.

PROGRAM VISION STATEMENT

State the program's vision or preferred future for the next five years. The vision statement should provide direction to the program as it makes improvements to enhance its effectiveness and efficiency.

We will provide access to excellent training and serve our students and community with passion and commitment

RECOMMENDATIONS

What does the self-study team recommend for improving or maintaining the quality of the program? Summarize the recommendations here and complete the *Quality Improvement Plan* form.

We will continue faculty professional development to maintain our teaching excellence. Industry contacts for internships are to be refreshed each semester. New contacts sought out for donations of equipment and other resources. Try to manage growth by encouraging attendance in morning/afternoon sections. Push for more space or another site. Develop an external learning experience alternative to the internship. Focus attention on graduate success rate and employer satisfaction. Request funding for professional seminars out of district.

ADDITIONAL COMMENTS

None

APPENDIX

List all documents that you used in your report:

Course syllabi.

Advisory Committee meeting minutes.

THECB site visit report.

Department surveys.

ACC fact book.

ACC Office of Institutional Effectiveness: preliminary enrollment report, headcount attrition summary.

Campus high demand report.

Texas Workforce long-term projections, rural capital workforce development area 2000-2010.

OIE table 8-age, ethnicity, and gender of students.

OIE table 7-enrollments.

OIE table 1-uncombined sections, combined sections, enrollments, average section size, credit hours, contact hours.

OIE table 2, table 4, table 5, table 6.

College wide grade distribution report.

OIE analysis of non-transfer, withdrawal, and non-mastery rates.

IPEDS awards and degrees.

When you have completed this report, send it via e-mail to the Coordinator for Institutional Assessment (rwall@austincc.edu) as an attachment.