

**HEATING, REFRIGERATION, & AIR CONDITIONING TECHNOLOGY
PROGRAM**

Five Year
INSTITUTIONAL REVIEW

By
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And
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Institutional Effectiveness Review **Instructional**

The purpose of the review is to:

Assess the currency, scope, strengths, weaknesses, and needs of the Heating, Refrigeration, and Air Conditioning Technology Program.

The process will involve the following steps:

The Heating, Refrigeration, and Air Conditioning faculty will meet with the Dean and Associate Dean to discuss program review process.

The program review document will then be completed based on data and documentation compiled by Heating, Refrigeration, and Air Conditioning faculty.

The Heating, Refrigeration, and Air Conditioning faculty will meet again with the Dean and Associate Dean to discuss findings presented in program review document.

Additional follow-up meetings will be scheduled as needed to assess the status of learning goal and action plans.

Time frames/ time lines for the review will be:

Time frames for review will be approximately the first part of April 2008.

Program/Service: Heating, Refrigeration, and Air Conditioning Technology
Date of Review: April 2008
Review Participants: Roy Stueve

Overview

Purpose of the program/ service and how it relates to college mission, values, vision:

The purpose of the Heating, Refrigeration, and Air Conditioning program is to train students for entry level positions with contracting, service, commercial, and industrial organizations. Two options are available to students for program completion.

1. A Career & Technical Education Certificate requiring forty (40) credit hours in the HRA curriculum may be followed for program completion.
2. An Associate of Applied Science degree may be obtained by completing sixty-four (64) credit hours of HRA and general education requirements.

While the HRA curriculum is designed to prepare students with job-ready skills for employment, most courses in this curriculum may be transferred to a private, four-year institution for a bachelor's degree.

The Heating, Refrigeration, and Air Conditioning program serves a diverse student population, including dual-enrolled high school seniors, non-traditional students, and traditional students. The advisory committee is used to review and adjust curriculum offerings to meet the needs of the HRA industry.

The faculty, both full-time and adjunct, has extensive work-experience in both the classroom and industry. Through continued course work, community involvement, and current employment, the faculty is able to remain current with the needs and demands of today=s workplace.

Present Status

Learning/Service and Action from 2003 Institutional Effectiveness Review:

<i>Learning/service Goal</i>	<i>Assessment Measurement/ Action</i>	<i>Person(s) to implement</i>	<i>Timeframe</i>	<i>Resource implications</i>	<i>Use of results</i>
Goal 1 Understand basic curriculum in classroom setting	1. Review course content 2. Measure enrollment 3. Evaluate course effectiveness	HVAC faculty	Continuous	Faculty	Adjust course content
Goal 2 Advanced course	1. Check content to current Technology needs	HVAC faculty	Continuous	Faculty	Adjust course content

setting/content	2. Check employment/ work success				
Goal 3 Lab equipment update	1. New Geo. Thermal heat pump	HVAC faculty	As Needed	Faculty	New Shop projects
Goal 4 Advertise program	1. Program interest/ enrollment data	HVAC faculty and recruitment group	Continuous	Department budget	Plan classroom strategy
Goal 5 New Courses on Controls	1. Course concern newer computer controls	HVAC faculty	Continuous	Department budget	Offer new course

Innovative changes (the last 5 years)

In fall 2006, investigation began on the process of program certification. HVAC Excellence materials were obtained and present to the advisory committee. The advisory committee agreed that this certification would generate recognition and promote the program. The first steps toward meeting criteria for HVAC Excellence certification include cleaning the shops, disposing of old, broken, and/or unused equipment and materials.

In fiscal year 2007, the heating and air conditioning lab was redeveloped. New heating and air conditioning units were purchased to introduce students to equipment they will see in the field. Older units are still in use for rebuilding, troubleshooting. Missouri Natural Gas installed a gas line at no charge to the College for the HVAC lab so natural gas could also be taught in the heating program. To that point, students had only worked with propane as a gas source.

In fall 2007, work began to redevelop the residential refrigeration lab. Broken and donated equipment was removed, new tables are on order, and condensers have been purchased to standardize instruction. The new equipment will be in place for fall 2008.

Faculty/Staff Qualifications and Professional Development:

The Heating, Refrigeration, and Air Conditioning Program has one full-time and three part-time faculty members. The full-time faculty member, Roy Stueve, is a member of the Missouri Association of Career and Technical Education Technology Division. Mr. Stueve also holds a Career Education Teaching Certificate through the Missouri Department of Elementary and Secondary Education.

Roy Stueve began teaching at Jefferson College in September 1998. Prior to this he was employed as instructor in HVAC field at Ranken College, St. Louis, MO and Vatterot College in St. Ann, MO. He owned and managed Dew Point Refrigeration Company based in Festus, MO, servicing residential, commercial, and industrial customers full-time for over ten (10) years before teaching. Mr. Stueve's education includes an Associate of Arts and an Associate of Applied Science from Jefferson College and

a Bachelor of Science and Master of Science degrees from National Louis University. Informal education included electronics school in the United States Army.

Instructor	Education	Work Experience & Development	Years in HVAC	Teaching Experience
Roy Stueve	Master Science, National Louis University	Associate Engineer Western Electric, Inc. Electrical & Civil Draftsman, Lemco Engineers, St. Louis, MO Equipment Designer, Human Foods Pilot Plant, Ralston Purina Co., St. Louis Owner, Manager Dew Point Refrigeration Co, Festus, MO	24	20
William Kaune	Associate of Applied Science	Retired, LaClede Gas as foreman overseeing HVAC work	35+	6
Kevin Harmon	Certificate, South County Tech	Service Technician, HVAC Salesman, HVAC equipment	18	5
John Pearson	Instructor, Training Certificate, LaClede Gas	Commercial Refrigeration LaClede Gas	30	4

Faculty Data

Faculty indicators for Heating, Refrigeration & Air Conditioning Institutional Program Review 2003-2007

School Terms 200301 through 200703(Summer 2002 through Spring 2007)

Course & Instructor	# of Terms Taught	# of Course Sections Taught	Total Students	Attrition Number	Attrition Percent	Graded Credit Hours	Average Students	Average GPA	Annualized 5-year program FTE
HRA									
Boyer	5	5	56	2	3.6%	270	11.2	2.61	
Cleaver	5	5	81	2	2.5%	395	16.2	3.16	
Eimer	3	3	42	3	7.1%	185	14.0	2.38	
Harmon	5	8	117	1	0.9%	580	14.6	3.66	
Kaune	10	15	191	3	1.6%	940	12.7	3.06	
Keck	1	1	9	0	0.0%	45	9.0	2.78	
Lamb	7	7	97	4	4.1%	465	13.9	3.34	
Long	6	6	82	0	0.0%	410	13.7	2.76	
Marino	1	1	13	0	0.0%	65	13.0	3.46	
Monia	9	9	142	1	0.7%	705	15.8	3.43	
Osolinski	1	1	18	5	27.8%	65	18.0	2.15	
Pearson	3	3	34	0	0.0%	170	11.3	3.06	
Stueve	10	60	577	7	1.2%	2,850	9.6	2.52	
Column Totals Column Averages	66	124	1,459	28	1.9%	7,145	11.8	2.9	47.6

Source: BANNER report WSHRGDST printed 29 Oct 2007.

Notes: Attrition is the number of "W" grades conferred.

Graded Credit Hours are "A to F only, not "W, I P/F, Other", etc

Annualized program FTE is the number of graded credit hours divided by
150 (30 hrs/yr for 5 years)

Student/Constituent Success:

Post Secondary Placement	FY2002	FY2003	FY2004	FY2005	FY2006
Heating, Refrigeration, and Air Conditioning	95.00%	84.50%	78.60%	85.00%	100.00%

Curriculum/ Services (Scope, Currency, Changes):

The Heating, Refrigeration & Air Conditioning department addresses the basics of core technology and new changes in the field. Assistance with new field technology is provided in part by advisory committee participation. Ideas and suggestions on change are reviewed and implemented as required.

Core Curriculum courses for Heating, Refrigeration & Air Conditioning listed:

HRA101-Basic Electricity	5 credit hours
HRA105-Principles of Refrigeration	5 credit hours
HRA122-Refrigeraton Mechanical Systems	5 credit hours
HRA122-Air Conditioning Mechanical Systems	5 credit hours
HRA216-Residential Air Conditioning Systems	5 credit hours
HRA225-Residential Heating Systems	5 credit hours
HRA248-Light Commercial Refrigeration Systems	5 credit hours
HRA249-Commercial Refrigeration Systems	5 credit hours

Each year Jefferson College students install a complete heating/cooling system in a newly build house. Complete duct work systems are installed and small fabrications are made. The instructional environment simulates on the job working conditions and helps students understand how to work with other trades such as carpenters, electricians, and plumbers.

CURRICULUM | SERVICE ISSUES (Support, Technology, Equipment)

The College provides technical support for personal computer based equipment used in the classroom and faculty office. Shop equipment is purchased using Perkins and Enhancement grant funding. Donations from individuals and organizations also provide needed equipment and materials. Additionally, an active advisory committee reviews curriculum and supports changes as needed to keep the program current.

Community (The degree to which the program contributes to the community and responds to community needs)

The Heating, Refrigeration & Air Conditioning program has had graduates hired with most local heating, refrigeration, and air conditioning businesses and with St. Louis based organizations in the HVAC field. Graduates have been hired by both union and non-union organizations. Union placement of graduates has occurred through the sheet metal and electrical worker unions.

Cost

ACCT #	Account Description	FY2003	FY2004	FY2005	FY2006	FY2007
50111	FULL-TIME FACULTY BASE CONTRACT	45,590.04	48,369.44	51,248.50	56,375.01	59,109.03
50112	FULL-TIME FACULTY OVERLOAD	9,319.52	7,728.00	7,728.00	8,140.16	8,565.20
50121	ADJUNCT FACULTY SALARIES	19,950.00	22,710.94	38,800.00		27,075.00
50121	ADJUNCT FACULTY SALARIES (R-TEC)				35,625.00	
50152	REGULAR STUDENT SALARIES			1,095.00	75.00	748.10
5021	MEDICAL BENEFITS	3,779.00	4,504.04	4,866.00	4,976.00	5,392.00
5022	DENTAL BENEFITS	286.32	298.80	307.08	331.68	344.04
5023	FICA EXPENSE (EMPLOYER'S PORTION)	2,291.26	2538.96	3,814.59	912.00	961.48
5023	FICA EXPENSE (R-TEC)				2,725.25	2,071.19
502401	RETIREMENT CONTRIBUTIONS - PSRS	6,172.77	6,340.30	6,965.68	7,882.87	8,702.96
502402	RETIREMENT CONTRIBUTIONS - NTRS	285.04	285.04	299.28		
502402	RETIREMENT CONTRIBUTIONS-NTRS (R-TEC)				313.52	163.88
5025	DISABILITY INSURANCE EXPENSE	139.48	147.38	156.64	170.98	143.95
5026	LIFE INSURANCE EXPENSE	69.60	69.60	74.40	62.40	62.40
60853	INSTRUCTIONAL SERVICES		100.00			
60854	SERVICE AGREEMENTS		176.64	10.80		
612015	CAPITAL EQUIPMENT (ENHAN GRANT)			4,958.21		18,479.00
61202	NON-CAPITAL EQUIPMENT (R-TEC)				238.00	
61202	NON-CAPITAL EQUIPMENT (ENHAN GRANT)			3,966.33		
61202	NON-CAPITAL EQUIPMENT (INTERACTIVE TV FUNDS)				715.00	
61202	NON-CAPITAL EQUIPMENT (UNEXPENDED PLANT FUND)					895.54
6150	HONORARIUMS			200.00	250.00	100.00
623011	CLASSROOM PRINTING CHARGES	14.00	37.15	60.40	44.40	13.00
623012	COPIER PRINTING CHARGES	353.80	284.05	360.27	700.90	464.63
624011	PROFESSIONAL DEVELOPMENT TRAVEL		398.73	602.04	(205.15)	
624011	PROFESSIONAL DEVELOPMENT TRAVEL (PERKINS)				810.94	
624012	PROFESSIONAL DEVELOPMENT OTHER (PERKINS)		1,249.95			
623014	OTHER INTERNAL PRINTING CHARGES	6.00			13.50	
62403	PROFESSIONAL MEMBERSHIP DUES	50.00				
6247	SOFTWARE EXPENSES	336.55		130.00	133.55	178.25
62551	INSTRUCTIONAL SUPPLIES	9,508.75	10,276.25	12,778.96	12,336.39	14,605.55
62551	INSTRUCTIONAL SUPPLIES (R-TEC)			2,400.00		
62552	OFFICE SUPPLIES	130.30	413.87	30.03	118.09	99.96
6275	TRAVEL – GENERAL BUSINESS			42.12		
	*GRAND TOTAL	\$98,282.43	\$105,929.14	\$140,894.33	\$132,745.49	\$148,175.16

*Totals include expenses from Enhancement Grants, R-Tec, Perkins, Unexpended Plant and Interactive TV Funds.

Summary (SWOT)

Strengths	Weaknesses
Available full-time and adjunct faculty High school involvement in program Supportive advisory committee College support for equipment updates Interest of outside HVAC organizations Positive graduation placement rates	Fluctuating enrollment Distance of theory classroom from shops Image of undesirable working conditions
Opportunities	Threats
Access to the Advising and Retention Center to assist with enrollment and industry relation ships Positive relationship with sheet metal union Positive relationship with electrical union Student employment with local HVAC organizations	HVAC programs at other schools Age and appearance of facility

Future

Proposed Learning and Service Goals and Action Plan

<i>Proposed Learning/Service Goal</i>	<i>Proposed Assessment Measurement/ Action</i>	<i>Person(s) to Implement</i>	<i>Timeframe</i>	<i>Resource Implications</i>
Goal 1 Upgrade equipment as needed	Purchase and installation of new lab equipment	HVAC faculty	On going	Cost of equipment. Source: Enhancement grant, Perkins funds
Goal 2 Implement procedures for equipment/tool use	Daily check of equipment and tools	HVAC faculty	On going	Time for faculty to check equipment and tool crib
Goal 3 Improve shop maintenance	Daily clean-up of shop area	HVAC faculty	On going	Minimal
Goal 4 Upgrade curriculum as industry needs change	Seek input from advisory committee regarding industry needs.	HVAC faculty	On going	No additional resources
Goal 5 Recruitment of traditional and non-traditional students for program	Examine program majors and graduate placement	HVAC faculty, ATS, and College representatives	On going	Cost of brochures, radio spots, posters, and travel
Goal 6 Work toward HVAC Excellence certification for program	HVAC Excellence program certification obtained	HVAC faculty/outside carpenter	August 2011	Cost of equipment, certification team, and certification fee

Discipline Status

_____ Satisfactory

_____ Requires Immediate Attention

_____ Unsatisfactory

Dean

Date