

# Air Conditioning Maintenance & Repair Canino School of Engineering Technology 2017 Assessment Report

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# What was assessed? Student learning outcomes list:

- **PSLO 1 (Career Skills) - Gain the skills to begin a career in refrigeration and air conditioning service**
  - EPA section 608 Certification
  - Copper tubing fabrication
  - Fundamentals of heat and energy
  - Use of hand tools
  - Refrigeration theory
  - Electrical basics
- **PSLO 2 (Equipment Installation) - Learn how to install and service refrigeration and air conditioning equipment for residential and commercial buildings.**
  - Brazing and soldering
  - Heating and cooling loads
  - Troubleshooting
  - Equipment selection

# What was assessed? Student learning outcomes list:

- ISLO Communication Skills
- ISLO Critical Thinking

# Where were outcomes assessed?

- *PSLO 1 - Career Skills*

1. *EPA Section 608 Exam*
2. *'HVAC Excellence' Employment Ready Certification*

- *PSLO 2 – Equipment Installation Skills*

1. *ACHP104.1 Commercial Installation*
2. *ACHP105.1 Heating Loads*
3. *ACHP105.2 Cooling Loads*

# Where were outcomes assessed?

- *ISLO - Communication Skills*

1. *ACHP103.4 Electrical Circuit Theory*

- *ISLO - Critical Thinking*

1. *ACHP103.5 Refrigerant Thermal properties*

# How was the assessment accomplished?

- Student work assessed:
  - Government (EPA) standardized test
  - Midterm and final exams
  - Individual Practical Exams
- Measurement strategy:
  - Applicable AACU rubrics used for Practical exams
  - % of questions answered correctly on quizzes, exams, and standardized tests
- Sample size:
  - All students who take the designated assessed courses



# Assessment results: What did the data tell us?

- *PSLO 1 - Career Skills*

1. *All students passed the EPA 608 exam (90% goal)*
2. *No students chose to take the Employment Ready exam*

- *PSLO 2 – Equipment Installation*

1. *Met 70% target of 104.1 (Final Exam Q 1)*
2. *Met target of 80% achieve 80% for ACHP105.1 (Heating Load project 1)*
3. *Met Target of 80% achieve 80% for ACHP105.2 (Cooling Load project 2)*



# Assessment results: What have the data told us?

- *ISLO Communication Skills*

1. *85% met the target of 15/20 on the Rubric (70% goal)*

- *ISLO Critical Thinking*

1. *57% met the target of 15/20 on the Rubric (70% goal)  
(It would have been 71% but one student did not take the Practical and never attended again)*





Data-driven decisions: How the program has or plans to “close the loop” based on these results.

- Students performed well on the practical exams compared to last year
- Continue to revise the related courses to better align with the student learning outcomes
- This year I am putting more emphasis on the Employment Ready standardized test for certification. If results are not better, I can possibly include this as a formal part of the course.



Data-driven decisions: How the program has or plans to “close the loop” based on these results.

Note

- This past year there was poor retention from semester 1 to semester 2. We lost ½ of the students, all non-traditional. Various reasons mostly employment related. This year, looking at registrations, I see minimal fall out.



# What resources were used or have been requested to close the loop?

Last years request for funds to purchase a new scale and vacuum pump was granted and have helped with the Practical Exams by allowing multiple exams to occur at once.



# Attachments: 2017 SLO Findings



# SLO 1 - *Career Skills*

## Assessment Findings Data

PSLO 1 (Career Skills) - Gain the skills to begin a career in refrigeration and air conditioning service

	Measures <u>N</u>	Not Met		Met		Exceeded		No Findings	
		<u>N</u>	<u>%</u>	<u>N</u>	<u>%</u>	<u>N</u>	<u>%</u>	<u>N</u>	<u>%</u>
All Courses	78	5	6%	14	18%	41	53%	18	23%
EPA Exam	5	0	0%	0	0%	5	100%	0	0%
Empl R exam	0	0	0%	0	0%	0	0%	0	0%





# SLO 2 – *Equipment Installation*

## Assessment Findings Data

PSLO2 (Equipment Installation) Learn how to install refrigeration and air conditioning equipment in residential & commercial buildings

	Measures	Not Met		Met		Exceeded		No Findings	
	<u>N</u>	<u>N</u>	<u>%</u>	<u>N</u>	<u>%</u>	<u>N</u>	<u>%</u>	<u>N</u>	<u>%</u>
All Courses	78	5	6%	14	18%	41	53%	18	23%
ACHP104	17	2	12%	0	0%	15	88%	0	0%
ACHP105	22	0	0%	4	9%	20	91%	0	0%



# ISLO – *Communication*

## Assessment Findings Data

ISLO Communication Skills (using the AACU rubric)

	Measures	Not Met		Met		Exceeded		No Findings	
		<u>N</u>	<u>%</u>	<u>N</u>	<u>%</u>	<u>N</u>	<u>%</u>	<u>N</u>	<u>%</u>
ACHP103	7	1	14%	0	0%	6	86%	0	0%



# ISLO – *Communication*

## Assessment Findings Data

ISLO Critical Thinking (using the AACU rubric)

	Measures	Not Met		Met		Exceeded		No Findings	
	<u>N</u>	<u>N</u>	<u>%</u>	<u>N</u>	<u>%</u>	<u>N</u>	<u>%</u>	<u>N</u>	<u>%</u>
ACHP103	7	2	28%	0	0%	4	57%	1	14%

