<table>
<thead>
<tr>
<th>Course SLOs 1 and ctu.unitid = 744</th>
<th>Assessment Methods &amp; Standard and Target for Success / Tasks</th>
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<th>Action &amp; Follow-Up</th>
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<tbody>
<tr>
<td>ECC: ACR 20 - Solar Energy Applications-Photovoltaics and Solar Thermal - SLO #1 Parts of Solar Thermal Units</td>
<td>Students assigned reading exercises and classroom instruction on solar thermal system component identification and function.</td>
<td>02/19/2015 - Students were given an assessment test which required each student to identify and describe the function of each component in a solar PV system. Each student was graded on their ability to correctly identify and assign component function. 83% of the students received a passing grade between 79% and 89%. 15% received a grade of 90% or higher and 2% received an unsatisfactory grade below 70%.</td>
<td>04/23/2016 - Continue to monitor test scores for student success and outcomes.</td>
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<tr>
<td>Course SLO Assessment Cycle:</td>
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<tr>
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<tr>
<td>ECC: ACR 20 - Solar Energy Applications-Photovoltaics and Solar Thermal - SLO #2 Solar Energy Application</td>
<td>Students assigned reading assignments on solar thermal and power system applications which are supported with classroom instruction.</td>
<td>02/19/2015 - Students were given a test which required them to assess the value of different solar thermal and dialectical applications. Students formed teams. Each team was assigned specific solar thermal or electrical applications. Each member of each team was assigned by the team a specific component of the application to present to the class. Each team presented both a paper and an oral presentation on their projects. All students evaluated received a 90% or better grade for their team presentation and paper.</td>
<td>04/23/2016 - Continue to monitor test scores for student success and outcomes.</td>
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<tr>
<td>Course SLO Assessment Cycle:</td>
<td>Passing grade on solar thermal and electric system tests.</td>
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<tr>
<td>ECC: ACR 20 - Solar Energy Applications-Photovoltaics and Solar Thermal - SLO #3 Solar System Operation &amp; Installation</td>
<td>Wright a two page paper on solar system operation and installation requirements.</td>
<td>02/19/2015 - Each student was assigned the task of performing and energy audit of a solar system operation and installation. Each student developed a 2 page report itemizing the system analysis. The students were required to complete a cost benefit analysis and provide</td>
<td>04/23/2016 - Continue to monitor test scores for student success and outcomes.</td>
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<tr>
<td>Course SLO Assessment Cycle:</td>
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### Course SLO Assessment Cycle:

**ECC: ACR 21 - Air Conditioning Fundamentals - SLO #1 Window Air Conditioning Manifold Gauges** - After reading the textbook and participating in class discussions, students will apply their knowledge of appropriate lab practices, concepts and theories placing refrigeration manifold gauges on an air conditioning system and check for correct charge of an operating system based on manufacturer's specifications.

**Course SLO Assessment Cycle:**

- **2014-15 (Fall 2014)**

**Input Date:**

- **11/12/2013**

**Course SLO Status:**

- **Active**

**Assessment Method & Standard and Target for Success / Tasks**

**Standard and Target for Success:**

- Passing grade on written assignment.

**Assessment Method Description:**

- Attaching refrigeration manifold gauge set and analyze system performance based on manifold readings.

**Assessment Method:**

- Laboratory Project/Report

**Standard and Target for Success:**

- Correctly determining system performance using manufacturer's performance guidelines

**Results**

- System comments and recommendations
  
- 25% of the students received a grade of 80 to 89%. 74% of the received a grade of 90% or better. 1% of the students received less than a passing grade of 70%.

**Standard Met? :**

- Yes

**Semester and Year Assessment Conducted:**

- 2014-15 (Fall 2014)

**Faculty Assessment Leader:**

- Timothy Muckey

**Reviewer's Comments:**

- This evaluation helped establish student system assessment skills

**Action & Follow-Up**

- **Action Category:** Teaching Strategies

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**ECC: ACR 21 - Air Conditioning Fundamentals - SLO #2 Component Brazing** - After completion of this course, students will acquire the skills necessary to successfully braze refrigeration components to meet basic industry standards.

**Course SLO Assessment Cycle:**

- **2014-15 (Fall 2014)**

**Input Date:**

- **11/12/2013**

**Course SLO Status:**

- **Active**

**Assessment Method & Standard and Target for Success / Tasks**

**Assessment Method Description:**

- Students are assigned a pipe project which requires students to employ the use of several tools to create an instructor specified pipe design. Students are then required to braze the project together and leak test the pipe project.

**Assessment Method:**

- Laboratory Project/Report

**Standard and Target for Success:**

- Students will leak test the pipe project to ~ 150 psig and test for leaks. Successful project will hold applied pressure for at least 15 minutes.

**Results**

- 02/19/2015 - Students were assigned in a rooftop packaged unit. Students were assigned the task of evaluating system charge through performance analysis. Each student recorded unit data and determined based on that data system condition and service requirements. Each student turned in a log that was graded based on student final evaluations and accuracy of log. 89% of the students received a grade of 85% or greater and 10% received a grade of 70% to 84% and 1% received an incomplete.

**Standard Met? :**

- Yes

**Semester and Year Assessment Conducted:**

- 2014-15 (Fall 2014)

**Faculty Assessment Leader:**

- Timothy Muckey

**Reviewer's Comments:**

- This assessment allowed students to apply classroom learning and adds

**Action & Follow-Up**

- **Action Category:** Teaching Strategies

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**ECC: ACR 21 - Air Conditioning Fundamentals - SLO #3 Component Brazing** - After completion of this course, students will acquire the skills necessary to successfully braze refrigeration components to meet basic industry standards.

**Course SLO Assessment Cycle:**

- **2014-15 (Fall 2014)**

**Input Date:**

- **11/12/2013**

**Course SLO Status:**

- **Active**

**Assessment Method & Standard and Target for Success / Tasks**

**Assessment Method Description:**

- Students are assigned a pipe project which requires students to employ the use of several tools to create a instructor specified pipe design. Students are then required to braze the project together and leak test the pipe project.

**Assessment Method:**

- Laboratory Project/Report

**Standard and Target for Success:**

- Students will leak test the pipe project to ~ 150 psig and test for leaks. Successful project will hold applied pressure for at least 15 minutes.

**Results**

- 02/19/2015 - Students were assigned the task of constructing a project which required the use of a tubing bender flaring and swaging tool to construct a leak free piping project. Each of the students pressurized and leak tested there projects 80% of the students passed the leak-test the first time and the remaining 20% additional attempts to complete the project.

**Standard Met? :**

- Yes

**Semester and Year Assessment Conducted:**

- 2014-15 (Fall 2014)

**Faculty Assessment Leader:**

- Timothy Muckey

**Reviewer's Comments:**

- This project takes classroom learning and adds

**Action & Follow-Up**

- **Action Category:** Teaching Strategies

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**Assessment Method Description:**
Students will log system operating conditions and analyze system operation

**Assessment Method:** Laboratory Project/Report

**Standard and Target for Success:**
Students will safely align required data with manufactures specification using the appropriate tools and personal protective equipment.

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**02/19/2015 - Students are assigned the task of completing a service log on a packaged AC unit. Each student must perform a refrigeration and electrical evaluation of the unit. Students are graded on there successfully on completing all of the test measurements. 5% of the students were successful on there first attempt while the remaining 95% required several attempts to complete the required tasks. In the end each student was successful in completing assigned tasks.**

**Standard Met? :** Yes

**Semester and Year Assessment Conducted:** 2014-15 (Fall 2014)

**Faculty Assessment Leader:** Timothy Muckey

**Reviewer's Comments:**
This assessment takes several lab's to complete successfully for most students due to time and skill development requirements.