

CENTRAL NEW MEXICO COMMUNITY COLLEGE
ASSESSMENT REPORT
Due to SAAC by October 15

PART 1: CONTACT & PROGRAM IDENTIFICATION

Report Year and Contact Information:			
Fall 2016-Spring 2017 Academic Year	Janet Hughes Contact Person	Jhughes41@cnm.edu Email	224-4000 ext 53256 Phone Number

Subject of this Assessment Report:		
Program: <u>Electrical Trades: Photovoltaic Concentration</u> <input checked="" type="checkbox"/> Certificate <input type="checkbox"/> AA <input type="checkbox"/> AS <input type="checkbox"/> AAS	Gen Ed Area: _____ Applicable to: <input type="checkbox"/> AA/AS <input type="checkbox"/> AAS	Discipline Area: _____

PART 2: EVIDENCE OF OVERALL PROGRAM EFFECTIVENESS

Summary of Program Successes:
Successfully built out ELTR 2620 to a completely online course. More online content was built out for ELTR 2692, ELTR 2610, and ELTR 2630

Description and Evaluation of Recent Changes Made in Support of Student Learning:
Introduced an online solar design and generation tool called Aurora Solar to ELTR 2630 and an online energy assessment simulation program to ELTR 2620

PART 3: REPORT ON RECENT ASSESSMENT OF STUDENT LEARNING

Student Learning Outcome(s) Assessed:	Classes/Cohorts Assessed:
<i>To add rows: right-click in cell below and select "Insert," "Insert Rows Above"</i> 1. Calculate the critical design parameters based on monthly load and insolation information.	ELTR 2630 Advanced PV Theory, Design, Installation, Maintenance, and Commissioning
2. Describe the relationship of energy efficiency to PV installations and identify opportunities for conservation and energy efficiency.	ELTR 2620 PV Theory, Design, and Installation

3.	
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Measurement Tool(s) Used:	Enter X's for type of tool				Initial Achievement Target or Expectation:
	Internal	External	Direct	Indirect	
<i>To add rows: right –click in cell below and select “Insert,” “Insert Rows Above”</i>					
1. Final Project assignment and presentation	x		X		To better prepare students to work with currently used tools in the industry.
2. Assignment and Discussion Forum	x		x		To widen student knowledge of the impact site location and building energy efficiency has on energy usage.

Assessment Findings:
1. Students successfully completed a complete design package and proposal and demonstrated knowledge of using the tool
2. Students successfully completed the assignment and demonstrated that their knowledge had increased on how site location and building energy efficiency affects energy usage.

Analysis and Interpretation of Assessment Findings:
1. I analyzed the students design packages and proposal for accuracy and knowledge of using the tool. I also listened to their presentations to assess what they had learned.
2. I analyzed the data entered on each question in the assignment and their description and interpretation of the results both on the assignment and in the discussion forum. I also analyzed their initial post and their 2 responses to class mates to assess what they had learned in the assignment.

Action Plan in Support of Student Learning:
I will continue to fully build out and improve the content for the PV theory in all my classes into an online format. The PV program is moving from WTC to Main campus for spring of 2018. This will allow me to build out some living labs on existing buildings at the main campus and work with other trades on improving the PV labs. I will continue to do outreach to the electrical and solar contractors in the community to educate them on what classes are offered and to encourage them to get new hires and existing employees trained. I will continue to promote the program to the electrical trade students. I will continue to look for apprenticeship and job placement opportunities in the community.

Please indicate with an X all of the following that characterize the types of changes described in the above action plan:

- Pedagogical change
 Course revision
 Process revision
 Curricular revision
 Budgetary reallocation
 Faculty training/development
 Assessment criteria revision
 Assessment methodology revision

Recommendations, Proposals, and/or Funding Requests:

I will be reaching out with proposals for equipment needed to build out the labs at Main Campus. Also the Aurora Solar Tool has been free for the last 3 semesters. They will be asking for a subscription fee for each student soon which I will want to get funded either by the department or by an additional fee to students for this valuable tool.

PART 5: ASSESSMENT CYCLE PLAN (Copy and paste from original plan if unchanged)

Cycle Years:	Plan Description:
2015-2020	Students will be assessed on their ability to achieve competency on the course learning outcomes with module level quizzes, tests, and a summative final exam. The final summative assessment will include a practical installation project and a design project as well as a written exam. Students will prepare and practice for the assessments with assignments, worksheets, discussion forums, and hands on labs. A checklist will be used for the labs to check off each activity as learning competency is achieved.

Student Learning Outcomes:	When Measured:	Where Measured:	How Measured:
1. Demonstrate knowledge of principal types and configurations of PV systems, their advantages and disadvantages, and their uses.	Fall 2016-Spring 2016	ELTR 2620 PV Theory, Design, and Installation, ELTR 2692 PV Installation Lab, ELTR 2630 Advanced PV	Specific assignments, quizzes, tests, and labs
2. Describe the relationship of energy efficiency to PV installations and identify opportunities for conservation and energy efficiency	Fall 2016-Spring 2016	ELTR 2620 PV Theory, Design, and Installation	Specific Assignment
3. Identify the principal components of PV systems and their uses	Fall 2016-Spring 2016	ELTR 2620 PV Theory, Design, and Installation, ELTR 2692 PV Installation Lab, ELTR 2630 Advanced	Specific assignments, quizzes, tests, and Labs

4.	Identify the factors affecting the quantity and composition of solar energy received on the Earth's surface and the factors affecting the sun's apparent position and path through the sky.	Fall 2016-Spring 2016	ELTR 2620 PV Theory, Design, and Installation	Specific assignments, quizzes, tests
5.	Demonstrate knowledge of the process for determining potential array locations and how solar radiation data is used in sizing and estimating PV system performance.	Fall 2016-Spring 2016	ELTR 2620 PV Theory, Design, and Installation, ELTR 2692 PV Installation Lab	Specific assignments, quizzes, tests, and Labs
6.	Identify considerations in preliminary assessment such as condition of existing roofing, structural systems, electrical systems and equipment, solar resource, environmental conditions, building code, and utility requirements	Fall 2016-Spring 2016	ELTR 2620 PV Theory, Design, and Installation, Lab, ELTR 2630 Advanced PV	Specific assignments, quizzes, tests, and Labs
7.	Evaluate the design priorities for PV systems in different types of applications.	Fall 2016-Spring 2016	ELTR 2630 Advanced PV	Specific assignments, quizzes, tests, and class project
8.	Recognize and practice proper job site safety awareness, and wear appropriate PPE when working on PV systems	Fall 2016-Spring 2016	ELTR 2692 PV Installation Lab, ELTR 2630 Advanced PV, ELTR 2610	Specific assignments, quizzes, tests, and labs
9.	Demonstrate knowledge of design and installation of various types of systems including racking, modules, inverters, balance of system parts, and utility interconnection.	Fall 2016-Spring 2016	ELTR 2692 PV Installation Lab, ELTR 2630 Advanced PV	Specific assignments, quizzes, tests, class projects, and labs
10.	Demonstrate knowledge of commissioning, operations, and maintenance of a grid direct system	Fall 2016-Spring 2016	ELTR 2630 Advanced PV	Specific assignments, quizzes, tests, and labs