

Clackamas Community College

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Section #1 General Course Information**Department:**Apprenticeship**Submitter**

First Name: Shelly

Last Name: Tracy

Phone: 0945

Email: shellyt

Course Prefix and Number:APR - 231UM**# Credits:**5**Contact hours**

Lecture (# of hours): 55

Lec/lab (# of hours):

Lab (# of hours):

Total course hours: 55

For each credit, the student will be expected to spend, on average, 3 hours per week in combination of in-class and out-of-class activity.

Course Title:Metering: Advanced I**Course Description:**

This course will instruct third-year apprentices on the subject of advanced metering including the following: history of metering (past, present, and future), review of meter vectoring, polyphase vectoring, self contained meters, instrument rated meters, instrument transformers (current and voltage) and their application.

Type of Course:Career Technical Apprenticeship

Can this course be repeated for credit in a degree?

No

Does this course map to any general education outcome(s)?

No

Is this course part of an AAS or related certificate of completion?

Yes

Name of degree(s) and/or certificate(s):Electrical Apprenticeship AAS

Are there prerequisites to this course?

Yes

Pre-reqs:Successful completion of APR-123UM

Have you consulted with the appropriate chair if the pre-req is in another program?

No

Are there corequisites to this course?

No

Are there any requirements or recommendations for students taken this course?

No

Are there similar courses existing in other programs or disciplines at CCC?

No

Will this class use library resources?

No

Is there any other potential impact on another department?

No

Does this course belong on the Related Instruction list?

No

GRADING METHOD:

A-F Only

Audit:No

When do you plan to offer this course?

✓ **Fall**

Is this course equivalent to another?

If yes, they must have the same description and outcomes.

No

Will this course appear in the college catalog?

No

Will this course appear in the schedule?

No

Student Learning Outcomes:

Upon successful completion of this course, students should be able to:

1. apply the theory of electrical metering equipment used by the electrical industries,
2. define use of measuring instruments,
3. explain the function of instrument transformers,
4. describe advanced metering and demand metering,
5. explain single phase and polyphase vectors and how they pertain to revenue metering and electrical service,
6. apply proper selection of self contained and instrument rated meters, (and instrument transformers) to meet customer and utility needs;
7. demonstrate proper wiring and use of test switches for metering conductors,
8. apply the basic theory of electricity and electrical metering equipment used by the electrical industries,
9. draw and interpret single and polyphase vectors,
10. select proper meters and draw the necessary instrument transformers, wiring, and test switches, if necessary, for residential, commercial, and industrial services.

This course does not include assessable General Education outcomes.

Major Topic Outline:

1. Single and polyphase meter vectors (phasors).
2. Review of metering fundamentals vectoring.
3. Effect of customer equipment on vectors.
4. Generic watthour meters.
5. Types of meter.
6. Meter selection for customer load.
7. Meter conductors, test switches, and sockets.

Does the content of this class relate to job skills in any of the following areas:

- | | |
|--------------------------------------|-----------|
| 1. Increased energy efficiency | No |
| 2. Produce renewable energy | No |
| 3. Prevent environmental degradation | No |
| 4. Clean up natural environment | No |
| 5. Supports green services | No |

Percent of course:0%

First term to be offered:

Specify term: FALL 2014
