

Clackamas Community College

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

First Name: Shelly

Last Name: Tracy

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Course Prefix and Number:APR - 233UM**# 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 III**Course Description:**

This course is designed to instruct third-year apprentices on the subject of advanced fundamentals of metering including the following: meter software programs (error codes, service test editing, interpretation of instrumentation vectors, interval data, and programming), meter communications, general system troubleshooting, power quality and harmonics, Automated Meter Infrastructure (AMI)/Automated Meter Reading (AMR) and the Smart Grid.

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-232UM

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?

✓ Spring

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. use meter software to diagnose meter error codes, edit service tests, download interval data, and reprogram meters;
2. use communication test equipment to diagnose meter communication problems,
3. perform basic electrical system troubleshooting to determine the best course for correcting service problems,
4. use test equipment to measure electrical harmonics and gauge their effect on the meter,
5. explain the difference between AMI and AMR, and their function within the Smart Grid;
6. describe the purpose and steps taken to perform in service testing.

This course does not include assessable General Education outcomes.

Major Topic Outline:

1. Meter software applications.
2. Establishing omunication (optical, modem, or Ethernet).
3. Interval data downloading and transfer.
4. Meter diagnostics, vector interpretation, and meter error codes.
5. Service test interpretation and editing.
6. Service troubleshooting.
7. Harmonics and Power Quality.
8. Integrated Site testing.
9. Third Year review.

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: Spring 2015
