

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 - 232UM

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 II

Course Description:

Designed to instruct third-year apprentices on the subject of advanced fundamentals of metering including the following: rates and tariffs, demand metering, Kilovolt-Ampere-Reactance (KVAR) and Kilovolt Amps (KVA) metering, special metering (compensation metering, bidirectional flow (net metering), and totalization, pulse metering (pulse weights, pulse initiation, and totalization).

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): Electrician Apprenticeship Technologies AAS

Are there prerequisites to this course?

Yes

Pre-reqs: Successful completion of APR-231UM, Metering Advanced I

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?

Yes

Have you talked with a librarian regarding that impact?

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?

✓ Winter

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. select the proper type of electrical meter to measure the customer's use of electrical energy in accordance with the utilities rate and tariff structure,
2. select the appropriate types of metering equipment to totalize the output of more than one electrical meter,
3. identify and describe pulse metering output (with appropriate pulse weight for 2 and 3 wire systems) for customer monitoring use.

This course does not include assessable General Education outcomes.

Major Topic Outline:

1. Meter sselection and programming.
2. Rates and Tariffs structure and program selection.
3. Demand metering (KWH and KVAR).
4. Harmonics and KVA demand.
5. Transformer loss compensation and calculations.
6. Totalization and totalizers.
7. Remote Communication (RF, Modem, PLC, Ethernet).
8. AMI and the Smart Grid.
9. Meter Lab.

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:

Next available term after approval

:
