

Clackamas Community College

Online Course/Outline Submission System

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APR-112UE Line Estimator Basic II: Electrical Theory

General education certified: Yes No

- Writing
- Oral Communication
- Arts and Letters
- Science & Computer Science
- Mathematics
- Social Science
- Cultural Literacy
- Health & Physical Education

Approved Date (mm/dd/yyyy): / /

Section #1 General Course Information

Department: Apprenticeship

Submitter

First Name: Shelly

Last Name: Tracy

Phone: 0945

Email: shellyt

Course Prefix and Number: APR - 112UE

Credits: 4

Contact hours

Lecture (# of hours): 44

Lec/lab (# of hours):

Lab (# of hours):

Total course hours: 44

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: Line Estimator Basic II: Electrical Theory

Course Description:

This course presents the principles and concepts that govern electrical field operations. Students learn to utilize math and electric theory applications in the field. The primary focus is on electric utility systems.

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 Technology AAS

Are there prerequisites to this course?

No

Are there corequisites to this course?

No

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

Yes

Recommendations: None

Requirements: Accepted into the Line Estimator apprenticeship program.

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?

Not every term

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. perform mathematical computations, including adding, subtracting, multiplication, working with decimals and percentages, and setting up and solving algebraic problems,
2. list and describe ways to produce electric current, and explain how electron movement produces current flow and how a change in force (volts) or resistance (ohms) affects the current (amperes),
3. tie proper knots and explain how different anchors should be installed,
4. outline proper safety procedures for working with electricity and explain the importance of proper tool handling and usage,
5. describe field operations and electrical utility systems, including operational standards and service area requirements,
6. discuss energy charges, power factor charges and demand charges,
7. design, develop and disseminate field- and operational-level performance measurements,
8. identify parts and construction characteristics of wire rope and guys, and calculate safe working loads and rigging methods,
9. define electrical terms, recognize appropriate symbols, identify the units of measurement for both mechanical and electrical power, and explain how to convert them,
10. list and describe various types of conductors and insulators, and properly install pin insulators, cross-arms and braces,
11. draw and label series electrical circuits and calculate total resistance, the effect of voltage on series circuits, and the effect of changing voltages and resistance of circuit current.

This course does not include assessable General Education outcomes.

Major Topic Outline:

1. All forms of fractions.
2. The structure of matter.
3. Application of slings and chokers.
4. Proper types of Personal Protective Equipment (PPE) for the conditions which are present on the job.
5. Proper ladder use on the jobsite.
6. Two-way radio use for proper communication methods and techniques.
7. Guy installation techniques.
8. Electrical units of measurement.
9. Properties of different types of rope.
10. Anchor installation.

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
:

