Experiential Learning Portfolio for 32414333 AC Electricity

Student Contact Information:

Name: _____Student ID#_____

Email: _____Phone:_____

It is highly recommended that you speak with the Academic Dean or instructor who teaches this course prior to completing a portfolio.

Directions

Consider your prior work, military, volunteer, education, training and/or other life experiences as they relate to each competency and its learning objectives. Courses with competencies that include speeches, oral presentations, or skill demonstrations may require scheduling face-to-face sessions. You can complete all of your work within this document using the same font, following the template format.

1. Complete the Student Contact Information at the top of this page.
2. Write an Introduction to the portfolio. Briefly introduce yourself to the reviewer summarizing your experiences related to this course and your future goals.
3. Complete each "Describe your learning and experience with this competency" section in the space below each competency and its criteria and learning objectives. Focus on the following:
    - What did you learn?
    - How did you learn through your experience?
    - How has that learning impacted your work and/or life?
4. Compile all required and any suggested artifacts (documents and other products that demonstrate learning).
    - Label artifacts as noted in the competency
    - Scan paper artifacts
    - Provide links to video artifacts
    - Attach all artifacts to the end of the portfolio
5. Write a Conclusion for your portfolio. Briefly summarize how you have met the competencies.
6. Proofread. Overall appearance, organization, spelling, and grammar will be considered in the review of the portfolio.
7. Complete the Learning Source Table. Provide additional information on the business and industry, military, and/or volunteer experiences, training, and/or education or other prior learning you mentioned in your narrative for each competency on the Learning Source Table at the end of the portfolio. Complete this table as completely and accurately as possible.

The portfolio review process will begin when your completed portfolio and Credit for Prior Learning Form are submitted and nonrefundable processing fees are paid to your local Credit for Prior Learning contact. Contact Student Services for additional information.

Your portfolio will usually be evaluated within two weeks during the academic year; summer months may be an exception. You will receive an e-mail notification regarding the outcome of the portfolio review from the Credit for Prior Learning contact. NOTE: Submission of a portfolio does not guarantee that credit will be awarded.

You have 6 weeks to appeal any academic decision. See your student handbook for the complete process to appeal.

To receive credit for this course, you must receive "Met" on 11 of the 14 competencies.

32414336 AC Electricity, 3 Technical Diploma Credits

Course Description: This course is an introduction to alternating current electricity as used in industry. You will study series and parallel alternating current circuits that contain inductance and capacitance, as well as, single and three phase transformers, direct current, single phase and three phase motors. PREREQUISITE: 32414335 DC Electricity.

Introduction: Briefly introduce yourself to the reviewer summarizing your experiences related to this course and your future goals.

Competency 1: Apply math principles to alternating current

Criteria: Performance will be satisfactory when:

- you explain the Pythagorean Theorem
- you identify alternating current formulas

Learning Objectives:

a. Discuss the application of math to alternating current
b. Discuss the Pythagorean theorem
c. Identify formulas

Required Artifacts: None
Suggested Artifacts: None

Describe your learning and experience with this competency:

Met/ Not Met Evaluator Feedback:

Competency 2: Examine alternating current

Criteria: Performance will be satisfactory when:

- you explain the advantages of alternating current
- you calculate power in an alternating current circuit

Learning Objectives:

a. Describe alternating current
b. Discuss the advantages of alternating current
c. Calculate power in an alternating current circuit

Required Artifacts: None
Suggested Artifacts: None

Describe your learning and experience with this competency:

Met/ Not Met Evaluator Feedback:

Competency 3: Explore semiconductors

Criteria: Performance will be satisfactory when:

- you explain semiconductor theory
- you identify semiconductors

Learning Objectives:

a. Explain semiconductor theory
b. Describe the application of semiconductors
c. Identify components made from semiconductor material

Required Artifacts: None
Suggested Artifacts: None

Describe your learning and experience with this competency:

Met/ Not Met Evaluator Feedback:

Competency 4: Examine inductance

Criteria: Performance will be satisfactory when:

- you explain inductance in a circuit
- you compute inductance in a series and parallel circuits

Learning Objectives:

a. Discuss inductance
b. Compute inductance in series
c. Compute inductance in parallel
d. Discuss reactive power
e. Discuss impedance

Required Artifacts: None
Suggested Artifacts: None

Describe your learning and experience with this competency:

Met/ Not Met Evaluator Feedback:

Competency 5: Examine capacitance

Criteria: Performance will be satisfactory when:

- you explain the three factors that determine the capacitance of capacitors
- you explain the differences between nonpolarized and polarized capacitors
- you compute the values for series and parallel connections of capacitors

Learning Objectives:

a. List the three factors that determine the capacitance of a capacitor
b. Discuss the differences between nonpolarized and polarized capacitors
c. Compute values for series and parallel connections of capacitors
d. Compute an RC time constant

Required Artifacts: None
Suggested Artifacts: None

Describe your learning and experience with this competency:

Met/ Not Met Evaluator Feedback:

Competency 6: Examine the characteristics of capacitors

Criteria: Performance will be satisfactory when:

- you explain how to identify capacitors
- you demonstrate how to discharge a capacitor

Learning Objectives:

a. Identify capacitors
b. Demonstrate the discharging of capacitors
c. Discuss discharge rates

Required Artifacts: None
Suggested Artifacts: Video demonstrating discharging of capacitors

Describe your learning and experience with this competency:

Met/ Not Met Evaluator Feedback:

Competency 7: Examine three-phase circuits

Criteria: Performance will be satisfactory when:

- you explain the differences between single phase and three-phase voltages
- you explain characteristics of delta and wye connections

Learning Objectives:

a. Discuss the differences between three-phase and single-phase voltages
b. Discuss the characteristics of delta and wye connections
c. Compute voltage and current values for delta and wye circuits

Required Artifacts: None
Suggested Artifacts: None

Describe your learning and experience with this competency:

Met/ Not Met Evaluator Feedback:

Competency 8: Examine single-phase transformers

Criteria: Performance will be satisfactory when:

- you explain how to calculate a transformers secondary voltage using the turns ratio
- you test the voltage output of different windings on a transformer
- you explain how to calculate a transformers maximum current capability
- you explain how to troubleshoot a transformer

Learning Objectives:

a. Discuss the different types of transformers
b. Calculate values of voltage for single-phase transformers using the turns ratios
c. Connect a transformer to test the output of different windings
d. Calculate the maximum output current of a transformer
e. Demonstrate troubleshooting procedures for transformers

Required Artifacts: None
Suggested Artifacts: None

Describe your learning and experience with this competency:

Met/ Not Met Evaluator Feedback:

Competency 9: Examine three-phase transformers

Criteria: Performance will be satisfactory when:

- you explain operation of three-phase transformers
- you explain how to calculate the secondary voltage of a transformer using the turns ratio
- you explain how to calculate a transformers maximum amperage output capability

Learning Objectives:

a. Discuss the operation of three-phase transformers
b. Identify three-phase transformers
c. Calculate secondary voltage using turns ratio
d. Connect a three-phase transformer
e. Calculate the transformer's maximum output amperage capacity

Required Artifacts: None
Suggested Artifacts: None

Describe your learning and experience with this competency:

Met/ Not Met Evaluator Feedback:

Competency 10: Examine direct-current generators

Criteria: Performance will be satisfactory when:

- you explain the operation of direct current generators
- you explain how to determine the amount of output voltage of a generator
- you explain how the three major types of generators are wound

Learning Objectives:

a. Discuss the operation of direct-current generators
b. List the factors that determine the amount of output voltage of a generator
c. List the three major types of direct-current generators

Required Artifacts: None
Suggested Artifacts: None

Describe your learning and experience with this competency:

Met/ Not Met Evaluator Feedback:

Competency 11: Examine direct-current motors

Criteria: Performance will be satisfactory when:

- you explain the differences between the different types of direct current motors
- you explain how to control direction and speed of a direct current motor
- you explain direct current motor operation

Learning Objectives:

a. Discuss direct-current motor operation
b. Discuss the different types of direct-current motors
c. Identify direct-current motors
d. Describe methods of controlling a direct-current motor's speed and direction

Required Artifacts: None
Suggested Artifacts: None

Describe your learning and experience with this competency:

Met/ Not Met Evaluator Feedback:

Competency 12: Examine three-phase alternators

Criteria: Performance will be satisfactory when:

- you explain the operation of three phase alternators
- you explain the effects of speed rotation on frequency
- you explain the effect of field excitation on output voltage

Learning Objectives:

a. Discuss the operation of three-phase alternators
b. Explain the effect of speed of rotation on frequency
c. Explain the effect of field excitation on output voltage

Required Artifacts: None
Suggested Artifacts: None

Describe your learning and experience with this competency:

Met/ Not Met Evaluator Feedback:

Competency 13: Examine three-phase motors

Criteria: Performance will be satisfactory when:

- you explain three-phase motor operation
- you explain the differences of three-phase motor types
- you explain how to change the rotation direction of a three-phase motor

Learning Objectives:

a. Discuss three-phase motor operation
b. List the different types of three-phase motors
c. Describe the method for changing three-phase motor rotational direction
d. Identify terminal connections for dual voltage three-phase motors

Required Artifacts: None
Suggested Artifacts: None

Describe your learning and experience with this competency:

Met/ Not Met Evaluator Feedback:

Competency 14: Examine single-phase motors

Criteria: Performance will be satisfactory when:

- you explain the operation single-phase motors
- you explain the starting techniques for single-phase motors
- you explain the operation of stepper motors

Learning Objectives:

a. Describe the different types of single-phase motors
b. Explain the different types of motor starting techniques
c. Discuss the operation of split-phase motors
d. Discuss the operation of shaded-pole motors
e. Discuss the operation of universal motors
f. Discuss the operation of stepper motors

Required Artifacts: None
Suggested Artifacts: None

Describe your learning and experience with this competency:

Met/ Not Met Evaluator Feedback:

Conclusion: **Summarize how you have met the competencies of the course.**

Learning Source Table

Learning Source (name of employer, training, military, volunteer organization, etc.)	**Supervisor**	**Start-End Date**	**Total Hours**	**Related Competencies**
Ex: XYZ Corporation	Bucky Badger	8/2012-9/2014	2000	#1, 2, 3, and 7