

## COURSE SYLLABUS

<b>LAST REVIEW</b>	Fall 2022
<b>COURSE TITLE</b>	Electrical Circuits, Instruments and Measurements
<b>COURSE NUMBER</b>	ELET 0232
<b>DIVISION</b>	Career and Technical Education
<b>DEPARTMENT</b>	ELET
<b>CIP CODE</b>	46.0302
<b>CREDIT HOURS</b>	2
<b>CONTACT HOURS/WEEK</b>	Class: 2      Lab: X
<b>PREREQUISITES</b>	ELET 0100 Safety ELET 0101 Electromechanical Systems

### COURSE DESCRIPTION

This course introduces electrical symbols and their use in construction blueprints, electrical schematics, and diagrams. Topics include electrical symbols, component identification, print reading, scales and measurement.

### PROGRAM ALIGNMENT

This course is part of a program aligned through the Kansas Board of Regents and Technical Education Authority. For more information, please visit:

[https://kansasregents.org/workforce\\_development/program-alignment](https://kansasregents.org/workforce_development/program-alignment)

### PROGRAM LEARNING OUTCOMES

1. The Student will be able to identify workplace safety issues in accordance with OSHA standards.
2. Upon successful completion of this course, the student should be able to identify the job skills necessary to have a successful career in the Electrical Profession.
3. Inspect electrical circuit connections in accordance with the N.E.C. standards of compliance.

### TEXTBOOKS

<http://kckccbookstore.com/>

### METHOD OF INSTRUCTION

A variety of instructional methods may be used depending on content area. These include but are not limited to lecture, multimedia, cooperative/collaborative learning, labs and demonstrations, projects and presentations, speeches, debates, panels,

conferencing, performances, and learning experiences outside the classroom. Methodology will be selected to best meet student needs.

## **COURSE OUTLINE**

- I. Identify electrical symbols
- II. Match symbols to electrical components
- III. Interpret electrical plans for a single-family residence
- IV. Develop an electrical plan for a single-family residence
- V. Component Identification
- VI. Develop a panel schedule from an electrical plan
- VII. Develop a schedule of special purpose outlets for a residence from an electrical plan
- VIII. Read residential floor plan diagrams
- IX. Identify major framing components and mechanical symbols
- X. Write specifications for a residence from an electrical plan
- XI. Calculate the size of a residential service based on load
- XII. Compile a list of materials from electrical plans
- XIII. Understand job costing, bidding procedures and inventory

## **COURSE LEARNING OUTCOMES AND COMPETENCIES**

Upon successful completion of this course, the student will:

- A. Identify electric symbols.
  1. Explain the function of each symbol.
  2. Draw the symbols.
- B. Match symbols to electrical components.
  3. Identify component with each electrical symbol.
- C. Interpret electrical plans for a single-family residence.
  4. Explain design of a single-family home.
  5. Determine square footage.
- D. Develop an electrical plan for a single-family residence.
  6. Draw an electrical plan for single family home.
  7. Determine service load.
- E. Develop a panel schedule from an electrical plan.
  8. Size the load for panel schedule.
  9. Determine by formula how many panels.
- F. Develop a schedule of special purpose outlets for a residence from an electrical plan.

10. Determine how many emergency outlets.
  11. Look at the blueprints for special purpose outlets.
- G. Read residential floor plan diagrams.
12. Analyze how many switches.
  13. Determine how many light fixtures.
  14. Determine how many appliances.
- H. Identify major framing components and mechanical symbols.
15. Explain symbols for plumbing.
  16. Explain symbols for duct work.
  17. Explain symbols for framework.
- I. Write specifications for a residence from an electrical plan.
18. Determine how many lights.
  19. Determine power requirements.
  20. Determine types of switches.
  21. Determine low voltage requirements.
- J. Compile a list of materials from electrical plans.
22. Determine how much wire.
  23. Determine how many junction boxes.
  24. Determine panel boards.
  25. Determine lighting fixtures.
  26. Determine how many receptacles.
  27. Determine how many switches.
  28. Determine low voltage transformers.
- K. Understand job costing and bidding procedures.
29. Determine cost from previous work.
  30. Determine cost of material using formula.
  31. Determine cost based on demand.
  32. Determine a bid based on previous jobs.

### **ASSESSMENT OF COURSE LEARNING OUTCOMES AND COMPETENCIES**

Student progress is evaluated through both formative and summative assessment methods. Specific details may be found in the instructor's course information document.

### **COLLEGE POLICIES AND PROCEDURES**

*Student Handbook*

<https://www.kckcc.edu/files/docs/student-resources/student-handbook-and-code-of-conduct.pdf>

*College Catalog*

<https://www.kckcc.edu/academics/catalog/index.html>

*College Policies and Statements*

<https://www.kckcc.edu/about/policies-statements/index.html>

*Accessibility and Accommodations*

<https://www.kckcc.edu/academics/resources/student-accessibility-support-services/index.html>.