

# **ELECTRICITY**

## **3 or 4 Member Team**

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### **IMPORTANT NOTE**

*Please read thoroughly the General CDE Rules Section at the beginning of this handbook for complete rules and procedures relevant to State FFA Career Development Events.*

#### **I. PURPOSE**

The Oklahoma State Electricity CDE shall reflect the agricultural mechanics instruction provided to contestants in Oklahoma secondary agricultural education departments. The written exam, problem solving activity, and skills activities will assess the contestant's knowledge of electricity competencies.

#### **II. EVENT RULES**

- A. Team scores will be calculated using the highest three individual scores from the designated team. Only registered team contestants will compete for team awards.
- B. Cellular phones are not allowed in the event. If a CDE facilitator identifies a cell phone, that student is disqualified from the event.
- C. Any contestant that is deemed unsafe to themselves or to the other contestants will be disqualified from the event and their school will not be allowed to participate in the event the following year.
- D. The schools will be informed of the location of each event upon check-in. It is the student's responsibility to ensure they are at the proper location at the appropriate time.

#### **III. EVENT FORMAT**

##### **A. Team Makeup**

1. Chapters may register one team consisting of three to four members and up to two individuals for the event.
2. All registered contestants will compete for individual awards.
3. Each individual will compete in three activities: a written exam with problem solving and two (2) skill activities. The test/problem solving will be limited to the skill activities for the event. One skill will be developed from the performance objectives listed below. The second skill will consist of electrical wiring equipment and component identification.

##### **B. Safety and Equipment**

1. Materials and Equipment Provided by Contestants  
*Each event contestant must adhere to the safe practices and appropriate work habits when performing required activities. Contestants are responsible and must provide all personal safety equipment including:*
  - a. Eye protection with clear lenses.
  - b. Wire strippers
  - c. Standard screwdriver
  - d. Phillips screwdriver
  - e. Needlenose pliers

- f. Linesman's or slip joint pliers
- g. Two number 2 pencils
- 2. Any additional personal protection equipment that is appropriate for the activity.

**C. Content**

- 1. Written Examination (100 Points)
  - a. Examination will be composed of 20 items, worth 5 points each.
  - b. Examination questions will be developed primarily from the following areas:
    - i. National Electrical Code
    - ii. Planning an electrical circuit
    - iii. Selecting type and size of conductor
    - iv. Calculating voltage drop
    - v. Determining electrical power requirements
    - vi. Identifying the function of over-current and ground-fault protection.
    - vii. Applying Ohm's Law and other application laws.
- 2. Practicum (100 Points)
  - a. Contestants will perform a practicum demonstrating one of the following skills.
    - i. Wiring 120/240 volt service entrances.
    - ii. Wiring switches and light fixtures.
    - iii. Wiring duplex receptacles, standard, and switched.
    - iv. Instilling electrical circuits and devices.
  - b. Non-metallic cable (Type NM) will be used for all wiring.**
- 3. Identification (99 Points)
  - a. Contestants will identify 33 tools, supplies and other equipment associated with electrical wiring.
  - b. Each correctly identified item will be worth 3 points.

**IV. SCORING**

The team score is the composite of the three highest individuals.

Written Examination.....	100 points
Practicum .....	100 points
Identification .....	99 points
<b>Total Points</b>	
Individual.....	299 points
Team.....	897 points

**V. TIE BREAKERS**

Individual ties will be broken based on the following criteria in the order they are listed:

- 1) Examination score
- 2) Identification score
- 3) Practicum score

Team ties will be broken based on the following criteria in the order they are listed:

- 1) Total team examination score

- 2) Total team identification score
- 3) Total team practicum score
- 4) High individuals

## VI. REFERENCES

- Curriculum and Instruction Center. (2009). Agriculture career development:
- *Comprehensive agricultural mechanics*. Stillwater, OK: CIMC
- American Association for Vocational Instructional Materials. (n.d.). *Understanding electricity and electrical terms*. Winterville, Georgia: AAVIM
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  - Winterville, Georgia: AAVIM
  - AAVIM Contact Information  
Phone: (706) 742-5355
  - Address: 220 Smithonia Road, Winterville, Georgia
- James, A. (n.d.). *Basic electricity and practical wiring*. Minneapolis, MN: Hobar Publications
- Hobar Publications Contact Information Website:  
[www.finney-hobar.com](http://www.finney-hobar.com)
  - Address: 3943 Meadowbrook Road, Minneapolis, MN 55426
- Bern, O. (2002). *Electricity for agricultural applications*. Ames, Iowa: Iowa State Press.
  - Retrieved from [www.iowastatepress.com](http://www.iowastatepress.com)
- Richter, H. (2002). *Practical electrical wiring: Residential, farm, and industrial*.
  - Manhattan, KS: Park Publishing

## VII. Supplemental Materials

Rubric and ID List  
Scansheet