

**GENERAL INFORMATION PAGE**  
**for**  
**Agricultural Mechanics Career Development Events**

Sponsored by:  
Department of Biosystems and Agricultural Engineering  
Oklahoma State University  
Division of Agricultural Sciences and Natural Resources

Please read this general information below before proceeding to the specific contest guidelines found on page 3 of this document.

**Contest Coordinators**

Dr. Harry Field  
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**Contest Details:**

Date: Saturday, April 25, 2009  
Time: 7:00 to 7:45 AM (Registration)  
Location: East side of Agricultural Engineering Laboratory building (Cleveland & Hall of Fame)

**Contest Purpose, Objectives, Rules and Guidelines**

All schools may register 1 to 4 students per event. If only 1 or 2 students are entered in a CDE, they will count and compete for individual awards only. If 3 or 4 students are entered, they will count as a team and compete for both individual and team awards. A school may only register one team per CDE or one or two individuals, not both a team and individual(s).

The schools will be informed of the location for each event at registration. It is the students' responsibility to insure that they are at the proper location at the appropriate time.

**Content:**

The BIOEN Interscholastics will consist of 3 CDE's and the National Qualifying event. The three CDE's are Farm Shop, Electricity, and Soil and Water Conservation. Each CDE will contain three parts—Written Test with Problem Solving, and two skill activities.

**Organization:**

Registration will commence at 7:00 and conclude at 7:45 the day of the event at the east side of the Agricultural Engineering Laboratory building. At 8:00 the skill section of the events will start. The written test/problem solving and skill activities will be completed within the one-hour time block. The students will enter each CDE on a first come first serve basis.

Those individuals and teams entered in the NQ CDE will be required to complete all parts of the other three CDE's.

**Safety and Equipment**

Each participant will BRING AND WEAR his/her own industrial quality eye protection (Z87-89) (with clear lenses) and any other appropriate personal protection devices including, but not limited to, long sleeves, gloves, and pliers. Check the individual CDE information pages for specific requirements.

Any participant not meeting these safety requirements will not be allowed to participate.

Any participant deemed to be a danger to themselves, others, or equipment will be escorted out of the CDE area and will receive a zero (0) score for that activity.

**Disqualification**

Teachers, parents and all other non-participating individuals will not be allowed in the room or the immediate area of any CDE activity. Failure to follow this guideline will result in disqualification of the team or individuals entered.

Teachers are invited and encouraged to review the activities after the event. A CDE official will remain at the site for 30 minutes after the last participant has finished.

**Awards**

The top five teams and top five individuals in each CDE will be presented a certificate. Participants in the NQC CDE are not eligible for consideration for individual or team awards in any of the other three (3) CDE areas. All four CDE's will count toward the Sweepstakes Trophy.

**Additional Information**

For additional information, teachers may request an information packet that will include sample tests and skill sheets from previous year(s) for each CDE by contacting Dr. Harry Field by phone at 405.744.8424, mail at 113 Ag Hall, OSU, Stillwater OK, 74078-6016, email at: fharry@okstate.

# ELECTRICITY CDE

Sponsored by:  
Department of Biosystems and Agricultural Engineering  
Oklahoma State University  
Division of Agricultural Sciences and Natural Resources

## **Contest Superintendents**

Dr. Carol Jones  
212 Ag Hall  
(405)744-6667  
[jcarol@okstate.edu](mailto:jcarol@okstate.edu)

## **Contest Details**

**Date:** Saturday, April 25, 2009  
**Time:** Registration: 7:00 a.m.  
**Location:** Ag. Engr. Lab (Cleveland & Hall of Fame), OSU

## **Registration:**

All schools may register 1 to 4 students. If only 1 or 2 students are entered in the electricity CDE, they will count and compete for individual awards only. If 3 or 4 students are entered, they will count as a team and compete for both individual and team awards. A school may only register one team per CDE or one or two individuals.

The location will be identified for each event at registration. It is the student's responsibility to be at the proper location at the appropriate time.

## **Organization**

Each participant will complete in three activities; a written test 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.

The three activities will be completed within one (1) hour.

## **Safety and Equipment**

Participants must provide eye protection, with clear lenses, and any additional personal protection equipment that is appropriate for the activity.

Students deemed to be a danger to themselves, others, or shop equipment will be escorted from the area and will receive a zero (0) score for that activity.

## **Content**

The following is a list of the subject matter statements with specific information, knowledge, and skills identified for each unit. Examination questions (written exam) will be developed primarily from the objectives of **UNDERSTANDING**, as listed below. **PERFORMANCE** will define the "hands-on" skills competition.

1. ELECTRICAL CIRCUITS
  - 1.1 UNDERSTANDING
    - 1.1.1 National Electrical Code.

- 1.1.2 Planning an electrical circuit.
  - 1.1.3 Selecting type and size of conductor.
  - 1.1.4 Calculating voltage drop.
  - 1.1.5 Determining electrical power requirements.
  - 1.1.6 Identifying the function of over-current and ground-fault protection.
  - 1.1.7 Applying Ohm's Law and other application laws.
- 1.2 PERFORMANCE
- 1.2.1 Wiring 120/240 volt service entrances.
  - 1.2.2 Wiring switches and light fixtures.
  - 1.2.3 Wiring duplex receptacles, standard and switched.
  - 1.2.4 Installing electrical circuits and devices.

**NOTE: Non-metallic cable (Type NM) will be used for all wiring**

## **REFERENCES**

Understanding Electricity and Electrical Terms, American Association for Vocational Instructional Materials, 220 Smithonia Road, Winterville, GA 30683, (706) 742-5355, Fax: (706) 742-7005

Basic Electricity and Practical Wiring, Hobar Publications, 3943 Meadowbrook Road, Minneapolis, MN 55426, [www.finney-hobar.com](http://www.finney-hobar.com)

Electrical Wiring, American Association for Vocational Instructional Materials, 220 Smithonia Road, Winterville, GA 30683, (706) 742-5355, Fax: (706) 742-7005

Home Electrical Repair, American Association for Vocational Instructional Materials, 220 Smithonia Road, Winterville, GA 30683, (706) 742-5355, Fax: (706) 742-7005

Practical Electrical Wiring; Residential; Farm, and Industrial - Richter and Hartwell: 2002 - Park Publishing.

Electricity for Agricultural Applications - Bern and Olson: 2002 - Iowa State Press, [www.iowastatepress.com](http://www.iowastatepress.com)