

Illinois Association of Vocational Agriculture Teachers Agricultural Mechanics CDE

Contest Superintendent - John Heiser, Putnam County

Assistant Contest Superintendent - Gary Ochs

IAVAT CDE Committee Member - TBA

Host - Larry Thurow, Parkland College Ag Mechanics Professor Emeritus

Todd Horton, Parkland College Construction Associate Professor

James Mansfield, Parkland College Department Chair

A. General Information

1. **Participation:** Each sectional chairman should submit the names of the sectional winners immediately after the event and prior to the preregistration deadline to the IAVAT Executive Director, 3221 Northfield Drive, Springfield, IL 62702.

a. Team:

- This Career Development Event is restricted to the winning team or alternate team of each sectional Agricultural Mechanics Career Development Event, plus the first place individuals in each section who are not on the section winning team. However, no school may have more than one (1) member compete in any single phase of the Agricultural Mechanics Career Development Event.
- Each team shall consist of five members. Each five-member team has a different participant in each of the five phases of the CDE.
- Each section with a participating team will be required to furnish two adult helpers for the event. One helper would normally be the coach of the team and the other a qualified volunteer helper from the section.
- There will be a 90-minute maximum time limit per participant for each phase of the event.
- Teachers and helpers shall bring and wear safety glasses where designated by the superintendent.

b. Individual:

- This Career Development Event is restricted to the first place individuals in each section who are not on the section winning team, plus the winning team or alternate team of each sectional Agricultural Mechanics Career Development Event. However, no school may have more than one (1) member compete in any single phase of the Agricultural Mechanics CDE.
- Individuals participate for individual awards only.

2. Placings/Scoring:

- a. Each phase superintendent will oversee the scoring of their phase.
- b. Agriculture teachers score the exams, exercises and tests as they become available.

3. Miscellaneous:

- a. Participants may use non-programmable (will not store formulas), battery operated calculators if provided by the participant.
- b. Calculators may not be shared.

- c. Individual ties in the Agriculture Mechanics Career Development Event will be broken as follows:

Ag Power

- 1st Tie Breaker - Analysis of engine and performance
2nd Tie Breaker - Identification of gasoline tractor parts and small engine parts and tools
3rd Tie Breaker - Safety inspection and condition of a tractor or small engine
4th Tie Breaker - Written examination

Welding

- 1st Tie Breaker - Cutting / oxyacetylene exercises
2nd Tie Breaker - Arc Welds
3rd Tie Breaker - MIG welds
4th Tie Breaker - Written examination

Surveying

- 1st Tie Breaker - Land measurement exercise
2nd Tie Breaker - Interpreting leveling exercise notes
3rd Tie Breaker - Recording leveling exercise notes and computing evaluations of leveling exercise
4th Tie Breaker - Written examination and nomenclature

Electricity

- 1st Tie Breaker - Wiring exercise
2nd Tie Breaker - Diagramming circuits
3rd Tie Breaker - Materials identification
4th Tie Breaker - Written examination

Carpentry

- 1st Tie Breaker - Marking and calculating a rafter, brace, and/or truss problem
2nd Tie Breaker - Preparing a bill of materials
3rd Tie Breaker - Measuring, squaring, and sawing a board
4th Tie Breaker - Identification of hardware items, such as nails, bolts, screws, hinges, nuts, & washers
5th Tie Breaker - Identification of parts of a building
6th Tie Breaker - Written exam

5. Additional Information:

- a. Refer to the current year's "*Annual Information and General Rules*" section for information concerning **Entry Fees, Registration and Event Location**.
- b. ***Effective 2009-10 all participants in the Agricultural Mechanics CDE must present a completed "Agricultural Mechanics CDE - Waiver, Release of Liability, Consent to Medical Attention, Authorizations, and Certifications" form when they check-in at the event site.***

6. Preregistration is required:

- a. Each agriculture teacher with either a participant or a team in the Ag Mechanics Career Development Event must pre-register their student(s) in advance of the announced deadline to the IAVAT office.

B. Career Development Event Divisions**1. Agriculture Power Phase**

The agriculture power phase will include:	<u>Scoring</u>
Safety inspection and condition of a tractor or small engine.....	25 points
Analysis of engine and performance.....	25 points
Identification of tractor parts and small engine parts and tools.....	25 points
Written examination (based on listed references).....	25 points

The following item must be furnished by the participants in the Ag Power Phase:

- 1) **Safety glasses.** These safety glasses should be marked for easy identification in case they are misplaced. Safety glasses **must be worn** during the entire Agricultural Power phase except while taking the written examination.

2. Carpentry Phase

The carpentry phase will include:	<u>Scoring</u>
Identification of hardware items, such as nails, bolts, screws, hinges, nuts, & washers (Participants may use only a folding rule or flexible steel tape).	15 points
Identification of parts of a building.....	15 points
Preparing a bill of materials (Buying list and cutting list).....	15 points
Measuring, squaring, and power sawing a board.....	15 points
Calculating a rafter, brace and/or truss problem.....	15 points
Written examination (based on listed references).....	25 points

The following items must be furnished by the participants in the Carpentry Phase:

- 1) Carpenter's square;
- 2) Pencil;
- 3) Folding rule or flexible steel tape;
- 4) **Two sawhorses;**
- 5) **Safety glasses.** All items should be marked for easy identification. Safety glasses **must be worn** during the entire Carpentry Phase except while taking the written examination.

All items should be marked for easy identification.

3. Electricity Phase

The electricity phase will include:	<u>Scoring</u>
Diagramming circuits.....	15 points
Wiring exercise.....	40 points
Materials identification.....	15 points
Written examination (based on listed references).....	30 points

The following items must be furnished by the participants in the Electricity Phase:

- 1) Electricians side-cutting pliers
- 2) Diagonal cutting pliers
- 3) Cable rippers; 4) Electrical screwdriver
- 4) Long-nose pliers; and
- 5) **Safety glasses.** Safety glasses **must be worn** during the entire Electricity Phase except while taking the written examination.

All items should be marked for easy identification.

4. **Surveying Phase**

The surveying phase will include:

	<u>Scoring</u>
Written examination (based on listed references).....	25 points
Recording leveling exercise notes and computing evaluations of leveling exercise.....	25 points
Interpreting leveling exercise notes.....	25 points
Land measurement exercise.....	25 points

Everything will be furnished for this event phase; no safety glasses will be required. Participants will be provided and allowed to select a Dumpy Level, Builder’s level or Laser Level to use in completing a the “*Recording leveling exercise notes and computing evaluations of leveling exercise*” portion of the event.

5. **Welding Phase**

The welding phase may include metal-arc welding, *metal inert-gas (MIG) welding*, oxyacetylene brazing, and oxyacetylene cutting. It may include welds in different positions, with different thickness of metal and different welding rods.

	<u>Scoring</u>
Welding exercises (including neatness and workmanship).....	80 points
Written examination (including safety) (based on listed references).....	20 points

The following **MUST** be furnished and worn by the participants in order to participate in the Welding Phase of the event:

- 1) **Safety glasses or goggles;**
- 2) Arc welding hood (helmet);
- 3) Welding gloves;
- 4) Oxyacetylene goggles;
- 5) Wire brush;
- 6) Chipping hammer;
- 7) Pliers or tongs to handle hot metal;
- 8) Suitable clothing for welding (non-insulated coveralls, leather high top shoes **no tennis shoes or jogging shoes**) as stated in VAS Unit 3022a.

All items should be marked for easy identification.

NOTE: A participant will be **disqualified immediately for laying down a lighted torch**. A participant will also be **disqualified immediately for welding without suitable eye protection**, which includes safety glasses under the welding hood. All persons in the welding area shall wear safety glasses. At any time, the superintendent may check tools, equipment and clothing at their discretion.

Penalties and point deductions will be made as follows:

Immediate Disqualification
Welding or cutting with no safety glasses
Laying down a lit torch
Wearing just a Tee shirt
5 points will be deducted for each of the following
Footwear that does not cover the ankles
Tennis shoes or open toed shoes
Holes in pants
Frayed seams on pants
Welding or cutting without gloves (5 points deducted per occurrence)

A superintendent shall have the right to disqualify any participant for improper clothing or equipment should the clothing or equipment be determined a hazard to the safety of

any individual in the CDE area. **No persons may enter the Welding Laboratory with matches, liquid-fuel lighters, or butane lighters in their possession.**

C. Suggested References

Primary References:

Ag Mechanics, Fundamentals and Applications (5th Edition) -2005, by Dr. Ray V. Herron; Cengage Learning, Inc., P.O. Box 6904, Florence, KY 41022-6904

Basic Electricity and Practical Wiring - 1998, by Harry Hoener; AAVIM, 220 Smithonia Road, Winterville, GA 30683

Welding: Principles and Applications (5th Edition) - 2004, by Larry Jeffus; Cengage Learning, Inc., P.O. Box 6904, Florence, KY 41022-6904

VAS Units - ITCS Instructional Materials - University of Illinois, 1401 South Maryland Drive, Urbana, IL 61801

U3022a Safety in the Shop

U3014 Small Engines - Principles of Operation, Trouble Shooting, and Tune-Up

U3009a Using the Carpenter's Square,

U3051a Planning a Construction Project,

U3055 Lumber: Grading, Selecting, Buying, Using, and Storing,

U3003c Planning for Electrical Wiring,

U3016a Electrical Wiring Procedures,

Z3016b Electrical Wiring Exercises,

U3001a Oxyacetylene Welding and Cutting

U3004a Shielded Metal-Arc Welding

U3037 Metal Inert Gas (MIG) Welding,

Secondary References:

Small Gas Engine Fundamentals (9th Edition) - 2008, by Alfred C. Roth;

Goodheart-Willcox Publisher, 18604 West Creek Drive, Tinley Park, IL 60477-6243

Modern Carpentry (11th Edition) - 2008, Willis H. Wagner and Howard Bud Smith;

Goodheart-Willcox Publisher, 18604 West Creek Drive, Tinley Park, IL 60477-6243

Electrical Wiring Residential (16th Edition) - 2008, by Ray Mullin; ; Cengage Learning, Inc., P.O. Box 6904, Florence, KY 41022-6904

VAS Units - ITCS Instructional Materials - University of Illinois, 1401 South Maryland Drive, Urbana, IL 61801

U3019 Small Engines - Repair and Overhaul

U3020 The Two Cycle Engine

U3023 Micrometers and Related Measuring Tools

U3012a Electrical Hazards in Home, Farm and Business

U3038 Using Three-Phase Electrical Power on the Farm

U3058 Selecting Electric Motors for Use in Agriculture

U3059 Installing and Caring for Electric Motors in Agriculture

U3036 Tungsten Inert Gas (TIG) Welding,

U3041 Ferrous Metals - Properties, Identification and Treatment

U3010B Surveying in Agriculture

U2042 Land Surveys and Descriptions

MDS 340 Hand Tool Identification

MDS 320 Hardware and Fastener Identification

Catalog of instructional materials is available from ITCS Instructional Materials, University of Illinois at Urbana-Champaign, 1401 S. Maryland Dr., Urbana, IL 61801. (800) 345-6087 FAX (217) 333-3917 or available on the World Wide Web <http://im.itcs.illinois.edu/>.

AGRICULTURAL MECHANICS CAREER DEVELOPMENT EVENT

Waiver, Release of Liability, Consent to Medical Attention, Authorizations, and Certifications

In exchange for my being allowed to participate in the Agricultural Mechanics Career Development Event program, a program administered by the Illinois Association of Vocational Agriculture Teachers ("IAVAT"), I, and if I am not 21 years old, my parent or guardian (individually and collectively referred to below in the first person singular) agree to be bound by the following:

1. Voluntary Participation. I understand and confirm that my participation in the Program is voluntary.
2. Identification of Risks. I understand that IAVAT and its representatives may not be present during my participation in the Program. I understand my participation in the Program may involve risk of injury and loss, both to person and to property. I also understand that the risk of injury may include the possibility of permanent disability and death.
3. Assumption of Risk. I understand that dangerous conditions can and do exist at the Program. I understand and affirm that I am aware of the injury or death that I and any other participant may encounter. I assume all risks, known and unknown, foreseeable and unforeseeable, in any way connected with my participation in the Program. I accept personal responsibility for any liability, injury, loss or damage in any way connected with my participation in the Program.
4. Release and Waiver. I release IAVAT and its directors, officers, employees, agents, volunteers, successors, and assigns from any and all liability for and waive any for injury, loss, or damage, including attorneys' fees, in any way connected with my participation in the Program whether or not caused in the whole or part by the negligence (but not the gross negligence) of IAVAT or any of the individuals mentioned above.
5. Consent to Medical Treatment. I authorize IAVAT to provide to me, through medical personnel of its choice, customary medical assistance, transportation, and emergency medical services. This consent does not impose a duty upon IAVAT to provide such assistance, transportation, or services.
6. Publication. I authorize IAVAT to use my name, photo, materials produced for the program, or presentation in program for IAVAT materials, in any way not limited to, educational resources, press releases, web-based publicity, & other publicity materials.
7. Severability. Each term and provision of the instrument shall be valid and enforced separately to the fullest extent permitted by law.
8. Applicable Law. This instrument shall be governed, construed, and enforced in accordance with the law of the State of Illinois.
9. Acceptance. I agree that I am freely and voluntarily signing this waiver and I agree to have no other person with me during the Program who has signed this release of liability.

THIS IS A WAIVER AND RELEASE OF LIABILITY. I HAVE READ THIS WAIVER, RELEASE OF LIABILITY AND CONSENT. I UNDERSTAND THAT I HAVE GIVEN UP SUBSTANTIAL RIGHTS BY SIGNING IT. I AM SIGNING THIS WAIVER, RELEASE OF LIABILITY AND CONSENT VOLUNTARILY.

Participant's certification of eligibility and original effort, and authorization to use materials:

1. I hereby certify that I meet all eligibility requirements for participation in the above cited Career Development Event for the current year, set forth in the "2009-10 Illinois CDE Handbook."

Participant: _____
Printed Name Signature Date

If the person participating in the program is not yet 21 years old, both parents or the legal guardian(s) must sign:

In exchange for my/our child or ward being allowed to participate in the Program, and as the parent(s) or legal guardian(s) of the above-named individual, I/we verify that I/we fully understand, agree to, and accept all provisions of this Waiver, Release of Liability, and Consent.

Guardian: _____
Printed Name Signature Date

Guardian: _____
Printed Name Signature Date

Insurance Company: _____ Policy Number: _____

Witness: _____
Printed Name Signature Date

Administrator: _____
Printed Name Signature Date

Daytime Emergency Contact Information: Primary Telephone # _____
 Secondary Telephone # _____

Agricultural Power Scorecard

Section Number: _____

School: _____

Name: _____

- Part A. Written Examination (25 points) _____
- Part B. Identification (25 points) _____
- Part C. Condition and safety of Tractor/Small Gas Engine (25 points) _____
- Part D. Engine Analysis (25 points) _____
- Total Score** (100 points) _____

Carpentry Scorecard

Section Number: _____

School: _____

Name: _____

- Part A. Written Examination (25 points) _____
- Part B. Identification of Parts of a Building (15 points) _____
- Part C. Identification of Hardware Items (15 points) _____
- Part D. Preparing a Bill of materials (15 points) _____
- Part E. Measuring, Squaring and Sawing a Board (15 points) _____
- Part F. Marking a Rafter or Brace (15 points) _____
- Total Score** (100 points) _____

Electricity Scorecard

Section Number: _____

School: _____

Name: _____

- Part A. Written Examination (30 points) _____
- Part B. Materials Identification (15 points) _____
- Part C. Diagramming (15 points) _____
- Part D. Wiring Exercise (40 points) _____
- Total Score** (100 points) _____

Surveying Scorecard

Section Number: _____

School: _____

Name: _____

Part A. Written Examination (25 points) _____

Part B. Recording leveling notes and leveling exercise (25 points) _____

Part C. Interpreting leveling notes (25 points) _____

Part D. Land measurement (25 points) _____

Total Score (100 points) _____

Welding Scorecard

Section Number: _____

School: _____

Name: _____

Part A. Written Examination (20 points) _____

Part B. _____ Weld (20 points) _____

Part C. _____ Weld (20 points) _____

Part D. _____ Weld (20 points) _____

Part E. Oxyacetylene Cutting Exercise (20 points) _____

Total Score (100 points) _____