



**ND FFA Association**

**INTERMEDIATE  
AGRICULTURAL  
TECHNOLOGY &  
MECHANICAL SYSTEMS**

**CDE Handbook**

## Purpose

The Intermediate Agricultural Technology and Mechanical Systems CDE is comprised of technical content and practical hands-on skills.

## Objectives

The Intermediate Agricultural Technology & Mechanical Systems event provides the opportunity for the participant to:

1. Master the identification and uses of various tools common in the mechanical industry;
2. Show basic skill levels in carpentry and welding; and
3. Demonstrate knowledge of plan reading.

## Rules

1. Each chapter may enter one participant who has just completed the ninth or tenth grade. The student may not have entered this event before – a member may only compete in this event once. An individual may only participate in one Agriculture Mechanics event each year;
2. The event will be held in cooperation with Agricultural Systems Management department at North Dakota State University;
3. Participants will be furnished with all necessary tools and materials;
4. Each participant must furnish their own safety glasses, coveralls/shop coat and welding gloves;
5. Personal eye protection and other safety precautions are a must during all phases of shop work. (proper hair protection, no neckties, appropriate shoes, etc...);
6. Official dress is not required for this event. However official dress must be worn for awards;
7. All portions of this CDE will take place on ONE day. (The written test will not be held in the evening);
8. A maximum of 45 minutes will be allowed per practicum rotation, including the written test; and
9. Reference guide for technical information on themes and tool identification: Agricultural Technical Systems and Mechanics, 2<sup>nd</sup> Edition © 2019, ISBN: 978-0-8269-3680-6 or the 1<sup>st</sup> Edition.

## Format

1. Written Test – 100 points: 100 questions, 1 point/question;
2. Tool Fitting, Maintenance, Identification, and Operation. Power tools will be emphasized – 50 items 50 points, 1 point per item;

Power Equipment	Tool Knowledge	Tool Fitting
Routers & Bits	Belt Speeds	Screw Drivers
Saws & Blades	Horsepower	Twist drills
Grinders & Wheels	Amps & Watts	Cold Chisels & Punches
Drills & Bits	Nameplate Data	Wood Chisels & Plane Irons
Sanders	Adjustment	Spade & Auger Bits

3. Carpentry (Plywood Layout) – Woodworking projects of a sophomore level may be constructed, interpreted, or drawn. 50 Points – View Rubric;
4. Bill of Materials – Prepare, interpret, and identify common types and kinds of materials and hardware. Prices and amounts included. 50 points: 25 questions, 2 point/question;
5. Arc Welding (Actual) – Select heat ranges, electrodes, and do butt, lap, and tee welds in flat positions. 50 points – View Rubric; and
6. Welding Questions: 30 points: 10 questions, 3 points/question.

## Scoring

Activity	Points
Written Test	100
Tool Fitting	50
Carpentry (Plywood Layout)	50
Bill of Materials	50
Arc Welding (Actual)	50
Welding Questions	30
Maximum Points	330

## Awards

1. Individual scores will be tabulated and ranked gold, silver or bronze;
2. Gold individuals will receive gold medals and power tool awards as provided by sponsors; and
3. The high individual receives the "Baby Bison" trophy, a \$250 stipend, and possession of the high individual traveling trophy.