

# Agricultural Machinery Technology

\*This exam is in pilot status for the 20-21 school year. No certificate is available.

EXAM INFORMATION	DESCRIPTION																
<p><b>Exam Number</b> 114</p> <p><b>Items</b> 25</p> <p><b>Points</b> 30</p> <p><b>Prerequisites</b> AGRICULTURAL SYSTEMS TECHNOLOGY I AGRICULTURAL SYSTEMS TECHNOLOGY II</p> <p><b>Recommended Course Length</b> ONE YEAR</p> <p><b>National Career Cluster</b> AGRICULTURE, FOOD, &amp; NATURAL RESOURCES</p> <p><b>Performance Standards</b> INCLUDED (OPTIONAL)</p> <p><b>Certificate Available</b> No</p>	<p>This capstone course is a part of a pathway sequence of courses in agricultural mechanics. This course prepares individuals for employment in careers that repair, maintain, or restore agricultural machinery and equipment. Because of the rigorous nature of this hands-on course, it is recommended that enrollment not exceed 15 students.</p> <p><b>EXAM BLUEPRINT</b></p> <table border="1"> <thead> <tr> <th>STANDARD</th> <th>PERCENTAGE OF EXAM</th> </tr> </thead> <tbody> <tr> <td>1. Personal and Leadership Development</td> <td>23%</td> </tr> <tr> <td>2. Supervised Agricultural Experience</td> <td>7%</td> </tr> <tr> <td>3. Agricultural Machinery/Equipment Safety</td> <td>13%</td> </tr> <tr> <td>4. Safety</td> <td>13%</td> </tr> <tr> <td>5. Autonomous Systems and Technology</td> <td>11%</td> </tr> <tr> <td>6. Plan Development for Repairing/ Maintaining/Restoring</td> <td>20%</td> </tr> <tr> <td>7. Repair/ Maintain/ Restore Agricultural Machinery/ Equipment</td> <td>3%</td> </tr> </tbody> </table>	STANDARD	PERCENTAGE OF EXAM	1. Personal and Leadership Development	23%	2. Supervised Agricultural Experience	7%	3. Agricultural Machinery/Equipment Safety	13%	4. Safety	13%	5. Autonomous Systems and Technology	11%	6. Plan Development for Repairing/ Maintaining/Restoring	20%	7. Repair/ Maintain/ Restore Agricultural Machinery/ Equipment	3%
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## STANDARD 1

*Students will understand the importance of workplace skills and will implement and practice these skills in the classroom, laboratory, and work-based experiences.*

- Objective 1** Use communication skills to effectively interact with others.
1. Understand when it is appropriate to listen and to speak.
  2. Understand and follow verbal and written instructions for classroom and laboratory activities
  3. Reflect on assigned work and then communicate progress relative to completion.
- Objective 2** Effectively use teamwork to respectfully work with others.
1. Work with a team to complete assignments and projects.
- Objective 3** Use the critical thinking and problem-solving skills; reason, analyze, reflect, evaluate, and interpret.
1. Use generally accepted industry standards to analyze, evaluate, troubleshoot and diagnose the challenges associated with a specific repair, maintenance, or restoration project.
- Objective 4** Be dependable, reliable, steady, trustworthy, and consistent in performance and behavior.
1. Set and meet goals on attendance and punctuality.
  2. Prioritize, plan, and manage work to complete assignments and projects on time.
- Objective 5** Be accountable for results.
1. Assure work quality by using industry standards for process, procedure, and evaluation.
  2. File a weekly/bi-weekly written report on progress toward completion of assignments and projects.
- Objective 6** Be familiar with the legal requirements and expectations of the course
1. Be familiar with the course disclosure statement and all requirements for successful completion of the course.
  2. Demonstrate workplace ethics.
- Objective 7** Demonstrate employment skills.
1. Build a job search network and find job leads.
  2. Write a resume and create a job portfolio.
  3. Write a letter of application.
  4. Complete a job application.

5. Participate in an actual or simulated job interview.

Standard 1 Performance evaluation included below (Optional)

## STANDARD 2

*Students will participate in a supervised agricultural experience (SAE).*

- Objective 1** Students will participate in an entrepreneurial, paid employment, research, or exploratory focused work-based experience outside the classroom.
- Objective 2** Students are required to keep a personal record/journal/log of their work-based experience.

Standard 2 Performance Evaluation included below (Optional)

## STANDARD 3

*Students will understand agricultural machinery/equipment safety.*

- Objective 1** Identification of and safety pertaining to Shear and Cutting Points.
- Objective 2** Identification of and safety pertaining to Pinch Points.
- Objective 3** Identification of and safety pertaining to Wrap Points.
- Objective 4** Identification of and safety pertaining to Free-Wheeling Points.
- Objective 5** Identification of and safety pertaining to Pull-in Points.
- Objective 6** Identify the appropriate use of the ROPS (Roll-Over Protective Structure) on agricultural machinery.
- Objective 7** Discuss the importance of terrain in the operation of agricultural machinery.

Standard 3 Performance Evaluation included below (Optional)

## STANDARD 4

*Students will work to create a culture of safety.*

- Objective 1** Complete a student safety pledge (disclosure statement).
- Objective 2** Respond to first aid requirements as allowed by school policy.
1. Locate first-aid kits and investigate their contents and discuss the use of the items as allowed by school policy.
  2. Discuss appropriate safety responses in an accident or emergency.
  3. Demonstrate the use of simple first aid in an accident with an injury.

- Objective 3** Follow safe practices.
1. Use appropriate PPE (Personal Protective Equipment) at all times.
  2. Eliminate workplace practices that distract attention and create an unsafe environment, e.g. cell phones and other electronic devices.
  3. Students will identify the proper method for extinguishing different classes of fires.
- Objective 4** Perform housekeeping duties.
1. Keep personal workspace clean and work with others to clean and organize community space.
- Objective 5** Successfully complete safety tests or demonstrations on equipment use and equipment safety.
1. Student will demonstrate an understanding of safe practices with 100% accuracy.

Standard 4 Performance Evaluation included below (Optional)

## STANDARD 5

*Students will be able to program and operate autonomous systems and technology.*

- Objective 1** Students will be able to define autonomous systems within agriculture.
- Objective 2** Students will be able to identify different autonomous systems.
- Objective 3** Students will be able to apply autonomous systems in agricultural applications.
- Objective 4** Students will be able to operate autonomous systems in agricultural applications.

Standard 5 Performance Evaluation included below (Optional)

## STANDARD 6

*Students will develop a plan to repair/maintain/restore agricultural machinery/equipment.*

- Objective 1** Select agricultural machinery/equipment for repair/maintenance/restoration.
1. Analyze the process to make sure that it is cost effective to repair/maintain or restore the project.
- Objective 2** Interpret and analyze manuals, schematics or other resources required for the repair/maintenance/restoration of project.
- Objective 3** Develop a written estimate including itemization of parts, labor, time, and total cost.
- Objective 4** Prepare a parts list, parts order, and secure the parts.
- Objective 5** Develop a production schedule that follows these steps in order:

1. Projected cost analysis
2. Analyze manuals/schematics
3. Develop written estimate
4. Order and secure parts
5. Project schedule

Standard 6 Performance Evaluation included below (Optional)

## STANDARD 7

*Students will repair/maintain/restore agricultural machinery/equipment.*

- Objective 1 Demonstrate proper equipment and tool setup and usage.
- Objective 2 Diagnose, troubleshoot, and disassemble as needed.
- Objective 3 Clean and evaluate parts for manufacturer specifications.
- Objective 4 Reflect on progress, evaluate next steps, and make adjustments relative to completion of project.
- Objective 5 Successfully complete the project including a project portfolio which includes:
  1. Project description
  2. Pictures documenting the process
  3. Logbook of hours worked
  4. Expense report

Standard 7 Performance Evaluation included below (Optional)

## AGRICULTURAL MACHINERY TECHNOLOGY (OPTIONAL)

Performance assessments may be completed and evaluated at any time during the course. The following performance skills are to be used in connection with the associated standards and exam. To pass the performance standard the student must attain a performance standard average of 8 or higher on the rating scale. Students may be encouraged to repeat the objectives until they average 8 or higher.

Student's Name: \_\_\_\_\_

Class: \_\_\_\_\_

### PERFORMANCE STANDARDS RATING SCALE



#### STANDARD 1 – Personal and Leadership Development

Score:

- Set and meet goals on attendance and punctuality.
- File a weekly/bi-weekly written report on progress toward completion of assignments and projects.
- Write a resume and create a job portfolio.

#### STANDARD 2 – Supervised Agricultural Experience (SAE)

Score:

- Keep a personal record/journal/log of their work-based experience.

#### STANDARD 3 – Agricultural Machinery/Equipment Safety

Score:

- Identify shear and cutting points, pinch points, wrap points, free-wheeling points, and pull-in points on all types of agricultural machinery.

#### STANDARD 4 – Safety

Score:

- Use appropriate PPE (Personal Protective Equipment) at all times.
- Keep personal workspace clean and work with others to clean and organize community space.
- Demonstrate an understanding of safe practices with 100% accuracy.

#### STANDARD 5 – Autonomous Systems and Technology

Score:

- Program and operate autonomous systems in agricultural application.

#### STANDARD 6 – Development for Repairing/Maintaining/ Restoring Machinery/ Equipment

Score:

- Develop a written estimate including itemization of parts, labor, time, and total cost.

- Develop a production schedule.

**STANDARD 7 - Repair/Maintain/Restore Agricultural Machinery/Equipment**

**Score:**

- Successfully complete the repair/maintenance/restoration of agricultural machinery/equipment.

**PERFORMANCE STANDARD AVERAGE SCORE:**

Evaluator Name: \_\_\_\_\_

Evaluator Title: \_\_\_\_\_

Evaluator Signature: \_\_\_\_\_

Date: \_\_\_\_\_