

## Power, Structural, and Technical Systems Module

### I. Power, Structural, and Technical Systems

A. Explain the relationship of agricultural mechanics and technical systems to the industry of agriculture.

1. List major events in the history and advancements of agricultural and technical systems.
2. Relate the efficiency of the global agricultural industry to the advancements of agricultural technologies.

B. Abide by safety procedures in the work environment.

1. Identify and use established OSHA workplace safety standards (e.g., work environment, personal safety equipment, material safety data sheets, and labels and signs).
2. Identify and locate emergency equipment (e.g., fire extinguishers, eye wash, etc.).

C. Identify, use, and store/maintain tools and materials.

1. Identify hand, power, and specialty tools and their uses.
2. Select proper tools for the job requirement.

D. Demonstrate skills in project completion.

1. Interpret blueprints and working drawings.
2. Create a bill of materials for an agricultural mechanics project.
3. Develop a procedure list and an order of fabrication.
4. Demonstrate measuring techniques used in project construction.

E. Use construction principles in agricultural structures.

1. Define basic terms used in construction.
2. Identify appropriate construction materials used in agricultural structures (e.g., lumber, hardware, masonry, and roofing materials).

F. Discover electrical principles, circuit theory, and their applications in practical settings.

1. Comprehend electrical safety.
2. Define terms and symbols associated with electrical power.
3. Distinguish between electrical conductors and resistors.

G. Understand plumbing skills.

1. Identify tools, equipment, and materials used in plumbing processes.

H. Understand power and mechanical systems for agriculture use.

1. Identify uses of power systems in agriculture.

2. Identify safety procedures related to motorized equipment.
3. Define key terms associated with power and mechanical systems.
I. Understand the welding process and correctly demonstrate welding processes.
1. Identify appropriate welding safety protocols.
2. Compare and contrast welding processes (e.g., SMAW, GMAW, and oxy-acetylene).
3. Identify key concepts associated with the different types of welding processes.