NOCTI
Partner Credential Blueprint

case learning
CURRICULUM FOR AGRICULTURAL SCIENCE EDUCATION

Agricultural Power and Technology End-of-Course Assessment (APT EoC)

Test Code: 9210/ Version: 01

General Assessment Information

Blueprint Contents

Test Type: The CASE Agricultural Power and Technology (APT) End-of-Course Assessment is based on CASE Agricultural Power and Technology course concepts and aligned National AFNR Common Career Technical Core Standards, as provided by a CASE certified instructor. Eligible participants can earn certification and an accompanying digital badge.

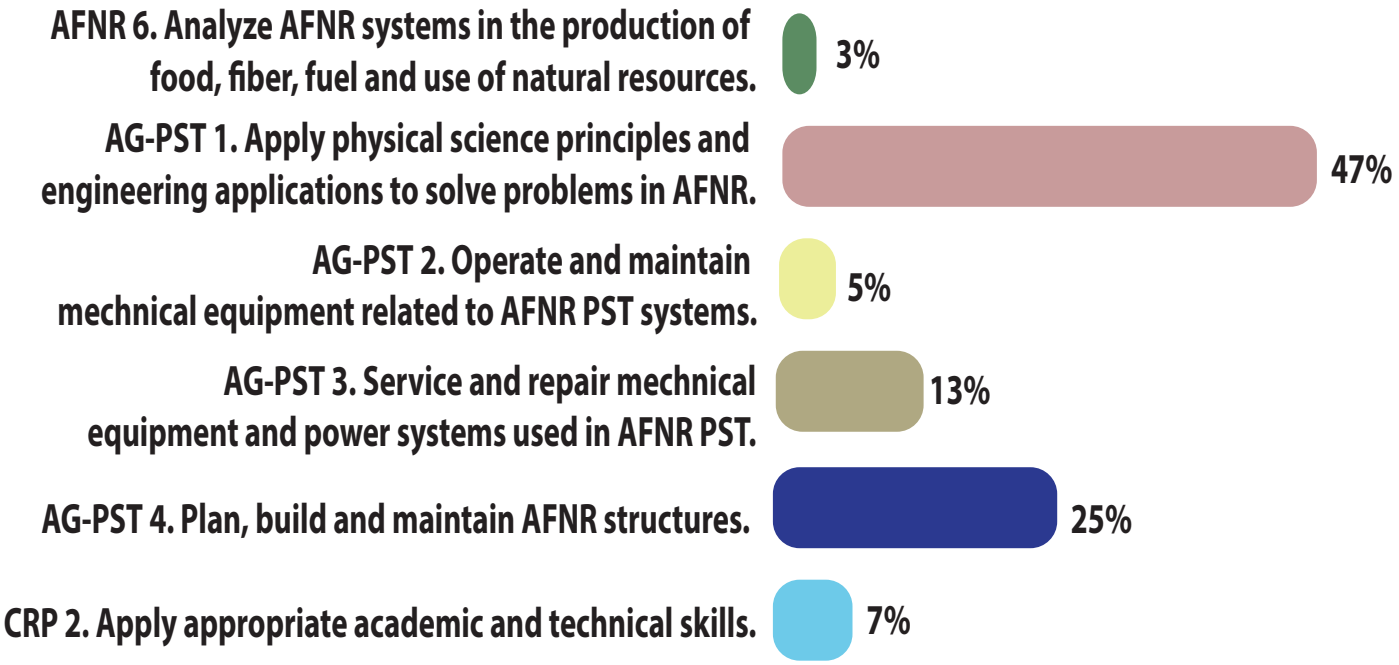
CASE 4 Learning is an initiative of the National Council for Agricultural Education. The end-of-course (EoC) assessments were developed by CASE to align with CASE concepts and National AFNR Common Career Technical Core Standards. The assessments are available through NOCTI, serving as the CASE partner for third-party delivery. EoC assessments serve as a measurement of student success that is statewide, valid, and reliable, and comparable across the state these end-of-course assessments meet Perkins V requirements.

Written Assessment

This written assessment consists of questions to measure an individual's factual theoretical knowledge.

Administration Time: 45 minutes
Number of Questions: 40
Number of Sessions: This assessment may be administered in one, two, or three sessions.

Areas Covered



Specific Competencies and Skills Tested in this Assessment

AFNR 6. Analyze AFNR systems in the production of food, fiber and fuel and use of natural resources.

- APT 3.4.1 Water and land are materials that are mechanically managed and conserved.

AG-PST 1. Apply physical science principles and engineering applications solve problems in AFNR.

- APT 1.1 Power and technology increase the efficiency of AFNR production.
- APT 1.2 Machines in agriculture harness and transfer energy to perform work.
- APT 3.2 Material is selected based on physical and mechanical properties.
- APT 5.1 Chemical reactions release and absorb thermal energy.
- APT 5.2 The relationship between amps, volts, and ohms can be defined using Ohm's Law.
- APT 5.3 Controlled movements of fluids under pressure produce mechanical energy.
- APT 6.1 Simple machines provide a mechanical advantage.

AG-PST 2. Operate and maintain mechanical equipment related to AFNR PST systems.

- APT 3.3 Fluids cool and lubricate agricultural machines and equipment.

AG-PST 3. Service and repair mechanical equipment and power systems used in AFNR PST.

- APT 2.1 Site-specific safety policies are in place for agricultural mechanic shops and labs.
- APT 2.2 A tool or machine's design affects how a person operates them.
- APT 4.3 Fasteners are selected based upon strength and durability when joining parts.
- APT 6.2 Technicians calibrate machines to perform a specified task.

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Specific Standards and Competencies (continued)

AG-PST 4. Plan, build and maintain AFNR structures.

- APT 3.1 Metals used in agriculture can be identified using physical properties.
- APT 3.4.3 The strength of concrete is dependent upon proper mixing and curing of materials.
- APT 4.1 Accurate plans and scaled drawings are essential for project success.
- APT 4.2 Measurements and use of materials are essential when manufacturing useable parts.
- APT 6.3 Structures provide a controlled environment to protect commodities and equipment.

CRP 2. Apply appropriate academic and technical skills.

- APT 2.3 Estimation is used for completing a project or activity.

Sample Questions

What is an example of an agricultural mechanics system that uses liquids and gasses under pressure?

A. Metal fabrication
B. Hydraulics and pneumatics
C. Concrete masonry
D. Precision agriculture

How do employers keep a safe working environment for their employees?

A. Identify the standards a shop should meet
B. Inspect the shop and compare it to the standards
C. Inspect and repair a shop so all safety standards are met
D. Identify the safety hazards in a shop

What color will tempered steel have at room temperature?

A. Red
B. Blue
C. Green
D. Yellow

Which type of drawing is used when internal parts of a project need to be seen?

A. Sketch
B. Isometric
C. Orthographic
D. Sectional

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Sample Questions (continued)

What type of chemical reaction is used to power a machine?

A. Endothermic
B. Heat
C. Exothermic
D. Physical

How could the mechanical advantage of a lever be increased?

A. Increase output distance
B. Increase output force
C. Increase input force
D. Decrease input distance

How many seeds should appear in 20 inches of a single row, if the seeding spacing is 2 inches? The measurement is taken from the first seed planted.

A. 10 seeds
B. 11 seeds
C. 20 seeds
D. 40 seeds