



Agricultural Technology and Mechanical Systems

The Agricultural Technology and Mechanical Systems program of study focuses on occupational and educational opportunities associated with applying engineering technology and biological science to agricultural problems related to power and machinery, electrification, structures, soil and water use, and processing agricultural products. This program of study includes diagnosing, repairing, or overhauling farm machinery and vehicles, such as tractors, harvesters, dairy equipment, and irrigation systems.



Courses for High School Credit

Level 1	Principles of Agriculture, Food, and Natural Resources
Level 2	- Agricultural Mechanics and Metal Technologies - Agricultural Mechanics and Metal Technologies with Lab
Level 3	- Agricultural Structures, Design, and Fabrication - Agricultural Structures, Design, and Fabrication with Lab
Level 4	- Agricultural Equipment, Design, and Fabrication - Practicum in Agriculture Technology & Mechanical Systems

Aligned Industry-Based Certifications

- AWS D1.1 Structural Steel
- AWS D9.1 Sheet Metal Welding
- API 1104 Welding Pipeline & Related Facilities

Work-Based Learning and

Expanded Learning Opportunities

Work-Based Learning Activities

- Participate in a farm mechanic apprenticeship at an equipment production company
- Intern at an equipment manufacturing facility working with agricultural engineers

Expanded Learning Opportunities

- Participate in an FFA career, leadership, and speaking contest like an agriscience fair
- Participate in an agriculture robotics event



Successful completion of the Agricultural Technology and Mechanical Systems program of study will fulfill requirements of the Business and Industry endorsement.

Example Postsecondary Opportunities

Apprenticeships

- Farm Equipment Mechanic I

Associate Degrees

- Diesel Mechanics Technology
- Industrial Mechanics and Maintenance Technology

Bachelor's Degrees

- Agricultural Engineering
- Agricultural Systems Management

Master's, Doctoral, and Professional Degrees

- Agricultural Engineering
- Industrial Technology

Additional Stackable IBCs/License

- Diesel Equipment Technology-Off Highway Specialization CER1
- Accredited Farm Manager

Example Aligned Occupations

(Based on statewide employment data)



Farm Equipment Mechanics and Service Technicians

Median Wage: \$41,258

Annual Openings: 315

10-Year Growth: 23%

Mobile Heavy Equipment Mechanics

Median Wage: \$60,005

Annual Openings: 2,315

10-Year Growth: 31%

Farmers, Ranchers, and Agricultural Managers

Median Wage: \$79,064

Annual Openings: 30,363

10-Year Growth: 4%

For more information visit:

<https://tea.texas.gov/academics/college-career-and-military-prep/career-and-technical-education/programs-of-study-additional-resources>





Agricultural Technology and Mechanical Systems Course Descriptions:

Principles of Agriculture, Food, and Nat Resources- AGR0000 (1 Credit)

Level: 1

Course Fee: None

Prerequisites: None

GPA Weight: Regular

Principles of Agriculture, Food, and Natural Resources will allow students to develop knowledge and skills regarding career and educational opportunities, personal development, globalization, industry standards, details, practices, and expectations.

Ag. Mech. and Metal Tech. (+ Opt. Lab) - AGR0320, AGR0330 (1 or 2 Credits)

Level: 2

Course Fee: \$50, \$75

Prerequisites: None

GPA Weight: Regular

Agricultural Mechanics and Metal Technologies is designed to develop an understanding of agricultural mechanics as it relates to safety and skills in tool operation, electrical wiring, plumbing, carpentry, fencing, concrete, and metal working techniques. To prepare for careers in agricultural power, structural, and technical systems, students must attain academic skills and knowledge; acquire technical knowledge and skills related to power, structural, and technical agricultural systems and the industry; and develop knowledge and skills regarding career opportunities, entry requirements, industry certifications, and industry expectations.

Ag. Structures, Design and Fab. (+ Opt. Lab) - AGR0920, AGR0930 (1 or 2 Credits)

Level: 3

Course Fee: \$50, \$75

Prerequisite: Agricultural
Mechanics and Metal
Technologies

GPA Weight: Regular

In Agricultural Structures Design and Fabrication, students will explore career opportunities, entry requirements, and industry expectations. To prepare for careers in mechanized agriculture and technical systems, students must attain knowledge and skills related to agricultural structures design and fabrication.



Agricultural Equipment, Design & Fabrication- AGR4450 (1 credit)

Level: 4

Course Fee: \$50

Prerequisite: Agricultural
Mechanics and Metal
Technologies

GPA Weight: Regular

In Agricultural Equipment Design and Fabrication, students will acquire knowledge and skills related to the design and fabrication of agricultural equipment.



Practicum in Ag. Tech & Mechanical Systems- AGR4200 (2 credits)

Level: 4

Course Fee: \$50

Prerequisites: 2 credits in the Program
of Study

GPA Weight: Regular

This practicum course includes a paid or unpaid capstone experience for students participating in a coherent sequence of career and technical education courses in the Agriculture, Food, and Natural Resources Career Cluster.

