

# Agriculture, Food, and Natural Resources Career Cluster

The Agriculture, Food, and Natural Resources (AFNR) career cluster focuses on the essential elements of life, food, water, land, and air. This career cluster includes occupations ranging from farmer, rancher, and veterinarian to geologist, land conservationist, and florist.



## Agricultural Technology and Mechanical Systems (JHS) Statewide Program of Study



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.



### Secondary Courses for High School Credit

Level 1	T101 Principles of Agriculture, Food, & Natural Resources (1 credit/YL)
Level 2	T133 Agricultural Mechanics and Metal Technologies (1 credit/YL)
Level 3	T132 Agricultural Structures Design and Fabrication (1 credits/YL)  T103 Agricultural Equipment Design & Fabrication/Lab (2 credits/YL)
Level 4	T130 Agricultural Power Systems/Lab (2credits/YL) T136 Practicum in AFNR – Mechanical Syst. (2 credits/YL)



### 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



### Work-Based Learning and Expanded Learning Opportunities

<b>Work-Based Learning Activities</b>	<ul style="list-style-type: none"> <li>• Participate in a farm mechanic apprenticeship at an equipment production company</li> <li>• Intern at an equipment manufacturing facility working with agricultural engineers</li> </ul>
<b>Expanded Learning Opportunities</b>	<ul style="list-style-type: none"> <li>• Participate in an FFA career, leadership, and speaking contest like an agriscience fair</li> <li>• Participate in an agriculture robotics event</li> </ul>



### Aligned Industry-Based Certifications

- AWS D9.1 Sheet Metal Welding
- OSHA 10



### Example Aligned Occupations

#### Farm Equipment Mechanics and Service Technicians

Median Wage: \$46,582

Annual Openings: 326

10-Year Growth: 23%

#### Mobile Heavy Equipment Mechanics

Median Wage: \$57,943

Annual Openings: 2,637

10-Year Growth: 31%

#### Farmers, Ranchers, and Other Agricultural Managers

Median Wage: \$65,490

Annual Openings: 28,020

10-Year Growth: 4%

Agricultural Technology and Mechanical Systems

Data Source: TexasWages, Texas Workforce Commission. Retrieved 3/8/2024.



For more information visit:

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