



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.

Statewide Program of Study: *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.

Secondary Courses for High School Credit

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|----------------|---|
| Level 1 | • Principles of Agriculture, Food, and Natural Resources |
| Level 2 | • Agricultural Mechanics and Metal Technologies
25-26 Non-DC |
| Level 3 | • Agricultural Structures Design and Fabrication
26-27 WLDG 1323* & WLDG 1317* Only |
| Level 4 | • Practicum in Agriculture, Food, and Natural Resources
(WLDG1202 & WLDG1430/WLDG1206 & WLDG2443)
26-27 No Change
27-28 WLDG1521* & WLDG1557* Only |

Aligned Advanced Academic Courses

Dual Credit

WLDG1202 Fundamentals of Gas Metal Arc Welding
WLDG1430 Introduction to Gas Metal Arc Welding
WLDG1206 Fundamentals of Gas Tungsten Arc Welding
WLDG2443 Advanced Shielded Metal Arc Welding
WLDG 1323 Welding, Safety, Tools, and Equipment* 26-27
WLDG 1317 Introduction to Layout and Fabrication*26-27
WLDG1521 Welding Fundamentals *27-28
WLDG1557 Intermediate Shielded Metal Arc Welding *27-28

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

Aligned Industry-Based Certifications

- AWS D1.1 Structural Steel
- AWS D9.1 Sheet Metal Welding

Mabank ISD does not discriminate on the basis of race, color, national origin, sex, disability or age in its programs or activities and provides equal access to the Boy Scouts and other designated youth groups. The following person has been designated to handle inquiries regarding the nondiscrimination policies: Mr. Clay Tracy, Assistant Superintendent of Human Resources, 310 E. Market Street, Mabank, TX 75147, 903-880-1305.



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

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 Other Agricultural Managers

Median Wage: \$79,064
Annual Openings: 30,363
10-Year Growth: 4%

