Rice Consolidated ISD

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

Level 1 • Principles of Agriculture, Food, and Natural Resources

Level 2 • Agricultural Mechanics and Metal Technologies

Level 3 • Agricultural Structures Design and Fabrication

Level 4 • Practicum in Agriculture, Food, and Natural Resources

Work-Based Learning Activities and Expanded Learning Opportunities

- Intern at an equipment manufacturing facility working with agricultural engineers
- Participate in an FFA career, leadership, and speaking contest like an agriscience fair
- Participate in an agricultural mechanics shows

Example Postsecondary Opportunities

Apprenticeships
- Farm Equipment Mechanic I

Associate Degrees
- Diesel Mechanics Technology
- Industrial Mechanics and Maintenance Technology
- Industrial Technology

Bachelor's Degrees
- Agricultural Engineering
- Agricultural Systems Management

Master's, Doctoral, and Professional Degrees
- Agricultural Engineering

Additional Stackable IBCs/License
- Diesel Equipment Technology-Off Highway Specialization CER1
- Accredited Farm Manager

Aligned Industry-Based Certifications

- Agriculture Mechanics
- API 1104 Welding Pipelines and Related Facilities
- AWS Certified Welder
- AWS D1.1 Structural Steel
- AWS D9.1 Sheet Metal Welding
- AWS SENSE Level I: Entry Welder
- Feedyard Technician in Machinery Operation, Repair and Maintenance
- Machining Measurement, Material, and Safety Level I
- NCCER Core
- NCCER Welding Level I
- Welding - Job Ready
- Industrial Technology Maintenance (ITM) - Basic Pneumatic Systems
- Industrial Technology Maintenance (ITM) – Maintenance Welding

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%

Agriculture, Food, and Natural Resources Career Cluster *Statewide*

Program of Study: Agricultural Technology and Mechanical Systems

Course Information

Course Prerequisites | Corequisites Career Clusters

Level 1

Principles of Agriculture, Food, and Natural Resources*
13000200 (1 credit)

Prerequisites: None
Corequisites: None
Recommended Prerequisites: None
Recommended Corequisites: None

Level 2

Agricultural Mechanics and Metal Technologies
13002200 (1 credit)

Prerequisites: None
Corequisites: None
Recommended Prerequisites:
Principles of Agriculture, Food, and Natural Resources
Recommended Corequisites: None

Level 3

Agricultural Structures Design and Fabrication
13002300 (1 credit)

Prerequisites: None
Corequisites: None
Recommended Prerequisites:
Agricultural Mechanics and Metal Technologies
Recommended Corequisites: None

Level 4

Practicum in Agriculture, Food, and Natural Resources*
First Time Taken:
13002500 (2 credits)
Second Time Taken:
13002510 (2 credits)

Prerequisites: None
Corequisites: None
Recommended Prerequisites:
Agricultural Mechanics and Metal Technologies
Recommended Corequisites: None