



## COURSES

### LEVEL 1

Principles of Agriculture, Food, and Natural Resources

### LEVEL 2

Agricultural Mechanics and Metal Technologies/Lab

### LEVEL 3

Agricultural Structures Design and Fabrications/Lab  
Agricultural Power Systems/Lab  
Geographic Information Systems for Agriculture (TBC)

### LEVEL 4

Agricultural Equipment Design and Fabrication/Lab  
Practicum in Agriculture, Food, and Natural Resources  
Project-Based Research  
Scientific Research and Design

## POSTSECONDARY OPTIONS

HIGH SCHOOL/ INDUSTRY CERTIFICATION	CERTIFICATE/ LICENSE*	ASSOCIATE'S DEGREE	BACHELOR'S DEGREE	MASTERS/ DOCTORAL PROFESSIONAL DEGREE
OSHA 30 Hour General Industry	Certified Professional Agronomist	Heavy Equipment Maintenance Technology/ Technician	Agricultural Engineering	
Feedyard Technician in Machinery, Operation, Repair and Maintenance	Certified Reliability Engineer	Agricultural Mechanization, General	Agricultural Mechanization, General	
AWS SENSE Welding Level 1	Certified Irrigation Designer	Small Engine Mechanics and Repair Technology/ Technician		
AWS D1.1 or D9.1 Certification	Fluid Power Mobile Hydraulic Mechanic	Welding Technology/ Welder		

Additional industry based certification information is available from the TEA CTE website.

For more information on postsecondary options for this program of study, visit TXCTE.org.

OCCUPATIONS	MEDIAN WAGE	ANNUAL OPENINGS	% GROWTH
Outdoor Power Equipment and Other Small Engine Mechanics	\$32,406	365	16%
Welders	\$41,350	6,171	9%
Farm Equipment Mechanics and Service Technicians	\$39,915	304	17%
Mobile Heavy Equipment Mechanics	\$47,299	1,627	16%
Agricultural Engineers	\$64,792	9	13%

## WORK BASED LEARNING AND EXPANDED LEARNING OPPORTUNITIES

**Exploration Activities:**  
Tour a farm products or  
machinery plant  
Texas FFA

**Work Based Learning  
Activities:**  
Earn a welding certification;  
Intern at a farm products or  
machinery plant

The Applied Agricultural Engineering program of study explores the occupations and educational opportunities associated with applying knowledge of engineering technology and biological science to agricultural problems, concerned with power and machinery, electrification, structures, soil and water conservation, and processing agricultural products. The program of study may also include exploration into diagnosing, repairing, or overhauling farm machinery and vehicles, such as tractors, harvesters, dairy equipment, and irrigation systems.



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 a diverse spectrum of occupations, ranging from farmer, rancher, and veterinarian to geologist, land conservationist, and florist. It also includes non-traditional agricultural occupations like wind energy, solar energy, and oil and gas production.

Successful completion of this program of study will fulfill requirements of a Business and Industry Endorsement.  
Approved Statewide Program of Study - September 2019

