

The Agriculture, Food, & Natural Resources (AFNR) Career Cluster focuses on the essential elements of life—food, water, land, & air. This career cluster includes a diverse spectrum of occupations, ranging from farmer, rancher, & veterinarian to geologist, land conservationist, & florist. It also includes non-traditional agricultural occupations like wind energy, solar energy, & oil & gas production.



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



Successful completion of the Applied Agricultural Engineering program of study will fulfill requirements of a Business & Industry endorsement or STEM endorsement if the math & science requirements are met. Revised - July 2020

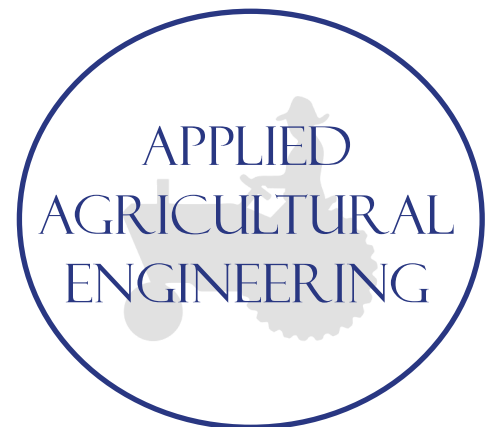


### Meet the Teachers

The Agriculture, Food, & Natural Resource program of study is under the instruction of Hunter Mewbourn. Mr. Mewbourn is a Frankston native with experience in welding that dates back to his time as a student at FISD. He brings 10 years of industry experience to the Ag program where he hopes to inspire the next generation of blue collar workers. He loves the experience of watching students learn how to use new tools and seeing the joy on their face when they accomplish a good weld. His main focus for his students is to help them learn skills that they can use either for their careers or creating things in their private lives.



AGRICULTURE, FOOD, &  
NATURAL RESOURCE



# APPLIED AGRICULTURAL ENGINEERING

## Level 1

Principles of Agriculture, Food, & Natural Resources

## Level 2

Agricultural Mechanics and Metal Technologies

## Level 3

Agricultural Structures Design & Fabrications/Lab

## Level 4

Agricultural Equipment Design & Fabrication/Lab

Practicum in Agriculture, Food, & Natural Resources

*Certification offered:  
NCCER*



Occupations	Median Wages	Annual Openings	% Growth
Outdoor Power Equipment & Other Small Engine Mechanics	\$ 32,406	366	16 %
Welders	\$ 41,350	6,171	9 %
Farm Equipment Mechanics & Service Technicians	\$ 39,915	304	17 %
Mobile Heavy Equipment Mechanics	\$ 47,299	1,627	16 %
Agricultural Engineers	\$ 64,792	9	13 %

## Work Based Learning & Expanded Learning Opportunities

Exploration Activities:	Work Based Learning Activities:
Tour a farm products or machinery plant Texas FFA	Earn a welding certification Intern at a farm products or machinery plant FFA Supervised Agriculture Experience (SAE)

High School/Industry Certification	Certificate/License*	Associates Degree	Bachelor's Degree	Master's/Doctoral Professional Degree
NCCER	Certified Professional Agronomist	Heavy Equipment Maintenance Technology/ Technician	Agricultural Engineering	Agricultural Engineering
	Certified Reliability Engineer	Agricultural Mechanization, General		
	Certified Irrigation Designer	Small Engine Mechanics & Repair Technology/ Technician	Agricultural Mechanization, General	Agricultural Mechanization, General
	Fluid Power Mobile Hydraulic Mechanic	Welding Technology/ Welder		

Additional industry-based certification information is available on the TEA CTE website. For more information on postsecondary options for this program of study, visit TXCTE.org.