



Level 1 09704 Principles of Agriculture, Food, and Natural Resources

Level 2 09705 Agricultural Mechanics and Metal Technologies

Level 3 09714 Agricultural Structures Design and Fabrications

Level 4 19715 Agricultural Equipment Design and Fabrication
19107 Practicum in Agriculture, Food, and Natural Resources

Dual Credit Science

HIGH SCHOOL/INDUSTRY CERTIFICATION	CERTIFICATE/LICENSE*	ASSOCIATE'S DEGREE	BACHELOR'S DEGREE	MASTER'S/DOCTORAL PROFESSIONAL DEGREE
OSHA 30 Hour General Industry	Certified Professional Agronomist	Heavy Equipment Maintenance Technology/Technician	Agricultural Engineering	Agricultural Engineering
Feedyard Technician in Machinery, Operation, Repair and Maintenance	Certified Reliability Engineer	Agricultural Mechanization, General	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		

Occupations	Median Wage	Annual Openings	% Growth
Outdoor Power Equipment and Other Small Engine Mechanics	\$32,406	366	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%

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.

WORK BASED LEARNING AND 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)

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



COURSE INFORMATION

09704	PRINCIPLES OF AGRICULTURE, FOOD AND NATURAL RESOURCES	GPA Level: Regular
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Grade Level: 9	Service ID: 13000200 (1 cr.)	Prerequisites: None
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This is an introductory course designed to provide an overview of global agriculture. The course includes leadership, career development, communications, livestock, plant and soil science and food science.

09705	AGRICULTURAL MECHANICS AND METAL TECHNOLOGIES	GPA Level: Regular
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Grade Level: 10-12	Service ID: 13002200 (1 cr.)	Prerequisites: None
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This course is designed to introduce basic theory and specialized skill in agricultural fabrication. Skills to be developed include tool identification and safe use, carpentry, electricity, plumbing, masonry, fencing, painting metal working and welding processes.

09714	AGRICULTURAL STRUCTURES DESIGN AND FABRICATIONS	GPA Level: Regular
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Grade Level: 11-12	Service ID: 13002300 (1 cr.)	Prerequisites: Agricultural Mechanics & Metal Technologies
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To be prepared for career in mechanized agricultural systems, the student will demonstrate principles of facilities design and design and fabrication related to agricultural structures. This class is designed as a project-based class in which students design and fabricate agriculture structures and buildings (ex. Trailer systems, basic farm projects).

19715	AGRICULTURAL EQUIPMENT DESIGN AND FABRICATION	GPA Level: Regular
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Grade Level: 11-12	Service ID: 13002350 (1 cr.)	Prerequisites: Agricultural Structures Design & Fabrications
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In Agricultural Equipment Design and Fabrication, students will acquire knowledge and skills related to the design and fabrication of agricultural equipment.

19107	PRACTICUM IN AFNR - AGRISCIENCE CENTER	GPA Level: Regular
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Grade Level: 11-12	Service ID: 13002500 (2 cr.)	Prerequisites: Course Application & Enrollment in Agriculture, Food, and Natural Resources Career Cluster Courses. Transportation
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This course is designed to give student supervised practical application of knowledge and skills. The practicum experience will occur at the John D. George Agriscience Center. Students will assist in the maintenance and upkeep of the facility and will complete an advanced SAE project. This capstone experience is for students participating in a coherent sequence of career and technical education courses in the Agriculture, Food, and Natural Resources Career Cluster.

Student must provide own transportation to the John D. George Agriscience Center.

FOR ADDITIONAL INFORMATION ON THE AGRICULTURE, FOOD, AND NATURAL RESOURCE CAREER CLUSTER,
PLEASE CONTACT:

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