# Scope & Sequence

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| Course Name: Agricultural Equipment Design and Fabrication**TSDS PEIMS Code:** 13002350 | **Course Credit:** 1.0**Course Requirements:** Recommended for Grades 11-12. **Prerequisites:** None.**Recommended Prerequisites:** Agricultural Mechanics and Metal Technologies. |
| **Course Description:** In Agricultural Equipment Design and Fabrication, students will acquire knowledge and skills related to the design and fabrication of agricultural equipment.  |
| **NOTE:** This is a suggested scope and sequence for the course content. This content will work with any textbook or instructional materials. If locally adapted, make sure all TEKS are covered. |
| **Total Number of Periods****Total Number of Minutes****Total Number of Hours** | 175 Periods7,875 Minutes131.25 Hours\* | \*Schedule calculations based on 175/180 calendar days. For 0.5 credit courses, schedule is calculated out of 88/90 days. Scope and sequence allows additional time for guest speakers, student presentations, field trips, remediation, extended learning activities, etc. |
| **Unit Number, Title, and Brief Description** | **# of Class Periods\***(assumes 45-minute periods)Total minutes per unit | **TEKS Covered****130.28. (c) Knowledge and skills** |
| **Unit 1: Professional Standards/Employability Skills**Students will discuss the professional standards and employability skills, including identifying career development and entrepreneurship opportunities in the field of mechanized agriculture, applying competencies related to resources, information, interpersonal skills, and systems of operation of mechanized agriculture. Students will further develop and demonstrate these skills and attributes throughout the course. In small groups and/or in other classroom activities, students will demonstrate knowledge of personal and occupational health and safety practices in the workplace, identify appropriate work habits, and demonstrate characteristics of good citizenship. As a culminating activity for this unit, students will research licensing, certification, and credentialing requirements. | 20 periods900 minutes | (1) The student demonstrates professional standards/employability skills as required by business and industry. The student is expected to:(A) identify career development and entrepreneurship opportunities in the field of mechanized agriculture;(B) apply competencies related to resources, information, interpersonal skills, and systems of operation of mechanized agriculture;(C) research licensing, certification, and credentialing requirements;(D) demonstrate knowledge of personal and occupational health and safety practices in the workplace;(E) identify employer expectations and appropriate work habits; and(F) demonstrate characteristics of good citizenship, including advocacy, stewardship, and community leadership. |
| **Unit 2: Laws and Regulations**Students will discuss the laws and regulations related to the construction, design and fabrication of agricultural equipment. In small groups and/or in other classroom activities, students will incorporate industry standards developed by entities such as American National Standards Institute (ANSI), American Society of Agricultural Engineers (ASAE), or Occupational Safety and Health Administration (OSHA) into the construction of agricultural equipment, and design and build equipment in compliance with state and federal laws enforced by agencies such as the U.S. Department of Transportation (DOT). | 15 periods675 minutes | (6) The student demonstrates knowledge of laws and regulations related to the construction, design and fabrication of agricultural equipment. The student is expected to:(A) incorporate industry standards developed by entities such as American National Standards Institute (ANSI), American Society of Agricultural Engineers (ASAE), or Occupational Safety and Health Administration (OSHA) into the construction of agricultural equipment; and(B) design and build equipment in compliance with state and federal laws enforced by agencies such as the U.S. Department of Transportation (DOT). |
| **Unit 3: Construction Techniques -Agricultural Equipment**Students will discuss construction techniques related to design and fabrication of agricultural equipment. Through a variety of classroom activities, students will utilize appropriate technology to operate oxy-fuel and plasma cutting equipment safely, proficiently demonstrate safe electrical welding, and use hand and power tools safely in the construction and repair of agricultural equipment. | 25 periods1,125 minutes | 5) The student demonstrates construction techniques related to design and fabrication of agricultural equipment. The student is expected to:(A) operate oxy-fuel and plasma cutting equipment safely; (B) proficiently demonstrate safe electrical welding; and(C) use hand and power tools safely in the construction and repair of agricultural equipment. |
| **Unit 4: Machinery and Equipment**Students will discuss the principles of design and fabrication related to agricultural machinery and equipment. Through a variety of classroom activities, students will utilize appropriate technology to develop project construction plans, select appropriate construction and finish materials for different types of agricultural equipment, estimate materials and costs needed for construction with an emphasis on renewable and eco-friendly materials, construct one or more agricultural equipment projects using measuring and mechanical skills, integrate a logical order of operations into the construction of an agricultural equipment project, and use computer-aided design software. | 35 periods1,575minutes | (3) The student demonstrates principles of design and fabrication related to agricultural machinery and equipment. The student is expected to:(A) develop project construction plans;(B) select appropriate construction and finish materials for different types of agricultural equipment;(C) estimate materials and costs needed for construction with an emphasis on renewable and eco-friendly materials;(D) construct one or more agricultural equipment projects using measuring and mechanical skills;(E) integrate a logical order of operations into the construction of an agricultural equipment project; and(F) use computer-aided design software. |
| **Unit 5: Constructs and Maintains Agricultural Enclosures**Students will discuss plans, constructs, and maintains fences, corrals, and other agricultural enclosures. Through a variety of classroom activities, students will utilize appropriate technology to select site and locate enclosures, estimate materials and building costs, and define appropriate construction methods that are friendly to the environment. | 50 periods2,250 minutes | (4) The student plans, constructs, and maintains fences, corrals, and other agricultural enclosures. The student is expected to:(A) select site and locate enclosures;(B) estimate materials and building costs; and(C) define appropriate construction methods that are friendly to the environment. |
| **Unit 6: Supervised Agriculture Experience Program**Students will discuss and develop all components of a supervised agriculture experience. Through a variety of classroom activities, students will utilize appropriate technology to plan, propose, conduct, document and evaluate their supervised agriculture experience program, apply appropriate record-keeping skills, and participate in leadership opportunities. As a culminating unit activity, students will produce and participate in a local program of activities using a strategic planning process. | 30 periods1,350 minutes | (2) The student develops a supervised agriculture experience program. The student is expected to:(A) plan, propose, conduct, document, and evaluate a supervised agriculture experience program as an experiential learning activity;(B) apply proper record-keeping skills as they relate to the supervised agriculture experience;(C) participate in youth leadership opportunities to create a well-rounded experience program; and(D) produce and participate in a local program of activities using a strategic planning process. |