# Scope & Sequence

|  |  |  |  |
| --- | --- | --- | --- |
| Course Name: Agricultural Structures Design and Fabrication **TSDS PEIMS Code:** 13002300 | | | **Course Credit:** 1.0  **Course Requirements:** Recommended for Grades 11-12.  **Prerequisites:** None.  **Recommended Prerequisites:** Agricultural Mechanics and Metal Technologies. |
| **Course Description:** In Agricultural Structures Design and Fabrication, students will explore career opportunities, entry requirements, and industry expectations. To prepare for careers in mechanized agriculture and technical systems, students must attain knowledge and skills related to agricultural structures design and fabrication. | | | |
| **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 Periods  7,875 Minutes  131.25 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**  **130.27. (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 periods  900 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: Facilities Design and Fabrication**  Students will discuss the principles of facilities design and fabrication as it relates to agricultural structures. Through a variety of classroom activities, students will utilize appropriate technology to develop building plans, select site and locate agricultural building placement, estimate materials and costs needed for construction with an emphasis on renewable and eco-friendly materials, select appropriate environmental control systems with a special emphasis on green technology, and use computer-aided design software as appropriate. | 30 periods  1,350 minutes | (3) The student demonstrates principles of facilities design and fabrication related to agricultural structures. The student is expected to:  (A) develop building plans;  (B) select site and locate agricultural building placement;  (C) estimate materials and costs needed for construction with an emphasis on renewable and eco-friendly materials;  (D) select appropriate environmental control systems with a special emphasis on green technology; and  (E) use computer-aided design software as appropriate. | |
| **Unit 3: Power Systems**  Students will explore and discuss the types of power systems used in agricultural structures. In small groups and/or in other classroom activities, students will define the terms and principles of electricity, estimate electrical needs and loads, plan installations using local codes and National Electric Code guidelines, demonstrate the use of various meters, select circuit wiring materials and supplies, demonstrate electrical systems repair, and explore alternative power systems, including solar, wind, and biomass. | 35 periods  1,575 minutes | (4) The student explores the different types of power systems used in agricultural structures. The student is expected to:  (A) define the terms and principles of electricity;  (B) estimate electrical needs and loads;  (C) plan installations using local codes and National Electric Code guidelines;  (D) demonstrate the use of various meters;  (E) select circuit wiring materials and supplies;  (F) demonstrate electrical systems repair; and  (G) explore alternative power systems, including solar, wind, and biomass. | |
| **Unit 4: Agricultural Structures**  Students will construct agricultural structures.  Through a variety of classroom activities, students will utilize appropriate technology to demonstrate appropriate use of surveying equipment, demonstrate and apply Geographic Information System (GIS) and Global Positioning System (GPS) principles, reinforce, place, finish, and cure concrete, plan, establish, and maintain water-management systems, identify non-traditional structural building techniques, including industry trends that are eco-friendly, discuss the use of masonry and drywall construction, install doors, windows, and roofing materials, and install plumbing equipment and fixtures to comply with governmental regulations and applicable codes. | 50 periods  2,250 minutes | (5) The student constructs agricultural structures using appropriate technology. The student is expected to:  (A) demonstrate appropriate use of surveying equipment;  (B) demonstrate and apply Geographic Information System (GIS) and Global Positioning System (GPS) principles;  (C) reinforce, place, finish, and cure concrete;  (D) plan, establish, and maintain water-management systems;  (E) identify non-traditional structural building techniques, including industry trends that are eco-friendly;  (F) discuss the use of masonry and drywall construction;  (G) install doors, windows, and roofing materials; and  (H) install plumbing equipment and fixtures to comply with governmental regulations and applicable codes. | |
| **Unit 5: Metal Construction**  Students will demonstrate metal construction.  Through a variety of classroom activities, students will explain the operations of safe oxy-fuel cutting, and demonstrate safe electrical welding. | 10 periods  450 minutes | (6) The student demonstrates metal construction techniques related to agricultural design and fabrication of structures. The student is expected to:  (A) explain the operations of safe oxy-fuel cutting; and  (B) demonstrate safe electrical welding. | |
| **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 periods  1,350 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. | |