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# Texas Administrative Code

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| TITLE 19 | EDUCATION |
| PART 2 | TEXAS EDUCATION AGENCY |
| CHAPTER 130 | TEXAS ESSENTIAL KNOWLEDGE AND SKILLS FOR CAREER AND TECHNICAL EDUCATION |
| SUBCHAPTER A | AGRICULTURE, FOOD, AND NATURAL RESOURCES |
| RULE §130.28 | Agricultural Equipment Design and Fabrication (One Credit), Adopted 2015 |

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(a) General requirements. This course is recommended for students in Grades 11 and 12. Recommended prerequisite: Agricultural Mechanics and Metal Technologies. Students shall be awarded one credit for successful completion of this course.

(b) Introduction.

(1) Career and technical education instruction provides content aligned with challenging academic standards and relevant technical knowledge and skills for students to further their education and succeed in current or emerging professions.

(2) The Agriculture, Food, and Natural Resources Career Cluster focuses on the production, processing, marketing, distribution, financing, and development of agricultural commodities and resources, including food, fiber, wood products, natural resources, horticulture, and other plant and animal products/resources.

(3) In Agricultural Equipment Design and Fabrication, students will acquire knowledge and skills related to the design and fabrication of agricultural equipment. To prepare for careers in mechanized agriculture and technical systems, students must attain knowledge and skills related to agricultural equipment design and fabrication. To prepare for success, students reinforce, apply, and transfer their academic knowledge and technical skills in a variety of settings.

(4) Students are encouraged to participate in extended learning experiences such as career and technical student organizations and other leadership or extracurricular organizations.

(5) Statements that contain the word "including" reference content that must be mastered, while those containing the phrase "such as" are intended as possible illustrative examples.

(c) Knowledge and skills.

(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.

(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.

(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.

(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.

(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.

(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).

**Source Note:** The provisions of this §130.28 adopted to be effective August 28, 2017, 40 TexReg 9123

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