Texas CTE

Agricultural Mechanics and Metal Technologies

General requirements. This course is recommended for students in Grades 10-12. Recommended prerequisite: Principles of Agriculture, Food, and Natural Resources. Students shall be awarded one credit for successful completion of this course. AMMT.A

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Introduction. AMMT.B

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.** AMMT.B.1

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.** AMMT.B.2

3 **Agricultural Mechanics and Metal Technologies is designed to develop an understanding of agricultural mechanics as it relates to safety and skills in tool operation, electrical wiring, plumbing, carpentry, fencing, concrete, and metal working techniques. To prepare for careers in agricultural power, structural, and technical systems, students must attain academic skills and knowledge; acquire technical knowledge and skills related to power, structural, and technical agricultural systems and the industry; and develop knowledge and skills regarding career opportunities, entry requirements, industry certifications, and industry expectations. To prepare for success, students need opportunities to learn, reinforce, apply, and transfer knowledge and skills and technologies in a variety of settings.** AMMT.B.3

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Students are encouraged to participate in extended learning experiences such as career and technical student organizations and other organizations that foster

leadership and career development in the profession such as student chapters of related professional associations. AMMT.B.4

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.** AMMT.B.5

Knowledge and skills. AMMT.C

1 **The student develops a supervised agriculture experience program. The student is expected to:** AMMT.C.1

- a plan, propose, conduct, document, and evaluate a supervised agriculture experience program as an experiential learning activity; AMMT.C.1A
- b apply proper record-keeping skills as they relate to the supervised agriculture experience; AMMT.C.1B
- c participate in youth leadership opportunities to create a well-rounded experience program; and AMMT.C.1C
- d produce and participate in a local program of activities using a strategic planning process. AMMT.C.1D

2 **The student follows operating instructions for tools and equipment to perform a given task. The student is expected to:** AMMT.C.2

- a select, use, maintain, and store appropriate hand tools to perform a given task; AMMT.C.2A
- b select, use, maintain, and store appropriate power equipment such as tools powered by electric, pneumatic, and internal combustion engines; and AMMT.C.2B
- c select and use measuring and marking devices. AMMT.C.2C

3 **The student identifies and performs electric wiring skills. The student is expected to:** AMMT.C.3

- a identify principles of electricity and wiring terminology; AMMT.C.3A
- b install electric wiring components and fixtures to comply with governmental regulations and applicable codes; and AMMT.C.3B
- c maintain electric motors. AMMT.C.3C

4 **The student performs plumbing skills. The student is expected to:** AMMT.C.4

- a identify and use plumbing tools; and AMMT.C.4A
- b identify plumbing fixtures. AMMT.C.4B

5 **The student performs concrete construction skills. The student is expected to:** AMMT.C.5

- a project cost estimates for materials; and AMMT.C.5A
- b form and pour concrete slabs. AMMT.C.5B

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6 **The student performs carpentry skills. The student is expected to:** AMMT.C.6

a identify materials used in agricultural construction; AMMT.C.6A

b identify elements of a cost estimate and prepare a bid package for a planned project; AMMT.C.6B

c demonstrate basic carpentry skills; and AMMT.C.6C

d paint and protect a project with coatings. AMMT.C.6D

7 The student identifies fencing methods. The student is expected to: AMMT.C.7

a select fencing materials; and AMMT.C.7A

b plan and install fences. AMMT.C.7B

8 The student performs appropriate cold and hot metal techniques. The student is expected to: AMMT.C.8

a identify types of metal; AMMT.C.8A

b cut, file, shape, and drill metal; AMMT.C.8B

c select and operate oxy-fuel welding and cutting equipment to meet standards; AMMT.C.8C

d select and operate electric-arc welding equipment to meet standards; and AMMT.C.8D

e perform specialty welding and cutting techniques to meet standards. AMMT.C.8E

9 The student applies processes relating to assembly of equipment in agricultural systems operations. The student is expected to: AMMT.C.9

a select, use, and maintain appropriate tools, equipment, and facilities; and AMMT.C.9A

b identify and determine properties, types, and uses of metal. AMMT.C.9B

10 The student plans and performs cost-effective construction techniques. The student is expected to: AMMT.C.10

a analyze site, equipment, and permit requirements; AMMT.C.10A

b operate computer-aided drafting design software; AMMT.C.10B

c develop, read, and interpret designs and sketches; AMMT.C.10C

d estimate material needs and costs; AMMT.C.10D

e measure, mark, and cut material; and AMMT.C.10E

f perform specialized nonmetallic fabrication techniques. AMMT.C.10F