

Syllabus

9-12th grade Welding/Ag Mech Classes

Teachers: Mr. Wilson

In this class the student will study. . .

In Texas schools, ag mechanics courses teach hands-on skills in agricultural power, structural, and technical systems, covering areas like welding, carpentry, electricity, and engine repair. The curriculum prepares students for careers in mechanized agriculture and related industries, with many programs offering industry-based certifications.

Key topics covered:

- **Safety and tool operation:** A fundamental component of all courses is proper shop safety and the selection, use, maintenance, and storage of both hand and power tools.
- **Welding and metal fabrication:** Students learn various metalworking techniques, including welding (SMAW, MIG, oxy-fuel), cutting, and shaping. Advanced classes focus on fabrication for agricultural equipment and structures, with some programs offering certifications from the American Welding Society (AWS).
- **Electrical wiring:** The curriculum covers the principles of electricity, terminology, and how to safely install and maintain wiring components and fixtures according to code.
- **Carpentry and structures:** Students learn and apply basic carpentry skills, including construction techniques, building materials, and design. Projects may involve building fences, concrete structures, or full-scale agricultural facilities.
- **Plumbing:** Instruction covers the types of materials and techniques used for agricultural plumbing systems, such as irrigation.
- **Power systems:** Students learn to service and troubleshoot internal combustion engines (both small and large), explore energy sources, and manage agricultural power systems.

- **Equipment and machinery:** Courses cover the maintenance, repair, and operation of agricultural machinery like tractors and harvesters. Some programs explore machine design and fabrication.
- **Computer-aided design (CAD):** In more advanced courses, students may learn to use CAD software to design and plan projects before construction.

Course structure

Texas schools typically offer a sequence of courses under the Agricultural Technology and Mechanical Systems Program of Study, as outlined by the Texas Education Agency (TEA):

- **Principles of Agriculture, Food, and Natural Resources:** An introductory course for all incoming students in the AFNR cluster.
- **Agricultural Mechanics and Metal Technologies:** The core course that introduces students to fundamental safety, tool operation, and technical skills.
- **Agricultural Structures Design and Fabrication:** A more advanced course focusing on construction techniques and metal fabrication.
- **Agricultural Equipment Design and Fabrication:** A project-based course where students design and fabricate agricultural equipment.
- **Practicum in Agricultural Mechanics:** A capstone experience offering supervised, real-world application of skills through internships or laboratory experiences.

FFA involvement

Extracurricular activities like the Future Farmers of America (FFA) play a large role in a student's ag mechanics education. The Agricultural Technology and Mechanical Systems Career Development Event (CDE) tests students' problem-solving and hands-on skills in areas like machinery, electricity, and structures. Participation in CDEs helps students apply classroom knowledge in a competitive setting.

Contact Information

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conference period: 7:40 – 8:40 am**