

AGRICULTURAL TECHNOLOGY



Ag Technology encompasses the Equipment Technician and Irrigation Management programs. These programs are ideal for students looking for a hands-on, high-demand career in the heart of California's agriculture industry.

The **Equipment Technician** (mechanized agriculture) program trains students to diagnose, repair, and maintain the large scale equipment being used in production agriculture and related industries. Students gain expertise in diesel engines, hydraulics, power trains, electrical systems, and more. The program includes an opportunity to earn Kubota Tech, CNH Top Tech, and Snap-on certifications, which are recognized by employers. Students completing this program will be prepared as entry-level technicians at equipment dealerships or farming enterprises.

In **Agriculture Irrigation**, students earn a skill certificate in irrigation management. Students study topics such as water management and plant-water-soil relationships. The skill certificate is an ideal add-on to programs such as Agricultural Business Management and Plant Science.

Contact Information

Agricultural Technology Faculty Contact

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Agriculture Division Chair

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Provost - Tulare Campus and Dean of Agriculture

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Associate Degree

- Associate of Science in Agriculture Technology (AS) (<https://catalog.cos.edu/areas-study/agricultural-technology/associate-science-agricultural-technology-not-for-transfer-as/>)

Certificates

- Certificate of Achievement in Equipment Technician Level 2 (<https://catalog.cos.edu/areas-study/agricultural-technology/certificate-achievement-agriculture-technology/>)
- Skill Certificate in Equipment Technician Level 1 (<https://catalog.cos.edu/areas-study/agricultural-technology/skill-certificate-agriculture-power-equipment-technician/>)
- Skill Certificate in Irrigation Management (<https://catalog.cos.edu/areas-study/agricultural-technology/skill-certificate-irrigation-mgmt/>)

For a complete list of courses and descriptions visit: COURSES (<https://catalog.cos.edu/course-descriptions/>)

AGTC 103 Farm Power

3unit(s)

Hours: 3 Lecture/Discussion Hours:
1 Lab

This course involves the study of functions, physical capabilities, applications, economics and tractor improvements. Students will participate in operation, testing and analysis of tractors in laboratory and field conditions to maximize operation efficiencies. (C-ID AG-MA108L)

AGTC 106 Agriculture Welding

3unit(s)

Hours: 3 Lecture/Discussion Hours:
1 Lab

A study of the fundamental principles theories and concepts of welding used in agriculture construction, fabrication and repair. All positions, joint types, hard surfacing, cutting, brazing, SMAW, GMAW, and OFW will be studied.

AGTC 120 Introduction to the Agriculture Power Equipment Service Industry

3unit(s)

Hours: 3 Lecture/Discussion Hours:
1 Lab

This course is an introduction to the agriculture power equipment service industry. Students will learn the basics of safe tool operation, dealer software, machine identification, and regulations related to the power equipment industry. This course will prepare students for the Agriculture Power Equipment Technician Program and should be completed towards the beginning of the students' program.

AGTC 123 Power Equipment Electronics and Electrical Systems

3unit(s)

Hours: 2 Lecture/Discussion Hours:
3 Lab

This course will teach students the fundamentals of electrical systems used in agricultural power equipment. Wiring schematics and diagrams will be used to teach students about the function, operation and troubleshooting of the many electrical circuits on tractors and other equipment used in agriculture.

AGTC 124 Power Equipment Air Conditioning and Heating 2unit(s)
 Hours: 2 Lecture/Discussion Hours:
 1 Lab

Students will learn the fundamentals of heating and air conditioning systems in agriculture power equipment. Environmental Protection Agency (EPA) regulations around these systems will be discussed. Students will learn how the different types of systems operate along with the different types of refrigerant oils. Students will learn the use of tools to troubleshoot diagnose and repair these systems as well.

AGTC 125 Power Transmission Systems 3unit(s)
 Hours: 2 Lecture/Discussion Hours:
 3 Lab

Equivalent Course: AGTC 218

In this course students will learn about the systems involved in moving power produced by the engine to the drive wheels. Students will learn the components, operation and troubleshooting of various transmissions, clutches, differentials, and final drives found in agriculture machinery.

AGTC 126 Diesel Engine Emission Systems 2unit(s)
 Hours: 2 Lecture/Discussion Hours:
 1 Lab

This course will teach student the fundamentals of fuel systems and emission systems used in diesel engines. Students will go in depth into the fuel delivery system found on tractors and other agriculture machinery. They will also learn about Tier 4 emission regulations and the emission system components found on both Tier 4 Interim and Tier 4 Final engines and how to service those systems.

AGTC 127 Equipment Diagnostics, Testing and Failure Analysis 2unit(s)
 Hours: 1 Lecture/Discussion Hours:
 3 Lab

In this course students will learn the fundamentals of troubleshooting power equipment as they would find it in the field. Emphasis will be placed on the 3 C's of troubleshooting Complaint, Cause and Correction. This course is designed to tie concepts of hydraulics, engine systems, power trains and electrical systems all together so strong knowledge in those areas is highly recommended before enrolling in this course.

Advisory on Recommended Preparation: Successful completion of AGTC 225, AGTC 213, AGTC 125, AGTC 120 and AGTC 126 is recommended prior to enrollment.

AGTC 201 Small Engines 3unit(s)
 Hours: 3 Lecture/Discussion Hours:
 1 Lab

This beginning course is designed to introduce students to the theory and concepts of today's modern power equipment. Applications, basic operation, diagnosis and troubleshooting will be addressed in this course.

AGTC 202 Farm Equipment Construction 3unit(s)
 Hours: 3 Lecture/Discussion Hours:
 1 Lab

This is a study of the basic principles for the construction of farm implements such as feeding equipment, tractor implements, farm trailers or other useful tools on the farm. The course content includes: safety, developing a working drawing, a bill of materials, constructing the project and finishing the project.

AGTC 210 Agriculture Project Construction 3unit(s)
 Hours: 3 Lecture/Discussion Hours:
 1 Lab

The Agriculture Project Construction class teaches students how to construct tools or equipment used in a repair shop or on the farm. These projects could include tools, jigs or farm implements just to name a few examples. Students will gain an understanding of the process and tools used for fabrication. Students will start by planning the project using drawings or sketches. From these drawings students will develop a list of materials needed to build the protect. Students will then take the materials and process them into the final product. This could include: cutting, shearing, drilling, grinding, welding, bending or heating.

AGTC 213 Hydraulics 3unit(s)
 Hours: 3 Lecture/Discussion Hours:
 1 Lab

This course will provide students with a thorough understanding of oil hydraulic systems used in agriculture. Students will learn open-center and closed-center hydraulic systems including the types of pumps used, pressure control, flow control and directional control valves, accumulators, reservoirs, and various actuators. Students will learn operation maintenance and troubleshooting.

AGTC 225 Compact Diesel Engines 3unit(s)
 Hours: 3 Lecture/Discussion Hours:
 1 Lab

This course provides students with technical knowledge and hands-on experience in the operation and repair of compact diesel engines.
Advisory on Recommended Preparation: AGTC 201 or equivalent college course with a minimum grade of C (may be taken concurrently).

Agricultural Technology

Abee, Charles
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 B.S., California State University, Fresno