

ARIZONA WESTERN COLLEGE
SYLLABUS

AGS 170 BASIC TRACTOR OPERATIONS AND SAFETY

Credit Hours: 2 Lec 1.25 Lab 1

PREREQUISITE: NONE

COURSE DESCRIPTION

This course involves selection, maintenance, adjustment, and safe operation of tractors and implements used in agriculture.

1. COURSE GOALS

- 1.1 Identify correct tractor parts and appropriate terminology.
- 1.2 Discuss safety procedures and identify risks associated with tractor operation.
- 1.3 Operate equipment safely and properly; individually and with farm implements.
- 1.4 Understand power generation and transmission systems.
- 1.5 Match the tractor and equipment to a specific task.
- 1.6 Identify and utilize common tools used in agricultural mechanics.
- 1.7 Perform operator level maintenance and adjustment of tractor systems.
- 1.8 Diagnose and repair minor equipment problems.

2. OUTCOMES

Upon satisfactory completion of this course, students will be able to:

- 2.1 explain the history of the tractor engine.
 - 2.1.1.1 Identify types of tractors.
 - 2.1.1.2 Utilize industry terminology.
- 2.2 demonstrate safety procedures.
 - 2.2.1.1 Understand and follow the USDA Safety Standards.
 - 2.2.1.2 Perform operations using appropriate hand signals.
 - 2.2.1.3 Properly and safely demonstrate starting and stopping.
 - 2.2.1.4 Recognize hazards and how to avoid them.
 - 2.2.1.5 Identify the proper way to transport equipment and implements.
- 2.3 demonstrate proper use of the power systems.
 - 2.3.1.1 Identify the parts and explain the usages and operations of an engine, clutch, transmission, final drives, hydraulics, P.T.O and electrical system.
- 2.4 demonstrate proper use of the controls.
 - 2.4.1.1 Demonstrate safely starting and stopping the equipment as well as identifying the systems required for those procedures.
 - 2.4.1.2 Demonstrate safely steering the equipment as well as identifying the systems required for those procedures.
 - 2.4.1.3 Demonstrate selection of the correct hitch, then properly and safely connect to the tractor and utilize that hitch to connect to implements.
 - 2.4.1.4 Demonstrate safe operation of the hydraulic systems.
 - 2.4.1.5 Demonstrate safe operations of the electrical system.
- 2.5 demonstrate proper use of the implement.
 - 2.5.1.1 Determine the correct implement for the task and demonstrate the safe and proper way of connecting, disconnecting, and utilizing the implement.
 - 2.5.1.2 Identify the adjustment options and safely demonstrate usage of the adjustments.
 - 2.5.1.3 Determine the correct procedures to follow in order to efficiently utilize implements.
 - 2.5.1.4 Identify the importance of the P.T.O. and demonstrate safe and proper use.
- 2.6 demonstrate typical field operation.
 - 2.6.1.1 Demonstrate the purpose and use of the ballast.
 - 2.6.1.2 Demonstrate stability in the tractor and implements.

- 2.6.1.3 Demonstrate daily maintenance procedures.
- 2.6.1.4 Demonstrate knowledge in selecting the appropriate speed for the task.
- 2.6.1.5 Demonstrate safe navigation of hazardous situations.
- 2.7 demonstrate maintenance procedures.
 - 2.7.1.1 Utilize the operator’s manuals to complete maintenance, diagnose potential problems, and reference parts.
 - 2.7.1.2 Demonstrate knowledge and usage of mechanical tools.
 - 2.7.1.3 Check and replace all serviceable fluids and parts.
 - 2.7.1.4 Inspect equipment and make and evaluate its condition.
- 2.8 demonstrate an understanding of the theory and operation of basic GPS, automatic steering, and field mapping circuits and systems.
 - 2.8.1 Follow diagnostic procedures outlined in the service manual and computer software to perform repair procedures.
 - 2.8.2 Explain the general components, installation and configurations of GPS.

3. METHODS OF INSTRUCTION

- 3.1 Lecture and PowerPoint presentations
- 3.2 Field work and trips
- 3.3 Class discussions
- 3.4 Guest speakers, as appropriate

4. LEARNING ACTIVITIES

- 4.1 Reading assignments
- 4.2 Hands-on laboratory exercises
- 4.3 Field trips to local businesses and laboratories
- 4.4 Internet explorations and activities \ videos
- 4.5 Research analysis and critical thinking scenarios
- 4.6 Homework assignments

5. EVALUATION

- 5.1 Exams and quizzes
- 5.2 Participation
- 5.3 Applied skill exercises
- 5.4 Written assignments

6. STUDENT RESPONSIBILITIES

- 6.1 Under AWC Policy, students are expected to attend every session of class in which they are enrolled.
- 6.2 If a student is unable to attend the course or must drop the course for any reason, it will be the responsibility of the student to withdraw from the course. Students who are not attending as of the 45th day of the course will be withdrawn by the instructor. If the student does not withdraw from the course and fails to complete the requirements of the course, the student will receive a failing grade.
- 6.3 Americans with Disabilities Act Accommodations: Arizona Western College provides academic accommodations to students with disabilities through Access ABILITY Resource Services (ARS). ARS provides reasonable and appropriate accommodations to students who have documented disabilities. It is the responsibility of the student to make the ARS Coordinator aware of the need for accommodations in the classroom prior to the beginning of the semester. Students should follow up with their instructors once the semester begins. To make an appointment call the ARS front desk at (928) 344-7674 or ARS Coordinator at (928) 344-7629, in the College Community Center (3C) building, next to Advising.
- 6.4 Academic Integrity: Any student participating in acts of academic dishonesty including, but not limited to, copying the work of other students, using unauthorized “crib notes”, plagiarism, stealing tests, or forging an instructor’s signature—will be subject to the procedures and consequences outlined in AWC’s Student Code of Conduct.
- 6.5 Texts and Notebooks: Students are required to obtain the class materials for the course.

- 6.6 Complete all assignments on the dates due.
- 6.7 Participate in class discussions and activities.
- 6.8 Take all quizzes and exams on date scheduled.
- 6.9 Arizona Western College students are expected to attend every class session in which they are enrolled. To comply with Federal Financial Aid regulations (34 CFR 668.21), Arizona Western College (AWC) has established an Attendance Verification process for "No Show" reporting during the first 10 days of each semester.
Students who have enrolled but have never attended class may be issued a "No Show" (NS) grade by the professor or instructor and receive a final grade of "NS" on their official academic record. An NS grade may result in a student losing their federal financial aid.
For online classes, *student attendance in an online class is defined as the following* (FSA Handbook, 2012, 5-90):
 - Submitting an academic assignment
 - Taking an exam, an interactive tutorial or computer-assisted instruction
 - Attending a study group that is assigned by the school
 - Participating in an online discussion about academic matters
 - Initiating contact with a faculty member to ask a question about the academic subject studied in the course