



Course Outline

2026-2027 Catalog

AET 34 - Farm Machinery

Catalog Description

Transfer Status: CSU

Unit(s): 3.00

Lecture: 42.50 Contact hours/85.00 Out of class hours/127.50 Total hours/2.50 Unit(s)

Lab: 25.50 Contact hours/0.00 Out of class hours/25.50 Total hours/0.50 Unit(s)

Total: 68.00 Contact hours/85.00 Out of class hours/153.00 Total hours/3.00 Unit(s)

Course Description: This course involves the design principles, uses, maintenance, adjustment, calibration, and repair of machinery used in California agriculture. Emphasis is placed on primary and secondary tillage, planting, chemical application, and harvesting equipment. Selection and operation of both machinery and tractors will be practiced. Safety will be stressed throughout.

Objectives

Upon successful completion of this course, the student should be able to:

1. List safety and operation rules for each type of equipment.
2. Operate tillage, planting, and harvest equipment safely and properly.
3. Identify equipment parts and their function using correct terminology.
4. Select equipment appropriate to specific operations.
5. Perform appropriate calibration calculations and adjustments.
6. Describe the principles of operation of each type of equipment.
7. Communicate and work cooperatively with others.

Course Content

Topic Titles / Suggested Time Topic

Lecture

<u>Topics</u>	<u>Lec Hrs</u>
Introduction to Farm Machinery	3.00
Farm Machinery and its Development in Modern Agriculture	3.00
Career Planning in Agriculture	2.50
Ag Power and Machinery	3.00
Principles of Power Transmission	3.00
Belts, Chains, Power Take-Off (PTO) Drives	3.00
Tillage Equipment	2.50
Planting Equipment	2.50
Fertilizer, Weed, and Pest Control Application	2.50
Grain Harvesting Equipment	2.50
Special Harvesting Equipment	2.50
Hay Equipment	2.50
Silage Equipment	2.50
Equipment Cost, Selection, and Management	2.50
Equipment Manufacturers in California	2.50
Agriculture in California	2.50

Total Hours: 42.50

Lab

<u>Topics</u>	<u>Lab Hrs</u>
Introduction to Farm Machinery	1.50
Farm machinery and its Development in Modern Agriculture	2.00
Career Planning in Agriculture	1.50
Ag Power and Machinery	2.00
Principles of Power Transmission	1.50
Belts, Chains, PTO Drives	1.50
Tillage Equipment	1.50
Planting Equipment	1.50

Topics	Lab Hrs
Fertilizer, Weed, and Pest Control Application	2.00
Grain Harvesting Equipment	1.50
Special Harvesting Equipment	1.50
Hay Equipment	1.50
Silage Equipment	1.50
Equipment Cost, Selection, and Management	1.50
Equipment Manufacturers in California	1.50
Agriculture in California	1.50
Total Hours:	25.50

Methods of Instruction

- A. Demonstrations
- B. Discussion
- C. Field Trips
- D. Homework: Students are required to complete two hours of outside-of-class homework for each hour of lecture
- E. Lecture
- F. Multimedia Presentations
- G. Reading Assignments
- H. Laboratory: Supervised maintenance and repair of equipment

Methods of Evaluation

- A. Quizzes
- B. Projects
- C. Demonstration
- D. Homework
- E. Class participation
- F. Practical Evaluations
- G. Mid-term and final examinations
- H. Class Discussion
 - I. Laboratory evaluation will include participation, punctuality, work habits, responsibility for completing projects, cooperative work skills, quality of work, and problem solving exercises or skill demonstrations.

Examples of Assignments

Reading Assignments

1. Read text chapter on tillage. Prepare an outline comparing primary and secondary tillage purposes and methods for discussion in class.
2. Read text chapter on grain harvesting. Be prepared to discuss the five functions the combine performs and be able to identify the components which accomplish each function.

Writing Assignments

1. Answer essay questions on hay harvesting equipment from this week's "Lab Howdy" and submit to instructor.
2. Using the internet find 5 agricultural equipment manufacturers in California. Describe them in a paper of at least 3 pages, including location(s), the types of equipment produced, number of employees, and skills required of them. Describe how you would approach each company for employment.

Out-of-Class Assignments

1. Using the internet complete the Online Scavenger Hunt provided by your instructor. Some answers may vary, and you will compare your findings with your classmates in lab.
2. Form a study group with your classmates to discuss chemical application safety. Questioning each other is an excellent method to enhance your learning and comprehension.

Recommended Materials of Instruction

Brian Bell. (2005). Farm Machinery. *Farming Press*, 5th.

Other Learning Materials

Equipment operators manuals to supplement text.

Materials: Safety glasses (to be worn while in lab); appropriate work clothing for lab including sleeved shirt, long pants, closed toe shoes; notebook for lecture.

Minimum Qualifications

Agricultural Engineering

Agriculture (Masters Required)

Diesel Mechanics

Welding

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