BUTTE COLLEGE
COURSE OUTLINE

I. **CATALOG DESCRIPTION**

AET 34 - Farm Machinery **3 Unit(s)**

Prerequisite(s): NONE
Recommended Prep: Reading Level IV; English Level III; Math Level II
Transfer Status: CSU
42.5 hours Lecture
25.5 hours Lab

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.

II. **OBJECTIVES**

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

A. List safety and operation rules for each type of equipment.
B. Operate tillage, planting, and harvest equipment safely and properly.
C. Identify equipment parts and their function using correct terminology.
D. Select equipment appropriate to specific operations.
E. Perform appropriate calibration calculations and adjustments.
F. Describe the principles of operation of each type of equipment.
G. Communicate and work cooperatively with others.

III. **COURSE CONTENT**

A. **Unit Titles/Suggested Time Schedule**

Lecture

Topics	Hours
1. Introduction to Farm Machinery	3.00
2. Farm Machinery and its Development in Modern Agriculture	3.00
3. Career Planning in Agriculture	2.50
4. Ag Power and Machinery	3.00
5. Principles of Power Transmission	3.00
6. Belts, Chains, Power Take-Off (PTO) Drives	3.00
7. Tillage Equipment	2.50
8. Planting Equipment	2.50
9. Fertilizer, Weed, and Pest Control Application	2.50
10. Grain Harvesting Equipment	2.50
11. Special Harvesting Equipment	2.50
12. Hay Equipment	2.50
13. Silage Equipment	2.50
14. Equipment Cost, Selection, and Management	2.50
15. Equipment Manufacturers in California	2.50
16. Agriculture in California	2.50

Total Hours	42.50

Lab

Topics	Hours
1. Introduction to Farm Machinery	1.50
2. Farm machinery and its Development in Modern Agriculture	2.00
3. Career Planning in Agriculture	1.50
4. Ag Power and Machinery	2.00
5. Principles of Power Transmission	1.50
6. Belts, Chains, PTO Drives	1.50
7. Tillage Equipment	1.50
8. Planting Equipment	1.50
9. Fertilizer, Weed, and Pest Control Application	2.00
10. Grain Harvesting Equipment	1.50
11. Special Harvesting Equipment	1.50
12. Hay Equipment	1.50
13. Silage Equipment	1.50
14. Equipment Cost, Selection, and Management	1.50
15. Equipment Manufacturers in California	1.50
16. Agriculture in California	1.50
Total Hours	25.50

IV. **METHODS OF INSTRUCTION**

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

V. **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.

VI. **EXAMPLES OF ASSIGNMENTS**

A. Reading Assignments
    1. 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.
    2. Read text chapter on tillage. Prepare an outline comparing primary and secondary tillage purposes and methods for discussion in class.

B. 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.

C. Out-of-Class Assignments
    1. 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.
    2. 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.

VII. RECOMMENDED MATERIALS OF INSTRUCTION

Textbooks:

A. Brian Bell. Farm Machinery. 5th Edition. Farming Press, 2005.

Materials Other Than Textbooks:

A. Equipment operators manuals to supplement text.
B. 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.

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