

Discipline: Agriculture	Sub-discipline: Mechanized Agriculture
General Course Title: Farm Machinery	Min. Units: 3 Semester
Proposed Suffix: L	
<p>Course Description: This course involves the use, maintenance, adjustment, calibration, and repair of the equipment commonly used in California agriculture. Emphasis on primary and secondary tillage, planting, chemical application, and harvesting equipment. The selection and operation of both machinery and tractors will be practiced. Safety will be stressed throughout. Laboratory required.</p>	
Required Prerequisites or Co-Requisites ¹	
Advisories/Recommended Preparation ²	
<p>Course Objectives: <i>At the conclusion of this course, the student should be able to:</i></p> <ul style="list-style-type: none"> • Learn the principles of operation of farm equipment • Safely operate wheel and track type tractors and attached implements, and self-propelled equipment • Select the proper equipment for a job and evaluate its performance • Calibrate equipment • Make operator level repairs to tractors and equipment • Appreciate the importance of safety rules and equipment • Understand the economics of mechanized agriculture • Perform safety, maintenance, and operational checks of tractors and equipment • Demonstrate ability to communicate and work cooperatively with others • Acquire a working knowledge of opportunities and careers available in agriculture • Select and acquire proper parts for equipment maintenance and repair 	
<p>Course Content:</p> <ol style="list-style-type: none"> 1. Introduction to Farm Machinery <ol style="list-style-type: none"> a. History b. Variety of equipment c. Basic safety procedures d. Careers and opportunities 2. Principles of Power <ol style="list-style-type: none"> a. Elements of force, work, and power b. Gas and diesel engines as power sources 3. Power Transmission <ol style="list-style-type: none"> a. Belts b. Chains c. PTO drives d. Hitching and implement compatibility 4. Machinery cost and selection <ol style="list-style-type: none"> a. Fixed and variable costs b. Data sources for equipment selection c. Fuel efficiency <p>Farm Machinery (Content Continued)</p>	

¹ Prerequisite or co-requisite course need to be validated at the CCC level in accordance with Title 5 regulations; co-requisites for CCCs are the linked courses that must be taken at the same time as the primary or target course.

² Advisories or recommended preparation will not require validation but are recommendations to be considered by the student prior to enrolling.

5. Maintenance
 - a. Preventative maintenance
 - b. Lubrication
 - c. Daily service
 - d. Service records
 - e. Parts acquisition
 - f. Operator level problem diagnosis

6. Primary tillage
 - a. Mold board plow
 - b. Chisel plow
 - c. Disc plow
 - d. Subsoilers

7. Secondary tillage
 - a. Disc harrow
 - b. Spike and tine harrow
 - c. Rollers
 - d. Cultipackers

8. Planting
 - a. Drills
 - b. Broadcast seeders
 - c. Row crop planters
 - d. Air seeders

9. Cultivation
 - a. Weeders
 - b. Cultivators
 - c. Rotary hoe

10. Pest control and fertilizer application
 - a. Dry application equipment
 - b. Field sprayers
 - c. Air blast sprayers
 - d. Calibration of applicators
 - e. Chemical safety

11. Harvesting equipment
 - a. Hay
 - b. Grain
 - c. Forage and ensilage
 - d. Nut and fruit crop

12. Miscellaneous
 - a. Loaders
 - b. Manure handling equipment
 - c. Pumps
 - d. Specialized equipment

Laboratory Activities: Individual Laboratory Activities are designed to support course objectives.

Methods of Evaluation: Lecture
Comprehensive Quizzes and Exams
Written Critical Thinking Scenarios

Methods of Evaluation: Laboratory
Laboratory Skill Validation by Observation
Laboratory Reports

Problem Analysis and Solution Research and Term Papers	Diagnostics and Problem Solving Laboratory Skill Practicum Certification Exams
Typical Textbooks, Manuals, or Other Support Materials <u>Farm Power and Machinery Management</u> , 9th ed., Hunt, Donnell, Iowa University Press, July 1995	
Statewide Articulation: CPSLO-BRAE 142 or 143, CSUF-MEAG 20, CSUC-AGET 150, UCD-ABT 49, other universities as lower division elective	
FDRG Lead Signature:	Date:
Mark E. Bender, PhD CSU Stanislaus	
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