Reedley College AgNR Department

Timothy E. Smith Ph.D. Plant Science 11

Moe Tabutol Contact: 559-859-8020

Course Information

**PLS 11 – Machine Technology**

**Catalog Description**

Principles of machinery management, operations, and maintenance for tractors, farm implements, forklifts, and harvesting equipment.

**Units and Hours**

3 units; 2 hours lecture - MW 10:00 a.m. to 10:50 a.m.

3 hours lab’ T 12.00 p.m. to 2:50 p.m.

Final: May 19, 2021– 10:00-11:50 p.m.

**Textbook**

Machinery Management, Fourth Edition Bowers.

**Materials**

- Approved Footwear - ScanTron 100 Question Test Cards - Calculator

**Assignments and Grading**

Three major tests will be given that correlate to the assigned readings and course lecture notes. Homework problem sets will be assigned and four laboratory practical exams are required. Weekly chapter quizzes will also be provided. A passing score of 70% on the safety exam is required to maintain enrollment in course.

Lecture: Quizzes 140

Safety Test 100

2 Midterms 200

Homework 100

Final Exam 100

Laboratory: Participation 180

Practical 180

**1000**

90% = A 80% = B 70% = C 60% = D Less = F

**Important Dates:** Last Day to Drop Class with Refund: January 22, 2021

Last Day to Drop w/o Transcript Record: January 29, 2021

Last Day to Change CR/NR: February 12, 2021

Last Day to Drop w/o Letter Grade Assigned: March 12, 2021

**Attendance**

Attendance of lectures and labs is required, and roll will be taken at each meeting. A "tardy" is considered an absence unless the student contacts and explains the incident. Students must make prior arrangements with the instructor to be excused from lectures and labs, make-up of missed tests and labs are permitted only with excused absences. A student may be dropped after an excessive number of absences have occurred.

**Course Outcomes:**

1. Integration of costs, operation and safety into machinery management.
2. Development of skills used in farming cultural operations

**Course Objectives:**

In the process of completing this course, students will:

1. demonstrate the ability to safely operate farm equipment and identify safety hazards.
2. perform standard pre-operational procedures on farm equipment and explain its importance

in preserving equipment life and preventing unnecessary repairs.

1. become knowledgeable and proficient with Global Positioning System guidance systems

and identify applications in agriculture.

1. competently maneuver farm tractors and equipment in precision operation courses and during turning, backing, field cultivation, herbicide and insecticide application, vegetation management, vertebrate pest control, bin and materials loading and forage planting and harvest.
2. perform routine maintenance procedures and inspections on farm equipment.
3. become effective in calculations pertaining to machine capacity, sprayer calibration, fertilizer application, horsepower, depreciation, operation costs, and custom operator costs.
4. identify farm equipment, implements and agricultural chemicals and amendments, and relate the costs and specific application in cultural operations.

**Assignments:** All assignments are due at the beginning of class on the date due. Late submission of assignments will be assessed a penalty of 50%. No exceptions are made.

**Academic Dishonesty:** Plagiarism and cheating are serious offenses and may be punished by failure on exam, paper or project; failure in course; and or expulsion from the University. For more information refer to the "Academic Dishonesty" policy in the College Catalog.

**Need for Assistance:** If you have any condition, such as a physical or learning disability, which will make it difficult for you to carry out the work as I have outlined it, or which will require academic accommodations, please notify me as soon as possible.

**Office Hours - Ag 4**

Monday 9:00 Wednesday 9:00 Thursday 9:00 – Email Friday 9:00 – Email

**PLS 11 – Machine Technology**

**Lecture / Lab Schedule**

Week Topic Reading Laboratory

Assignment

1 Introduction Chapter 1 Tractor/Implement ID

2 Equipment Safety Prepared Materials Basic Operation

3 Safety Test Crawler/Skid Steer I

Dimensional Analysis Prepared Materials Crawler/Skid Steer II

4 Measuring Machine Capacity Chapter 2-3 Crawler/Skid Steer III

5 Implement/Operation ID Back Hoe I

6 Matching Machine Size & Capacity Chapter 4 Back Hoe II

7 Estimating Power Requirements Chapter 5 Back Hoe III

8 **Review & Midterm Bio-Diesel Synthesis**

9 Estimating Fixed Costs Chapter 6 Forklift I

10 Estimating Fuel & Lubricant Costs Chapter 7 Forklift II

11 Estimating Repair Costs Chapter 8-9 Forklift III

12 Sprayer Calibration Sprayer Calibration

13 **Review & Midterm Wheel Tractor I**

14 Deciding When to Trade Chapter 10 Wheel Tractor II

15 Considering Future Capacity Needs Chapter 11 Vineyard Operations

16 Calculating Custom Work Costs Chapter 12 Forage Harvest

17 Comparing Ownership, Leasing, Chapter 13 Row Crop Operations

& Rental Costs Precision Ag Applications

18 **Final Exam**