

# Lassen Community College Course Outline

## AGR 40 Basic Agricultural Mechanics

3.0 Units

### I. Catalog Description

A course is designed to teach basic skills required in a farm shop, which includes, but is not limited to equipment repair, metal work, hydraulics, and farm construction. This course has been approved for hybrid delivery.

**Recommended Preparation:** Successful completion of ENGL105 or equivalent multiple measures placement.

Transfers to CSU only  
17 Hours Lecture  
102 Hours Lab  
Scheduled: Fall

### II. Coding Information

Repeatability: Not Repeatable, Take 1 Time  
Grading Option: Graded or Pass/No Pass  
Credit Type: Credit - Degree Applicable  
TOP Code: 011600

### III. Course Objectives

#### A. Course Student Learning Outcomes

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

1. Perform hot and cold metal repairs.
2. Demonstrate basic knots and rope splicing in an agriculture setting.

#### B. Course Objectives

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

1. Demonstrate equipment safety
2. Explain hot metal vs cold metal work
3. Explain the need for the use of tools and equipment for facility repair
4. Select the appropriate materials for a given job
5. Demonstrate basic plumbing skills.
6. Demonstrate rope splicing and knots
7. Demonstrate competent use of hand and power tools needed in a farm shop

### IV. Course Content

#### A. Cold Metal

1. Sharpening
2. Tapping and Threading
3. Shaping

#### B. Construction Materials

1. Metal
2. Wood
3. Plastics
4. Bills of Material

- C. Painting
  - 1. Surface Preparation
  - 2. Selection of appropriate paint
  - 3. Application
- D. Rope Work
  - 1. Care
  - 2. Splices
  - 3. Knots
  - 4. Splices
- E. Farm Wood Work
  - 1. Layout Work
  - 2. Hand Tools
  - 3. Power Tools
- F. Hot Metal
  - 1. Bending
  - 2. Welding
  - 3. Cutting
  - 4. Surface Treatments
- G. Cement
  - 1. Preparing forms
  - 2. Proper calculation for pouring
  - 3. Proper mixing
  - 4. Types and methods of finishing
- H. Plumbing
  - 1. Threading
  - 2. Cutting
  - 3. Layout
- I. Electrical
  - 1. Wire a light and switch
  - 2. Repair and replace damaged circuits

## V. Assignments

### A. Appropriate Reading

"Shop Work on the Farm", Jones, will be the primary source of course reading and will be supplemented by specific repair manuals and trade magazines.

### B. Writing Assignments

Sketches and blueprints detailing repair or fabrication procedures. Lists of materials with specific identification from parts catalogs.

### C. Expected Outside Assignments

Researching repair procedure specific to given equipment. General study of repair procedures. Discuss with experienced mechanic's repair procedures.

### D. Specific Assignments that Demonstrate Critical Thinking

Students will examine and evaluate projects of various ranches and other sites to assess workmanship and "best method" of task accomplishment.

## VI. Methods of Evaluation

### Traditional Classroom Evaluation

- A. The student's ability to follow instructions in the operation of hand and power tools.
- B. Completion of repair projects that remain operational in normal use.

C. The student's ability to complete repairs with a minimum of assistance.

D. Participation and demonstration of good workmanship.

### **Hybrid Evaluation**

All quizzes and exams will be administered during the in-person class time. Students will be expected to complete online assignments and activities equivalent to in class assignments and activities for the online portion of the course. Electronic communication, both synchronous and asynchronous (chat/forum) will be evaluated for participation and to maintain effective communication between instructor and students.

## **VII. Methods of Delivery**

Check those delivery methods for which, this course has been separately approved by the Curriculum/Academic Standards Committee.

Traditional Classroom Delivery     Correspondence Delivery

Hybrid Delivery                       Online Delivery

### **Traditional Classroom Delivery**

1. Lecture, laboratory exercises, use of repair manual assignments, and class discussion.
2. Utilizing printed instruction with replacement parts, and working with specialists for a given piece of equipment will be the primary methods of instruction.

### **Hybrid Delivery**

A combination of traditional classroom and online instruction will be utilized. Every semester, a minimum of 17 hours of class will be taught face-to-face by the instructor and the remaining hours will be instructed online through the technology platform adopted by the District. Traditional classroom instruction will consist of lectures, visual aids, discussions and group activities. Online delivery consists of instructor-generated information, readings, news communications, web links and activities as well as facilitation of forum based discussions and communications.

## **VIII. Representative Texts and Supplies**

Ray V. Herren, *Agriculture Mechanics*, 7<sup>th</sup> edition, Delamar Cengage Learning, 2014, ISBN: 9781285058955

## **IX. Discipline/s Assignment**

Agricultural Engineering

## **X. Course Status**

Current Status: Active

Original Approval Date: 2/27/1990

Revised By: Brian Wolf

Curriculum/Academic Standards Committee Revision Date: 11/17/2020

Revised for IPR, no change: 03/15/2022