

DET 86.1 Course Outline as of Spring 2002**CATALOG INFORMATION**

Dept and Nbr: DET 86.1 Title: FARM MACHINERY REPAIR 1

Full Title: Farm Machinery Repair 1

Last Reviewed: 9/27/2010

Units		Course Hours per Week		Nbr of Weeks	Course Hours Total	
Maximum	1.50	Lecture Scheduled	3.00	8	Lecture Scheduled	24.00
Minimum	1.50	Lab Scheduled	2.00	8	Lab Scheduled	16.00
		Contact DHR	0		Contact DHR	0
		Contact Total	5.00		Contact Total	40.00
		Non-contact DHR	0		Non-contact DHR	0

Total Out of Class Hours: 48.00

Total Student Learning Hours: 88.00

Title 5 Category: AA Degree Applicable

Grading: Grade or P/NP

Repeatability: 00 - Two Repeats if Grade was D, F, NC, or NP

Also Listed As: AG 86.1

Formerly: DET 83

Catalog Description:

This class will investigate the use, maintenance, repair and adjustment of equipment and light utility machinery commonly used in Sonoma County agriculture. Students will study and practice the maintenance and repair of machinery and tractors.

Prerequisites/Corequisites:**Recommended Preparation:****Limits on Enrollment:****Schedule of Classes Information:**

Description: This class will investigate the use, maintenance, repair and adjustment of equipment and light utility machinery commonly used in Sonoma County agriculture. Students will study and practice the maintenance and repair of machinery and tractors. (Grade or P/NP)

Prerequisites/Corequisites:

Recommended:

Limits on Enrollment:

Transfer Credit: CSU;

Repeatability: Two Repeats if Grade was D, F, NC, or NP

ARTICULATION, MAJOR, and CERTIFICATION INFORMATION:

AS Degree:	Area		Effective:	Inactive:	
CSU GE:	Transfer Area		Effective:	Inactive:	
IGETC:	Transfer Area		Effective:	Inactive:	
CSU Transfer:	Transferable	Effective:	Fall 2000	Inactive:	Fall 2017
UC Transfer:		Effective:		Inactive:	

CID:

Certificate/Major Applicable:

Certificate Applicable Course

COURSE CONTENT

Outcomes and Objectives:

Upon successful completion of this course students will be able to:

1. Describe the operating principles of farm machinery.
2. Describe the operation of typical mechanical and hydraulic systems as related to agricultural equipment.
3. Identify mechanical and hydraulic components of farm equipment and machinery.
4. Diagnose minor mechanical problems with farm machinery and perform basic repairs.
5. Evaluate condition of tractors and agricultural equipment by performing basic safety, maintenance, and operational checks.
6. Perform failure analysis of mechanical and hydraulic components and systems.
7. Demonstrate safe and orderly work practices.

Topics and Scope:

- I. Introduction to Farm Machinery
 - A. Variety of equipment and its uses
 - B. Maintenance and repair options
- II. Basic safety and environmental practices in the farm shop
 - A. Safety related to lifting and supporting equipment to be serviced or repaired
 - B. Safe use of tools and equipment
 - C. Proper disposal of coolant, lubricants, and contaminated fuel
- III. Principles of Power
 - A. Elements of force, work, and power
 - B. Internal combustion engines as power sources
- IV. Power Transmission
 - A. Belts

- B. Chains
- C. Gears
- D. Hydraulics
- E. PTO drives
- V. Electricity and Electrical Systems
 - A. Volts, OHMS, AMPS
 - B. Series and parallel circuits
 - C. Starting and charging systems
 - D. Tools and diagnosis
- VI. General Maintenance Practices
 - A. Daily service
 - B. Service records
 - c. Parts acquisition
 - D. Operator level problem diagnosis
- VII. Engine system operation, maintenance and repair
 - A. Fuel systems
 - B. Lubrication systems
 - C. Cooling systems
- VIII. Hydraulic system operation, maintenance and repair
 - A. Pumps
 - B. Valves
 - C. Rams
 - D. Filters
- IX. Miscellaneous Equipment
 - A. Loaders and blades
 - B. Pumps and generators
 - C. Specialized equipment

Assignment:

1. Study mechanical, hydraulic, and electrical system operational principles.
2. Perform mechanical, hydraulic, and electrical system component repair procedures.
3. Perform mechanical, hydraulic, and electrical system preventive maintenance procedures.
4. Perform failure analysis studies.
5. Inspect tractors and equipment and perform repairs.
6. Use diagnostic tools to evaluate equipment condition.
7. Maintain equipment maintenance logs.

Methods of Evaluation/Basis of Grade:

Writing: Assessment tools that demonstrate writing skills and/or require students to select, organize and explain ideas in writing.

None, This is a degree applicable course but assessment tools based on writing are not included because problem solving assessments and skill demonstrations are more appropriate for this course.

Writing
0 - 0%

Problem Solving: Assessment tools, other than exams, that demonstrate competence in computational or non-computational problem solving skills.

Lab reports, Quizzes

Problem solving
20 - 30%

Skill Demonstrations: All skill-based and physical demonstrations used for assessment purposes including skill performance exams.

Structured Lab Exercises

Skill Demonstrations
15 - 25%

Exams: All forms of formal testing, other than skill performance exams.

Multiple choice

Exams
30 - 50%

Other: Includes any assessment tools that do not logically fit into the above categories.

Attendance and participation.

Other Category
5 - 10%

Representative Textbooks and Materials:

Farm Machinery Maintenance and Operation, (FMO), Deere & Co. 1998 Ed.
Preventive Maintenance FOS, John Deere & Co., 5th Ed., 1999.