

**AGMEC 60 Course Outline as of Fall 2017****CATALOG INFORMATION**

Dept and Nbr: AGMEC 60 Title: AG MACHINE/EQUIP SKILL

Full Title: Agricultural Machinery &amp; Equipment Skills

Last Reviewed: 3/9/2015

Units		Course Hours per Week		Nbr of Weeks	Course Hours Total	
Maximum	2.00	Lecture Scheduled	1.00	17.5	Lecture Scheduled	17.50
Minimum	2.00	Lab Scheduled	3.00	6	Lab Scheduled	52.50
		Contact DHR	0.50		Contact DHR	8.75
		Contact Total	4.50		Contact Total	78.75
		Non-contact DHR	0		Non-contact DHR	0

Total Out of Class Hours: 35.00

Total Student Learning Hours: 113.75

Title 5 Category: AA Degree Applicable

Grading: Grade Only

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

Also Listed As:

Formerly: AG 86

**Catalog Description:**

Evaluation and practice of safe tractor and agricultural equipment operation. Students operate tractors and common farm implements as well as learn the proper techniques for the service and repair of agricultural equipment.

**Prerequisites/Corequisites:****Recommended Preparation:**

Eligibility for ENGL 100 or ESL 100

**Limits on Enrollment:****Schedule of Classes Information:**

Description: Evaluation and practice of safe tractor and agricultural equipment operation. Students operate tractors and common farm implements as well as learn the proper techniques for the service and repair of agricultural equipment. (Grade Only)

Prerequisites/Corequisites:

Recommended: Eligibility for ENGL 100 or ESL 100

Limits on Enrollment:

Transfer Credit:

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

## **ARTICULATION, MAJOR, and CERTIFICATION INFORMATION:**

<b>AS Degree:</b>	<b>Area</b>	Effective:	Inactive:
<b>CSU GE:</b>	<b>Transfer Area</b>	Effective:	Inactive:

<b>IGETC:</b>	<b>Transfer Area</b>	Effective:	Inactive:
---------------	----------------------	------------	-----------

<b>CSU Transfer:</b>	Effective:	Inactive:
----------------------	------------	-----------

<b>UC Transfer:</b>	Effective:	Inactive:
---------------------	------------	-----------

**CID:**

**Certificate/Major Applicable:**

Both Certificate and Major Applicable

## **COURSE CONTENT**

### **Outcomes and Objectives:**

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

1. Operate tractors and ATVs (all terrain vehicles) safely and efficiently.
2. Summarize basic tractor operating principles.
3. Recognize and identify the primary tractor parts and their function.
4. Demonstrate proficiency in tractor setup and adjustment.
5. Demonstrate proficiency in attaching equipment to the drawbar, three point hitch, power take-off shaft, and auxiliary hydraulic outlets.
6. Manage seasonal tractor field operations.
7. Operate specialty equipment safely and efficiently.
8. Diagnose basic operational conditions of equipment.
9. Evaluate service records and set-up appropriate service plans.
10. Perform basic preventive maintenance and repairs.
11. Analyze application requirements for spray, seed, and fertilizer applications.
12. Calculate equipment calibrations for spray, seed, and fertilizer applications and validate application quantity.

### **Topics and Scope:**

#### I. Introduction

- A. Overview of farm equipment
- B. Tractor types and configuration
- C. Tractor safety and accident prevention
- D. Tractor types and engine types
- E. Operating principles

#### II. Tractor Operation Skills

- A. Prestarting maintenance and safety checks
  1. Starting the tractor engine
  2. Tractor driver responsibilities
  3. Basic operating principles

- B. Tractor movement
- C. Implement hook-up and backup
- III. Farm Tractors and Engines
  - A. Tractor system identification
  - B. Engine types
  - C. Basic operating principles
- IV. Farm Tractor Set-up
  - A. Adjustment
  - B. Attaching tractor implements
    - 1. Attaching equipment to the drawbar
    - 2. Three point hitch
    - 3. Power take-off shaft
    - 4. Auxiliary hydraulic outlets
- V. Tractor Field Operations
  - A. Primary tillage
  - B. Fertilizing (pre-plant)
  - C. Seeding
  - D. Irrigating
  - E. Cultivating and mowing
  - F. Spraying and fertilizing (post-plant)
    - 1. Calculating calibrations
    - 2. Validating application quantities
- VI. Farm Machinery and Tractor Maintenance and Repairs
  - A. Definition and importance of maintenance and repairs
  - B. Maintenance and repair records
  - C. Engine tune-up
  - D. Service and adjustment to engines and equipment

**Assignment:**

1. Reading assignments, approximately 15 -20 pages per week.
2. Lab reports, including preoperation; tractor & equipment review; calibrations for fertilizing, seeding and spraying; pre-evaluation of servicing requirements; completed service report.
3. Machinery and equipment operation skills.
4. Skill/performance exams: tractor and equipment operation.
5. Four quizzes; two tests; final exam.

**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

Problem solving  
20 - 40%

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

Performance exams, Tractor & equipment operation.

Skill Demonstrations  
20 - 30%

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

Multiple choice, True/false, Matching items, Completion, Short answer.

Exams  
40 - 50%

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

Attendance and participation.

Other Category  
0 - 10%

**Representative Textbooks and Materials:**

Fundamentals of Machine Operation: Tractors, 4th ed. Deere & Company Service Publications, 2008

Fundamentals of Machine Operation: Preventive Maintenance, 6th ed. Deere & Company Service Publications, 1999. (classic)

National Safe Tractor and Machinery Operation Program: Student Manual, 2nd Edition. Hobar Publications. 2013.

Instructor prepared materials