



## MASTER COURSE OUTLINE

**COURSE TITLE:** Drivetrains I

Dept.: Agricultural Mechanics

CIP Code: 01.0205

**CREDITS:** 6

Total Contact Hrs Per Qtr.: 88

Distribution Design:

Course Num: 151

Intent Code:

Lecture Hrs: 44

**DATE:**4/29/20

(Formerly:

Program Code: 123

Lab Hrs: 44

Other Hrs:

**Prepared By: Brett Iksic**

### COURSE DESCRIPTION (as it will appear in the catalog)

In this course students will learn how power is transferred from engine to ground and PTO in various agricultural drive systems. Additionally, students will learn how torque is amplified, and how power transfer is adjusted. These principles will be first taught in the classroom and then demonstrated in a lab providing students with a both theoretical, and hands-on, learning experience in the safe operation of drivetrain systems.

**PREREQUISITES:** AGM 102 Agricultural Equipment and Workplace Safety (required) AGM 109 Shop Skills I (recommended).

**TEXTBOOK GUIDELINES:** Textbook determined by Agriculture Mechanics Faculty (Example: Modern Diesel Technology Heavy Equipment Systems, Robert Huzij, Angelo Spano, Sean Bennett).

**STUDENT LEARNING OUTCOMES:** *Upon successful completion of the course, students should be able to demonstrate the following knowledge or skills.*

1. Articulate how power is transferred and how torque is amplified.
2. Describe power flow in various drivetrain systems.
3. Explain drivetrain component function.
4. Describe clutch operation.
5. Describe PTO use in various contexts.
6. Perform adjustments on heavy equipment.

### INSTITUTIONAL OUTCOMES

3. Students will be able to demonstrate teamwork, ethics, safety awareness, and/or workplace specific skills related to agricultural mechanics.

### COURSE CONTENT OUTLINE

1. Drivetrain Safety
2. Geared transmissions and drop boxes
  - Heavy Manual Transmission Operation
  - Manual Transmission Clutch Operation and Adjustments
  - Service and Repair
3. Drop boxes
  - Operation and Function
4. Final Drives
  - Operation and Function
  - Variations
  - Service and Repair
5. PTO
  - Operation and Function
  - Variations
  - Power transfer

**DEPARTMENTAL GUIDELINES** *(optional)*

\_\_\_\_\_  
**DIVISION CHAIR APPROVAL**

\_\_\_\_\_  
**DATE**