COURSE MEETS: Lecture: MWF 11:00 to 11:50 in KH 307
Lab: Th 10:00 to 11:50 in KH 307 or KH B1

TEXT: Machinery Management, Deere & Co., 2008

LAB FEE: $15.00 fee for this course to cover consumable materials used during labs.

INSTRUCTOR: Dr. Bart Gill

OFFICE: B-22 Knoblauch Hall
Office Telephone: 309.298.2395
Home Telephone: 717.443.7017
E-mail: BE-gill@wiu.edu

OFFICE HOURS: MWF: 10:00 to 11:00 or by appointment
W: 1:00 to 2:00

Dr. Gill’s Spring Semester 2013 Schedule:

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Course Description: Principles of owning, operating and adjusting tractors, combines, tillage equipment, planting equipment, and material applicators. Principles of operation and repair of agricultural hydraulic equipment.

Overall Course Objectives:
A) Develop knowledge of the management principles involved in sizing agricultural tractors and machinery.
B) Expose student to current and future trends in agricultural machinery design and technology.
C) Develop knowledge of and skill in repairing agricultural hydraulic equipment.

COURSE EVALUATION

Grading Scale: 90% - 100% = A 70% - 79% = C
86% - 89% = B+ 60% - 69% = D
80% - 85% = B <60% = F
76% - 79% = C+
Use of unauthorized notes or aids during quizzes and tests will be dealt with according to University regulations. Student’s rights and responsibilities can be found by going to the WIU home page, Personnel, Provost Page, Student Rights and Responsibilities.

I encourage you to obtain help if you do not understand how to do a "take home" assignment. I am available at most any time to assist you, but if this is not convenient, you may get someone else from the class to explain or demonstrate the task at hand. I do, however, strongly suggest that you do your own work. That is, you must mentally and physically work through the assignment so that you can demonstrate, when required, that you have the required competency (ies).

Assignments are due on the day specified. Assignments turned in after the graded assignment is returned to the rest of the class will be scored ZERO.

Western Online:
Students are required to use the course website at: www.westernonline.wiu.edu and most assignments will be submitted through the website. Course notes, handouts, and additional material may be posted throughout the semester on this website.

Weekly Journal:
At the end of each week (Weeks 1 – 15; 15 total entries worth 10 pts. each) students will be expected to write a journal entry reflecting on the events of the week. At certain points throughout the semester Dr. Gill may assign topics to Journal Entries. The journal entries will be submitted through Western Online. Each journal entry should include a summary of new knowledge gained and how it will assist the student in the future. Also, each entry should consist of the student’s reaction to the new knowledge gained (negative or positive). The final journal entry will focus on your overall experience throughout the class.

Written Assignments (other than journal entries):
- Should be typed using 12 pt. font, 1 inch margins, double spaced (unless otherwise noted).
- Should be submitted with a cover sheet including your name, the date, the class, and the assignment title.
- Assignments submitted on Western On-line should be submitted as an attached word document, unless otherwise specified.

ATTENTION EDUCATION MAJORS

The changes within the state certification requirements, which go into effect immediately for all of those students who graduate in the spring 2012 and after, state you are required to receive a grade of a "C" or better in this course in order to meet these new requirements. With the new university +/- grading system, receiving a "C-" or below will require you to retake this course or find a substitute course to meet School of Agriculture graduation requirements.
ABSENCE POLICY

Attendance is required; it will be taken each class session. **You are allowed THREE unexcused absences. Starting on the FOURTH, your grade will drop 5% for each additional unexcused absence.** If you anticipate an excused absence, notify me in advance (in writing). In cases where advanced notification is not feasible (e.g. accident, or emergency), you must provide notification by the end of the second working day after the absence. Notification for all excused absences should include a written explanation indicating the reason for the absence, why notice could not be sent prior to the missed class (if applicable), all documentation required, and suggested arrangements for making up what you missed in class (assignments, participation points, etc.) After two working days, notification and documentation for excused absences may not be accepted.

**Participation and Expectations:**
Class participation will be worth 10% of your final grade. Participation may be addressed in various formats, such as class activities, assessments, discussion, attendance and etc. Check your email every day—when out of the classroom, this is my only way to communicate with you; every effort will be made to notify you of any issues in advance.

**NOTE:** Even though you are allowed three absences before you are given an overall grade deduction, you are responsible for what occurs in the classroom on a daily basis. When you are absent, you may miss earning participation points in class.

ADA COMPLIANCE

“In accordance with University policy and the Americans with Disabilities Act (ADA), academic accommodations may be made for any student who notifies the instructor of the need for an accommodation. For the instructor to provide the proper accommodation(s) you must obtain documentation of the need for an accommodation through Disability Resource Center (DRC) and provide it to the instructor. It is imperative that you take the initiative to bring such needs to the instructor's attention, as he/she is not legally permitted to inquire about such particular needs of students. Students who may require special assistance in emergency evacuations (i.e. fire, tornado, etc.) should contact the instructor as to the most appropriate procedures to follow in such an emergency. Contact Disability Resource Center (DRC) at 298-2512 for additional services.”

**SYLLABUS IS SUBJECT TO CHANGE AT THE INSTRUCTOR'S DISCRETION**
Lecture/Lab

Week 1
1/14 Course introduction & objectives
1/16 Unit conversions
1/17 Typical questions associated with machinery management (Chapter 1)
1/18 Measuring machine capacity: throughput & material capacity (Chapter 2)

Week 2
1/21 No Class – Martin Luther King Day
1/23 Improving Field Efficiency (Chapter 3)
1/24 Matching machine size and capacity: theoretical, effective, & actual field capacities (Chapter 4)
1/25 Quiz - Chapters 1-4

Week 3
1/28 Power Requirements of farm machinery: draft, horsepower, & torque (Chapter 5)
1/30 Power Requirements continued
1/31 Machinery replacement decisions; machinery fixed costs (Chapter 6)
2/1 Quiz - Chapter 5

Week 4
2/4 Machinery replacement decisions; machinery fixed costs continued
2/6 Machinery fuel & lubricant Costs (Chapter 7)
2/7 Quiz – Chapter 6-7
2/8 WIU Farm Expo-Meet at Western Hall

Week 5
2/11 Estimating repair costs (Chapter 8)
2/13 Estimating total machine costs (Chapter 9)
2/14 Timeliness costs
2/15 Quiz – Chapters 8-9

Week 6
2/18 Principles of hydraulics
2/20 Hydraulic systems on agricultural machines, Hydraulic accessories
2/21 Hydraulic cylinders
2/22 Exam 1

Week 7
2/25 Hydraulic cylinder problems
2/27 Hydraulic pumps and motors
2/28 Hydraulic cylinder repair lab (wear work clothes)
3/1 Quiz - hydraulic principles, accessories & hydraulic cylinders

Week 8
3/4 Hydraulic pumps and motors
3/6 Hydraulic pumps and motors selection & sizing
3/7 Hydraulic pump and motor repair lab (wear work clothes)
3/8 Quiz -hydraulic pumps & motors
Spring Break 3/11 – 3/15

Week 9
3/18 Hydraulic hoses
3/20 Hydraulic control valves
3/21 Hydraulic hose assembly, cylinder and pump testing
3/22 Hydraulic control valves continued

Week 10
3/25 Hydraulic valves continued, hydraulic system trouble shooting
3/27 Hydraulic symbols
3/28 Hydraulic cylinder assembly; pump and motor testing
3/29 Exam 2

Week 11
4/1 Primary and secondary tillage equipment
4/3 Student presentations on primary tillage equipment
4/4 Student presentations on secondary tillage equipment
4/5 Quiz - tillage equipment

Week 12
4/8 Function of planting equipment and types, Seeding & plant growth zones
4/10 Student presentations on Row crop planting/drift equipment
4/11 Field trip – Good Hope Fertilizer, Inc.
4/12 Quiz - planters and drills

Week 13
4/15 Liquid applicators
4/17 Student presentations on liquid/dry applicators
4/18 Sprayer calibration
4/19 Spray monitors

Week 14
4/22 Grain harvesting developments; grain harvesting systems,
4/24 Student presentations on combines
4/25 Field trip - John Deere Combine plant
4/26 Machinery trading decisions (Chapter 10)

Week 15
4/29 Considering Future Capacity Needs (Chapter 11)
5/1 Estimating Custom Work Costs (Chapter 12)
5/2 Student presentations on GPS/GIS technology related to agricultural machinery
5/3 Comparing Ownership, leasing and rental costs (Chapter 13)

**Final Exam – Wednesday, May 8, 10:00 AM – 12:00PM**

**SCHEDULE IS SUBJECT TO CHANGE AT THE INSTRUCTOR’S DISCRETION**