Course Outline

Course Title: Power Transmission I
Semester Course Prefix and Number: MEST 2270
Number of Credits: 3
Number of Lecture Credits: 1
Number of Lab Credits: 2
Number of Lab Hours: 4
Number of Studio/Demonstration/Internship Credits: 0
Semester(s) Offered: Fall
Class Size: 24
Approved By: Andy White
Approval Date: April 2009
Revision Date: March 31, 2009

Catalog Description:
The purpose of this course is to introduce the student to the study of mechanical power transmission. Areas of study will include gear types and their relation to torque, drive axles, final drives, manual clutches, manual transmissions (gear boxes), and drive lines. The student will learn to service and repair these systems safely and properly.

Prerequisites and/or recommended entry skills/knowledge:
Course Prerequisite(s): MEST 1245 Mobile Equipment Fundamentals
Reading Prerequisite:
Composition Prerequisite:
Mathematics Prerequisite:

Career Programs and Transfer Majors Accessing this Course:
Mobile Equipment Service Technician

Minnesota Transfer Curriculum Goal(s) partially met by this course if applicable:
(Notes: No more than two goals may be met by any one course. Curriculum Committee review and the Chief Academic Officer’s approval are required.)
0. None
1. Communications
2. Critical Thinking
3. Natural Sciences
4. Mathematical/Logical Reasoning
5. History and the Social and Behavioral Sciences
6. The Humanities and Fine Arts
7. Human Diversity
8. Global Perspectives
9. Ethical and Civic Responsibility
10. People and the Environment
**Learning Outcomes**: (including any relevant competencies listed in the Minnesota Transfer Curriculum)

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

1.) Follow proper safety procedures.
2.) Identify the various types of gears used in mobile equipment applications.
3.) Perform related math calculations. (gear ratios, gear speed, gear pitch, and torque multiplication)
4.) Explain the relationship between torque and speed through various gear combinations.
5.) Identify the various types of clutches and flywheels used in mobile equipment.
6.) Identify various mechanical clutch components.
7.) Identify the major components in a typical mechanical transmission.
8.) Trace power flows through mechanical transmissions.
9.) Explain the importance of lubricant selection for mechanical drive components.
10.) Explain the importance of preventive maintenance inspections for mechanical drive components.
11.) Explain the fundamentals of drivelines.
12.) Demonstrate the proper maintenance procedures for drivelines.
13.) Identify the components of the differentials used in mobile equipment.
14.) Explain the operation of the differentials used in mobile equipment.
15.) Explain the maintenance and adjustment procedures for differentials used in mobile equipment.
16.) Explain the purpose of final drives used in off road mobile equipment.
17.) Identify the construction features of final drives.
18.) Perform routine diagnostics for mechanical drive components.
19.) Demonstrate proper use of hand tools, power tools, and other related specialty tools.
20.) Perform tasks cooperatively

**Student Assessment Methods**:  
Homework, Lab Assignments, Hands-on Tests, Written Tests

**Use of Instructional Technology**: (includes software, interactive video and other instructional technologies):


**Outline or Statement of Major Course Content**:  
See Course Description above

**Additional Special Information**: (special fees, directives on hazardous materials, etc.)  
None

**Transfer Information**: (Please list colleges/majors that accept this course in transfer.)

**Approvals**:

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<tr>
<th>Body</th>
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**Distribution**: Original – Administrative Office  
**Copies**:  
Curriculum Committee Chair, AASC Chair, Transfer Specialist, Originating Faculty Member, Scheduler, Records, Student Services, Learning Center, Library  
**Revised**: October 2006