MESABI RANGE COMMUNITY & TECHNICAL COLLEGE

Course Outline

Course Title: Mobile Equipment Hydraulics II | **Submitted By: Frank Malone**
Semester Course Prefix and Number: MEST 2255 | **Approval Date:**
Old Quarter Course Prefix and Number: | **Revision Date: October 2009**

Number of Credits: 3 | **Number of Lecture Credits: 1**
Semester(s) Offered: Spring | **Number of Lab Credits: 2** **Number of Lab Hours: 4**
Class Size: 24 | **Number of Studio/Demonstration/Internship Credits:**
Negotiated by AASC on: (date)

Course Purpose Code:

_____ **0 –** Developmental Courses
_____ **1 –** Non-transferable, General Education
__X__ **2 –** Technical course related to career programs
_____ **3 –** College course which has the primary goal of applying certain concepts (e.g. vocal ensemble)
_____ **4 –** Other college course not considered a part of general education (MNTC) (e.g. computer science, health, physical education)
_____ **5 –** Course which is intended to fulfill the Minnesota Transfer Curriculum (MNTC) requirements or intended for transfer.
_____ **9 –** Continuing Education/Customized Training specialized credit course (not occurring in 0-5)

Catalog Description:

This course covers electronic and basic hydraulic systems and print reading as they relate to mobile equipment repair. The student will learn how advanced electronic hydraulic components are used on mobile equipment as well as how to read basic hydraulic and electronic schematics and symbols. The student will also learn the math functions required for hydraulic system repair and maintenance.

Prerequisites and/or recommended entry skills/knowledge:

Course Prerequisite(s): MEST 1255 M.E Hydraulics I
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. __X__ 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.) Demonstrate proper safety procedures.

2.) Define Pascal's Law.
3.) Explain the force triangle (Force = Pressure x Area).
4.) Define Bernoulli's Principal.
5.) Explain the relationship between flow and pressure.
6.) Identify various types of hydraulic fittings, lines and hoses.
7.) Apply electronic and printed service information.
8.) Explain the relationship between hydraulic lines and hydraulic hoses.
9.) Properly repair or replace faulty hydraulic lines and hoses.
10.) Explain hazards associated with hydraulic system repairs.
11.) Explain the importance of selecting the proper hydraulic fluid for different applications.
12.) Explain the importance of filtration in a hydraulic system.
13.) Identify the components of a electronic controlled hydraulic system.
14.) Perform related math calculations.
15.) Define open-center system.
16.) Define closed-center system.
17.) Perform repair procedures on various hydraulic components.
18.) Identify how electronics controls apply to hydraulic systems.
19.) Diagnose electronic controls systems used on hydraulic systems.
20.) Understand hydraulic schematics diagram symbols.
21.) Comprehend hydraulic schematic diagrams.
22.) 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):

PowerPoint Presentations, Video Presentations, Equipment Specific Diagnostic Software, Digital Volt Ohm Meter.

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:

Body	Representative Signatures	Date
Curriculum Committee		
Faculty Association		
Academic Affairs Standards Committee		
Chief Academic Officer		

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