

MESABI RANGE COMMUNITY & TECHNICAL COLLEGE

Course Outline

Course Title: Basic Electrical Systems
Semester Course Prefix and Number: MEST 1250
Old Quarter Course Prefix and Number:

Submitted By: Andy White
Approval Date: Nov. 2008
Revision Date:

Number of Credits: 4
Semester(s) Offered: Fall
Class Size: 24
Number of Lecture Credits: 2
Number of Lab Credits: 2
Number of Studio/Demonstration/Internship Credits: 0
Number of Lab Hours: 4
Negotiated by AASC on: (date) November 2008

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:

The purpose of this course is to introduce the student to the basic electrical theory pertaining to and electrical systems found on mobile equipment. The main course content will include starting systems, charging systems, lighting systems, and batteries. The student will learn to safely and properly test, diagnose, and repair these systems.

Prerequisites and/or recommended entry skills/knowledge:

Course Prerequisite(s): None
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.) Follow proper electrical safety procedures.
- 2.) Define Ohm's Law.
- 3.) Define resistance.
- 4.) Define voltage.
- 5.) Define current.
- 6.) Identify series, parallel, and series-parallel electrical circuits.
- 7.) Interpret basic electrical schematics and diagrams.
- 8.) Perform related mathematical calculations.
- 9.) Define open-circuits.
- 10.) Define short-circuits.
- 11.) Diagnose basic wiring problems.
- 12.) Properly repair damaged wiring.
- 13.) Demonstrate proper soldering techniques.
- 14.) Properly perform storage battery maintenance.
- 15.) Perform testing and diagnosis of storage battery problems.
- 16.) Explain electrical charging circuits.
- 17.) Diagnose electrical charging circuits.
- 18.) Repair electrical charging circuits.
- 19.) Explain starting circuits.
- 20.) Diagnose starting circuits
- 21.) Repair starting circuits.
- 22.) Explain lighting circuits.
- 23.) Diagnose lighting circuits
- 24.) Repair lighting circuits
- 25.) Properly install ad-on lighting and wiring circuits.
- 26.) Demonstrate proper use of DMMS, Carbon Pile Testers, and other related tools.
- 27.) 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 Multi-Meters, Personal Computers, Internet.

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

