

# Dakota County Technical College

## HCEM 1132: Heavy Duty Electrical

### A. COURSE DESCRIPTION

Credits: 3

Lecture Hours/Week: 2

Lab Hours/Week: 1

OJT Hours/Week: \*.\*

Prerequisites: None

Corequisites: None

MnTC Goals: None

This is an introduction to electricity as applied to heavy equipment covering electronic theory and magnetism. Emphasis is on theory, diagnosis and repair of basic starting, charging, lighting and ignition systems. This course prepares students for Heavy Duty Electronics HCEM1234 through classroom instruction and lab practice. Prerequisites: None.

**B. COURSE EFFECTIVE DATES:** 08/21/2003 - Present

### C. OUTLINE OF MAJOR CONTENT AREAS

### D. LEARNING OUTCOMES (General)

1. demonstrate use of specialized equipment
2. demonstrate shop safety
3. identify wire gauge size
4. troubleshoot starting circuits
5. apply Ohm's Law to a series-parallel circuit
6. apply Ohm's Law to a parallel circuit
7. apply Ohm's Law to a series circuit
8. explain electro magnetism
9. explain fundamentals of magnetism
10. explain theory of direct current (DC) electricity
11. replace terminals and connectors
12. describe basic steps of troubleshooting electrical systems
13. explain operations of the starting motors
14. repair alternator and regulator failures
15. explain functions and types of charging circuits

### E. Minnesota Transfer Curriculum Goal Area(s) and Competencies

None

### F. LEARNER OUTCOMES ASSESSMENT

As noted on course syllabus

### G. SPECIAL INFORMATION

None noted