

## Course discipline/number/title: AMT 1720: Electrical Theory

### A. CATALOG DESCRIPTION

1. Credits: 4
2. Hours/Week: 4
3. Prerequisites (Course discipline/number): None
4. Other requirements: None
5. MnTC Goals (if any): NA

### B. COURSE DESCRIPTION: This course covers the theory of basic electricity, starting and charging systems, electrical accessories and troubleshooting and repair of these systems. This course also covers the design, function, diagnosis, and repair steps of conventional and electronic ignition systems.

### C. DATE LAST REVISED (Month, year): December, 2022

### D. OUTLINE OF MAJOR CONTENT AREAS:

1. Introduction to hematology
2. Collecting and handling blood samples
3. Complete blood count
4. Red blood cell indices
5. Morphology
6. Blood film evaluation
7. Normal hematologic values
8. Automated cell counters
9. Blood parasites
10. Introduction to urinalysis
11. Urine evaluation
12. Microscopic evaluation of urine
13. Urine properties

### E. LEARNING OUTCOMES (GENERAL): The student will be able to:

1. Apply Ohm's Law and relate electrical formulas to problem solving.
2. Show effective use of digital voltmeter and test lights.
3. Apply the theory of operation of starting and charging systems.
4. Apply logical diagnostic approach for repair of starting and charging systems.
5. Describe and test electrical accessories.
6. List troubleshooting steps for electrical problems.
7. Display understanding of differences in ignition systems.
8. Describe various ignition designs.
9. Show understanding of how ignition timing affects engine operation.
10. Identify sensors related to the ignition system.
11. Evaluate how different manufacturers manage misfire detection.
12. Follow proper diagnostic procedures.
13. Identify different fuel delivery systems and current fuel options.

### F. LEARNING OUTCOMES (MNTC): NA

### G. METHODS FOR EVALUATION OF STUDENT LEARNING: Methods may include but are not limited to:

1. Quizzes
2. Tests
3. Worksheets
4. Assignments

### H. RCTC CORE OUTCOME(S). This course contributes to meeting the following RCTC Core Outcome(s): **Critical Thinking.** Students will think systematically and explore information thoroughly before accepting or formulating a position or conclusion.

I. **SPECIAL INFORMATION (if any):** None