

**FORM VERSION: 5/95**  
**DATE REVISED: 0/00**

**PALOMAR COLLEGE**  
**COURSE OUTLINE OF RECORD FOR**  
**DEGREE CREDIT COURSE**

\_\_\_\_\_ Transfer course    X\_\_\_\_\_ A.A. degree applicable course

(check all that apply)

**COURSE NUMBER AND TITLE:** DMT 54 Heavy-Duty Electricity

**UNIT VALUE:** 3 units

**MINIMUM NUMBER OF SEMESTER HOURS:** 96 hours

**BASIC SKILLS REQUIREMENTS:**     Appropriate language and computational skills.

**ENTRANCE REQUIREMENTS:**

**PREREQUISITE:** None

**COREQUISITE:** None

**RECOMMENDED PREPARATION:**

**SCOPE OF COURSE:**

Heavy-duty electricity systems principles and service. Topics of study include electrical theory, batteries, wiring diagrams, 12V and 24V starters, alternators and electrical troubleshooting, and test equipment usage.

**SPECIFIC COURSE OBJECTIVES:**

The students will:

1. Be able to practice and describe special safety requirements when working with electrical systems and their components.
2. Be able to identify all electrical components and explain their function.
3. Be able to practice and describe correct electrical maintenance procedures and adjustments.
4. Be able to service major electrical components.
5. Be able to read electrical schematics.

**CONTENT IN TERMS OF SPECIFIC BODY OF KNOWLEDGE:**

Basic Electrical Outline

- I. Safety
  - A. Safety requirements when working with electricity.
  - B. Safety equipment and their usage.
- II. Electrical theory
  - A. Volts, ohms, and amps principles.
  - B. Formulas and their usage
- III. Electrical maintenance
  - A. Correct electrical maintenance procedures
  - B. Minor adjustments to system operation to maintain optimum performance.
  - C. Cable and terminal service.
- IV. System components
  - A. Identification

- 1. Identify all electrical components
- 2. Explain the function of each component
- B. Electrical system checks and adjustments
  - 1. Voltage tests
  - 2. Battery load testing
  - 3. Current (amps) flow tests
  - 4. Voltage drop and resistance testing.
- C. Operation and repair.
  - 1. Operation and overhaul procedure for alternators, starters, and related system components
- V. Electrical schematics
  - A. Symbols
    - 1. ISO formatting
    - 2. Pictorial drawings
  - B. Reading electrical diagrams
- VI. Technical references
  - A. Materials and internet usage
  - B. Diagnostic equipment
    - 1. DVOM meter
    - 2. VAT meter
    - 3. Current testers
    - 4. Circuit testers

**REQUIRED READING:**

Interstate Batteries, Heavy-Duty Commercial Troubleshooting Manual.  
 Dallax, TX: Interstate Battery System of America, Inc., 1996.

**SUGGESTED READING:**

None

**REQUIRED WRITING:**

Students are required to perform written and computer laboratory task assignments.

**OUTSIDE ASSIGNMENTS:**

Students are expected to read text assignments, study lecture/laboratory notes, and develop a research project that is electric in nature.

**INSTRUCTIONAL METHODOLOGY:**

Instructional aids will include power-point presentation, cut-a-way components, VCR tapes, and laboratory components as identified in sections 55761-55763, and 58161 of Title 5 Division 2.

**Check all that apply:**

- lecture
- laboratory
- lecture-laboratory combination
- directed study

**This course may be offered as a distance education course and meets Title 5 regulations 55370, 55372, 55374, 55378, and 55380.**

Yes  No

**If yes, check all that apply.** (see guidelines for preparation for definitions.)

- telecourse
- mediated instruction
- computer assisted instruction

**GRADING POLICY AND STANDARDS:**

Exams	30%
Lab Assignments	60%
Research Project	10%

**IS COURSE REPEATABLE FOR REASONS OTHER THAN DEFICIT GRADE:**  
Yes \_\_\_X\_\_\_ No \_\_\_ Number of times it may be taken for credit: 2

**CONTACT PERSON:** Joe Schaeffer ext. 2548

<b>SIGNATURES ON FILE</b>
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