Revised 1/2010

NOVA COLLEGE-WIDE COURSE CONTENT SUMMARY
DSL 141 - TRANSPORTATION ELECTRICAL SYSTEMS I (2 CR.)

Course Description

Studies basic operational theory of electrical systems used in public transportation vehicles. Covers electrical symbols, schematics, troubleshooting procedures, as well as the function, construction, and operation of the electrical system and its components. Lecture 2 hours per week.

General Course Purpose

This course is part one of a two part series in electrical systems designed to provide the student with a basic understanding of fundamental electrical theories required in the practical application of electricity to heavy-duty truck electrical circuits. Emphasis is placed upon learning electrical terminology and definitions such as current, electromotive force and resistance. Instruction is included on methods of control and balance of electrical circuits, solving electrical problems by using Ohm's law, series circuits, parallel circuits, magnetism and the principles of electromagnetic induction. The student will develop an understanding of batteries to include construction, theory of operation, testing, installation in heavy-duty trucks and servicing.

Course Prerequisites/Co-requisites

Ability to read, write, and speak the English language.

Course Objectives

Upon completion of this course, the student will be able to:

- Define the term electricity
- Apply Ohm’s Law and Kirchoff’s Laws to solve problems
- Describe the types of electrical circuits used in diesel equipment
- Describe the procedure and material required to solder a pair of copper wires
- Read and layout various electrical schematics
- Define the role of a battery in a vehicle electrical system
- Outline how batteries are arranged in multiple battery banks in truck chassis

Major Topics to be Included

- Various types of vehicle batteries
- Series, parallel, and series-parallel circuits
- Vehicle wiring and schematics
- Solenoids and magnetic switches