

**NOVA COLLEGE-WIDE COURSE CONTENT SUMMARY
AIR 111 - AIR CONDITIONING AND REFRIGERATION CONTROLS (3 CR.)**

Course Description

Study of electronic theory, magnetism, Ohm's Law, resistance, current flow, instruments for electrical measurements, transformers, inductance, capacitance. Lecture 2 hours. Laboratory 2 hours. Total 4 hours per week.

General Course Purpose

Basic electricity is designed to prepare the student for advanced study of motors, power controls and electrical circuit diagrams and their application to heating, refrigeration and air conditioning systems.

Course Prerequisite/Corequisites

Prerequisite: SDV 100

Course Objectives

As a result of the learning experience provided in this course, the student should be able to:

- Obtain proficiency in the knowledge of electron theory, magnetism, resistance, current flow, instruments for electrical measurements, and power distribution controls and their application
- Acquire a sound comprehension of the theory and principles of direct and alternating current
- Use ohm's law and the various electrical laws and principles as they apply to electrical circuits
- Demonstrate the skills needed in the use of the material and testing equipment as they apply to electrical systems
- Acquire a sound comprehension of the theory and operation of transformers, electric motors, and motor control devices

Major Topics To Be Included

Beginning with a discussion of atomic structure and the electron theory, the instructional material continues through electrical measurements, electrostatics, series parallel and series parallel circuits with the essential mathematics involved, resistance factors, power and energy, magnetism and electron magnetism and magnet-coil calculations. The most common used measuring instruments are discussed and labs performed using these measurements.

- Ohm's Law
- Series Circuits
- Parallel Circuits
- Series/Parallel Circuits
- Care and Use of Electric Test Equipment
- Direct and Alternating Current
- Types of Capacitors
- Transformers
- Phase Shift and Power Factor