

6. **Student Learning Outcomes** (Identify 1-6 expected learner outcomes using active verbs.)

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

Interpret the basic provisions of the NEC
Apply selected NEC articles to practical wiring applications
Employ applied mathematics to solve for unknowns such as resistance, power, wattage, and voltage in DC series and parallel circuits.
Diagram and differentiate DC series circuits from DC parallel circuits
Recognize the structure of matter and to apply basic electrical theory to electrical circuits.
Differentiate between wiring devices as used in specific building applications

7. **Course Objectives** (Identify specific teaching objectives detailing course content and activities. *For some courses, the course objectives will be the same as the student learning outcomes. If this is the case, please simply indicate this in this section).*

Apply the knowledge and skills necessary to perform the job assignments expected of a first year inside wireman apprentice.

8. **Course Content** (Brief but complete topical outline of the course that includes major subject areas [1-2 pages]. Should reflect all course objectives listed above. In addition, you may attach a sample course syllabus with a timeline.)

See Attached Topical Outline

9. **Representative Instructional Methods** (Describe instructor-initiated teaching strategies that will assist students in meeting course objectives. Include examples of out-of-class assignments, required reading and writing assignments, and methods for teaching critical thinking skills.) **If hours by arrangement are required by this course, indicate the additional instructional activity which will be provided during this time.**

Reading Assignments
Workbook Lab Assignments

10. **Representative Methods of Evaluation** (Describe measurement of student progress toward course objectives. Courses with required writing component and/or problem-solving emphasis must reflect critical thinking component. If skills class, then applied skills.)

Completion of lab homework
Examination upon completion of each unit
Demonstrated competency by successful completion of lab assignments

11. **Representative Text Materials** (With few exceptions, texts need to be current. Include publication dates.)

See Attached List

Prepared by: _____
(Signature)

Email address: schneider@smccd.edu

Submission Date: _____

- I. Review of Basic Electrical Theory
 - A. The Structure of Matter
 - B. Electron Theory
 - C. Sources and Effects of Electricity
 - D. Overview of DC Theory – Series and Parallel Circuits
 - E. Ohm’s Law

- II. Practical Application of Basic Electrical Theory: Series Circuits
 - A. Resistance in Series Circuits
 - B. Current in Series Circuits
 - C. Voltage in Series Circuits
 - D. Power
 - E. Power in Series Circuits

- III. Practical Application of Basic Electrical Theory: Parallel Circuits
 - A. Mathematics for Parallel Circuits
 - B. Voltage in Parallel Circuits
 - C. Resistance in Parallel Circuits
 - D. Current in Parallel Circuits
 - E. Power in Parallel Circuits

- IV. Practical Application of Basic Electrical Theory: Combination Circuits
 - A. Resistance in Combination Circuits
 - B. Current in Combination Circuits
 - C. Voltage in Combination Circuits
 - D. Power
 - E. Power in Combination Circuits

- V. Applying Basic Electrical Theory
 - A. Production of Electrical Current from Generators
 - B. Operation and characteristics of three wire systems
 - C. Kirchhoff’s Law’s
 - D. Thevenin’s & Norton’s Theorems

- VI. Introduction to the National Electric Code (NEC)
 - A. Interpreting the Language of the NEC
 - B. Understanding and applying Article 110 of the NEC
 - C. Understanding the NEC process
 - D. General Building Wire Properties and NEC Requirements
 - E. Understanding Conductor Insulation and NEC Specs

Representative Text Materials – ELEL 732

Callanan, Michael I., and Bill Wusunich. Electrical Systems Based on the 2005 NEC. Homewood, Illinois: American Technical Publisher, Inc. 2005.

National Fire Protection Associates, Inc. National Electric. Code 2005. Quincy, Massachusetts: NFPA, 2004.

National Joint Apprenticeship and Training Committee. Building a Foundation in Mathematics. Clifton Park, New York: Delmar Learning, 2005.

National Joint Apprenticeship and Training Committee. Codes and Practices Workbook I . Upper Marlboro, Maryland: NJATC Press, 2005.

National Joint Apprenticeship and Training Committee. DC Theory. Clifton Park, New York: Delmar Learning, 2004.

National Joint Apprenticeship and Training Committee. DC Theory Workbook. Upper Marlboro, Maryland: NJATC Press, 2005.

National Joint Apprenticeship and Training Committee. Job Information Workbook I. Upper Marlboro, Maryland: NJATC Press, 2005.