

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:

Analyze the work environment in order to employ proper safety measures
Recognize the major attributes of electrical materials
Evaluate and certify wire size, wire connections, wire insulation
Recognize and interpret NEC codes
Demonstrate proper technique with respect to fastening device installation
Interpret blueprint drawings
Recognize the proper formulas for fabricating conduit bends

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. Introduction to the Electrical Construction Industry and Apprenticeship Program
 - A. Attributes of an IBEW/NECA Apprenticeship
 - B. Introduction to OSHA
 - C. Safety, First Aid
 - D. Sexual Harassment

- II. Work Environment and Basic Skills
 - A. Proper use of Hand Tools
 - B. Electrical Hazard Awareness
 - C. Installation and Use of Fastening Devices

- III. Properties of Wire Construction/Insulation
 - A. Introduction to Wire Construction and Insulation Properties
 - B. Calculation of Building Wire Size
 - C. Construction and installation of wire connectors

- IV. Basic Conduit Bending/Trigonometric Functions
 - A. How to work with trigonometric functions
 - B. Fabrication of 90°, Offset, Kicks, Three and Four Point Saddle Bends
 - C. Calculation of Wire Size for Conduit

- V. Electrical Material Overview
 - A. Introduction to NEC Standards
 - B. Commonly Used Electrical Materials
 - C. Conductors

- VI. Basic Drafting/Blueprint Reading
 - A. Fundamentals of Blueprints and Drawings
 - B. Understanding Scales
 - C. Understanding Specifications, Elevations, and Schedules
 - D. Structured Wiring Symbols
 - E. Electrical Symbols
 - F. Mechanical Symbols

Representative Text Materials – ELEL 731

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

Mazur, Glen A. *Test Instruments*. 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. *Blueprints Workbook*. Upper Marlboro, Maryland: NJATC Press, 2005.

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 1*. Upper Marlboro, Maryland: NJATC Press, 2005.

National Joint Apprenticeship and Training Committee. Conduit Bending and Fabrication Textbook. Homewood, Illinois: American Technical Publisher, Inc. 2007.

National Joint Apprenticeship and Training Committee. Conduit Bending and Fabrication Lab Manual. Upper Marlboro, Maryland: NJATC Press, 2007.

National Joint Apprenticeship and Training Committee. Conduit Fabrication Workbook. Upper Marlboro, Maryland: NJATC Press, 2007.

National Joint Apprenticeship and Training Committee. Electrical Field Reference Handbook. Clifton Park, New York: Delmar Learning, 2005.

National Joint Apprenticeship and Training Committee. Job Information Workbook 1. Upper Marlboro, Maryland: NJATC Press, 2005.

National Joint Apprenticeship and Training Committee. NJATC Orientation Workbook 1. Upper Marlboro, Maryland: NJATC Press, 2005.

National Joint Apprenticeship and Training Committee. Residential Blueprints Set. Upper Marlboro, Maryland: NJATC Press, 1993.

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

Wright, Chuck. Blueprint Reading for Electricians. Clifton Park, New York: Delmar Learning, 2005.