College of San Mateo
Course Outline

☒ New Course
☐ Update/No change
☐ Course Revision (Minor)
☐ Course Revision (Major)

Date: 06/02/08

Department: ELEL **Number:** 740

Course Title: Electrical Apprenticeship X **Units:** 1.5

Total Semester Hours: **Lecture:** 0.0 **Lab:** 90.0 **Homework:** 0.0 **By Arrangement:** 0.0

Length of Course

☐ Semester-long
☒ Short course (Number of weeks 15)
☐ Open entry/Open exit

Grading

☒ Letter
☐ Pass/No Pass
☐ Grade Option (letter or Pass/No Pass)

1. **Prerequisite** (Attach Enrollment Limitation Validation Form.)

Indenture in the Electrical Apprenticeship Inside Wireman Program, approved by the California State Division of Apprenticeship Standards.

2. **Corequisite** (Attach Enrollment Limitation Validation Form.)

None

3. **Recommended Preparation** (Attach Enrollment Validation Form.)

None

4. **Catalog Description** (Include prerequisites/corequisites/recommended preparation.)

740 Electrical Apprenticeship X (1.5)
(Formerly ELEL 710) 90 lab hours per semester. Prerequisite: Indenture in the Electrical Apprenticeship Inside Wireman Program, approved by the California State Division of Apprenticeship Standards. Second half of year five of a five-year Electrical Apprenticeship Program. Power distribution systems, high voltage testing, automation networks, preparation for general electricians' certification, electrical project supervision.

5. **Class Schedule Description** (Include prerequisites/corequisites/recommended preparation.)

740 Electrical Apprenticeship X
Second half of year five of a five-year Electrical Apprenticeship Program. Power distribution systems, high voltage testing, automation networks, preparation for general electricians' certification, electrical project supervision. Formerly ELEL 710. Prerequisite: Indenture in the Electrical Apprenticeship Inside Wireman Program, approved by the California State Division of Apprenticeship Standards.

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:

Recognize the attributes of power distribution systems
Recognize the attributes of high voltage testing
Recognize the attributes of Automation Networks
Recognize the attributes of Electrical Project Supervision
Recognize and apply the NEC for successful completion of State of California General Electrician Certification

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 fifth 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. Understand Power Distribution Systems
   A. Terminology of Power Quality, Costs and Concepts
   B. Understand Types of Power Quality Problems
   C. Methods for Power System Troubleshooting

II. Introduction to High Voltage Testing
   A. Method of Insulation Testing
   B. Safety Procedures for High Voltage Testing
   C. Acceptance and Maintenance Testing

III. Introduction to Automation Networks
   A. Fundamentals of Automation Network
   B. Understanding Intelligent Nodes and Network Devices
   C. Integrating Building Automation Networks

IV. Preparation for State of California General Electricians Certification
   A. Understanding and Applying the NEC
   B. Practice Test Methods

V. Electrical Project Supervision – Level 1
   A. Introduction to Foremanship
   B. Understand and Apply EEO Laws
   C. Understand and Apply Job Cost Estimates
   D. Understand and Apply Electrical Sub-Contracts
   E. Understand and Apply Employee Relations
   F. Understand and Apply Material Requisitions

Representative Text Materials – ELEL 740

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

Dranetz-BMI, Inc. Power Quality Analysis. Edison, New Jersey: Dranetz-BMI, 2003

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

National Joint Apprenticeship and Training Committee. Code Calculations Textbook. Upper Marlboro, Maryland: NJATC Press, 2005.

National Joint Apprenticeship and Training Committee. Codes and Practices Workbook 5. Upper Marlboro, Maryland: NJATC Press, 2005.

National Joint Apprenticeship and Training Committee. Configuring and Installing Structured Cabling Systems Textbook. Upper Marlboro, Maryland: NJATC Press, 2005.

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

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

National Joint Apprenticeship and Training Committee. Significant Changes to the NEC, 2005 Edition. Upper Marlboro, Maryland: NJATC Press, 2005.

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