COURSE OUTLINE

ELEC 173
Introduction to the Electric Code

Prepared By: Michael Spearance

APRIL 2015
A. **TITLE:** INTRODUCTION TO ELECTRIC CODE

B. **COURSE NUMBER:** ELEC 173

C. **CREDIT HOURS:** 3

D. **WRITING INTENSIVE COURSE:** No

E. **COURSE LENGTH:** 15 Weeks

F. **SEMESTER(S) OFFERED:** Fall

G. **HOURS OF LECTURE, LABORATORY, RECITATION, TUTORIAL, ACTIVITY:**
   3 Lecture Hours per week

H. **CATALOG DESCRIPTION:**
   This course will cover the basics of understanding the National Electric Code, with electrical drawing illustrations. Topics include circuit, overcurrent protection devices, box, and wire sizing with service entrance design. A final project will include a residential electrical design in accordance with the National Electric Code.

I. **PRE-REQUISITES:** NA

J. **GOALS (STUDENT LEARNING OUTCOMES):**
   By the end of this course, the student will be able to:

<table>
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<tr>
<th>Course Objective</th>
<th>Institutional SLO</th>
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<tbody>
<tr>
<td>1. Demonstrate navigation of the NEC code references</td>
<td>2. Critical Thinking</td>
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<td>2. Apply NEC code references to installation practices</td>
<td>2. Critical Thinking</td>
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<td>3. Identify electrical symbols with architectural scale applications for electrical blueprint reading</td>
<td>2. Critical Thinking</td>
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<td>3. Professional Competence</td>
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<td>4. Apply calculated loads of a residential dwelling for sizing service entrances</td>
<td>2. Critical Thinking</td>
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<td>3. Professional Competence</td>
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<td>5. Apply key concepts of electrical circuit sizing appliances</td>
<td>2. Critical Thinking</td>
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<td></td>
<td>3. Professional Competence</td>
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<td>6. Analyze electrical blueprints to estimate electrical materials</td>
<td>2. Critical Thinking</td>
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<td>3. Professional Competence</td>
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<tr>
<td>7. Apply skills for residential house electrical system design as per NEC code specifications with material list and pricing</td>
<td>2. Critical Thinking</td>
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<td>3. Professional Competence</td>
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<td>8. Demonstrate the ability to present a formal electrical bid</td>
<td>3. Professional Competence</td>
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K. **TEXTS:**

L. **REFERENCES:** NA
M. **EQUIPMENT:** NA

N. **GRADING METHOD:** (P/F, A-F, etc.)
   A-F

O. **MEASUREMENT CRITERIA/METHODS:**
   - Examinations,
   - Homework assignments,
   - In-class exercises,
   - Quizzes
   - Attendance

P. **DETAILED COURSE OUTLINE:**

I. Introduction
II. History of the NEC
III. Navigating the NEC
IV. Dimensional work sheets
V. Electrical blue print symbols identification
VI. NEC Code Residential applications
   A. Bedroom
   B. Hallway-Stairwell
   C. Den
   D. Living Room
   E. Bathroom
   F. Kitchen
   G. Crawl Space
   H. Cellar
   I. Attached Garage
   J. Detached Garage
   K. Outdoor Receptacles
   L. Closets
   M. Interior Lighting
   N. Exterior Lighting
   O. Ceiling Fan-Light

VII. Rome Cable Identification
VIII. Overcurrent Protection Devices
IX. Smoke Detector Locations & Layout
X. Lighting Circuit Calculations
XI. General Purpose receptacle Calculations
XII. Service Entrance Calculations
XIII. Service Entrance Grounding Systems
XIV. Overhead Service Entrance Clearances
XV. Panel Working Clearances
XVI. Electrical safety Practices
XVII. Lock- Out Tag–Out Procedures
XVIII. Final Design Project

Q. **LABORATORY OUTLINE:** NA