COURSE SYLLABUS
ELEC 173 – Introduction to the National Electrical Code

Prepared By:

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NS 136A
A. **Title:** Introduction to the National Electrical Code

B. **Course Number:** ELEC173

C. **Credit Hours:** (Hours of Lecture, Laboratory, Recitation, Tutorial, Activity)
   
   # Credit Hours: 3
   # Lecture Hours: 3 per week
   # Lab Hours: per week
   Other: per week

   Course Length: 15 Weeks

D. **Writing Intensive Course:** No

E. **Course Length:** (15 weeks)

F. **Semester(S) Offered:** Fall Semester

G. **Hours of Lecture, Laboratory, Recitation, Tutorial, Activity:**
   
   2 – 1.25 Hour Lectures Per Week

H. **Catalog Description:** This course will cover the basics of understanding the National Electrical 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. Certificate/AAS Elective Credit.

I. **Pre-Requisites/Co-Requisites:** None

J. **Goals (Student Learning Outcomes):**
   By the end of this course, the student will be able to:

<table>
<thead>
<tr>
<th>Course Objective</th>
<th>Institutional SLO</th>
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<tbody>
<tr>
<td>a. Apply NEC references to installation practices</td>
<td>Professional Competence</td>
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<tr>
<td>b. Identify electrical symbols with architectural scale applications for electrical blueprint reading</td>
<td>Critical Thinking</td>
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<tr>
<td>c. Apply calculated loads of a residential dwelling for sizing service entrances</td>
<td>Critical Thinking Prof. Competence</td>
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<tr>
<td>d. Apply skills for residential house electrical system design as per NEC specifications with material list and pricing</td>
<td>Critical Thinking</td>
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e Demonstrate navigation of the NEC references | Critical Thinking


L. **REFERENCES:** NFPA. *NFPA 70 National Electrical Code 2014.* Quincy, Ma: NFPA

M. **EQUIPMENT:** Architectural Scale

N. **GRADING METHOD:** A-F

O. **MEASUREMENT CRITERIA/METHODS:**
   - Exams (Hourly/Final): 20%
   - Quizzes: 30%
   - Homework Assignments: 40%
   - Participation/Attendance: 10%
     (May be modified by instructor)

P. **DETAILED COURSE OUTLINE:**

I. **Introduction to NEC**
   1) History
   2) Listing /Labeling for Product Standards
   3) How to navigate the code book

II. **Definitions**
   A. Code terminology

III. **Boxes and Enclosures**
   A. Box Fill Calculations
   B. General Installation
   C. Box/Luminaire Support

IV. **Cables**
   1) General Installation
   2) Conductor Identification
   3) Grounded Conductors
   4) Underground Installation

V. **Raceways and Conductors**
   1) General Descriptions
   2) Types and Uses

VI. **General Provisions**
   A. Electrical Floor Plan (Blueprint)
   B. Branch Circuits
C. Receptacles
D. AFCI Requirements
E. Other Considerations
F. Lighting and Switching
G. Outdoor Receptacles and Lighting

VII. Specific Provisions
   A. Small Appliance Circuit
   B. Hallway/Stairs
   C. Closets
   D. Bathrooms
   E. Basement and Garage
   F. Laundry area
   G. Attic/Crawl Space

VIII. Load Calculation
   A. Compile Critical Information
   B. Standard Calculation Method

IX. Services and Electrical Equipment
   A. Wiring Methods
   B. Outside Clearances
   C. Working Space
   D. Equipment and Panel Boards
   E. Grounding