

**STATE UNIVERSITY OF NEW YORK
COLLEGE OF TECHNOLOGY
CANTON, NEW YORK**



**COURSE SYLLABUS
ELEC 173 – Introduction to the National Electrical Code**

Prepared By:

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**CANINO SCHOOL OF ENGINEERING TECHNOLOGY
ENVIRONMENTAL, CIVIL AND CONSTRUCTION TECHNOLOGY**

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:

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

e Demonstrate navigation of the NEC references	Critical Thinking
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K. **TEXTS:** Miller, Charles (2015). *Illustrated Guide to the National Electrical Code 6E*. Clifton Park, NY: Delmar/Cengage

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