

Course Code: ELX 115

Course Title: Electrical Lighting Technology and Practices

Department: Applied Sciences and Technologies

Effective Date: Summer 2026

PCS Code: 1.2 - Occupational/Technical Instruction

CIP Code: 46.0302

Repeatability: 0

Credit Hours

Catalog Notation: 1-2-2

Credit Hour Distribution:

Lecture: 1

Lab: 2

Clinical: 0

Total: 2

General Course Information

Catalog Description

Electrical lighting types, wiring practices, and lighting practices (photometrics); energy-saving practices and technologies gaining popularity in older buildings, homes, and new installations.

General Course Objectives

The student should be able to describe the nature of light, define terms used in lighting photometry, understand and identify the types of lighting, and understand how to troubleshoot and order the correct repair and re-lamping components for existing installations.

Minimum Placement Levels

English

None

Reading

None

Math

Placement out of MAT 060

Prerequisites

Credit in ELX 114

Methods of Evaluation

Students will be given a minimum of 4 quizzes, 4 labs, 1 final exam, and 1 lab practical exam.

Instructional Materials and Additional Supplies

Illustrated Guide to the National Electrical Code, 8th Edition. Charles R. Miller. Cengage Publishing.
978-0357371527

National Electrical Code 2020, 978-1455922970

Safety glasses

Course Content

General Learning Outcomes (GLOs)

- Reasoning and Inquiry: Students will demonstrate the ability to solve problems using deductive reasoning and logic, quantitative reasoning, or the scientific method.

Course Segments and Student Learning Outcomes

Course Segment	Learning Outcomes	Lecture Hours	Lab Hours	Clinical Hours
Electrical Lighting Overview	- Describe the nature of light, the concept of lumens and candlepower, the temperature (chromaticity) of light emitting devices, and how this compares with color-rendering index ratings of lamps. - Demonstrate ability to define common lamp categories and understand how lamps are characterized and classified based on type, size, shape, and different manufacturer catalog identifications.	4	8	0
High-Intensity Discharge Lamps for Industry	- Define, describe, and contrast the primary types of high-intensity discharge lamps used in industry and outdoor lighting, their identification, and their safe and proper handling and disposal. - Demonstrate troubleshooting processes for HID circuits, ballasts, fixtures, and lamps.	4	8	0
Lighting Control for Energy Efficiency and Ergonomics	- Define and describe smart lighting, zone lighting, daylighting, and multilevel lighting, and explain how natural light is being more efficiently utilized in newer construction. - Describe smart controllers and how they are used in newer construction. - Describe the energy savings that may result from the installation of motion sensors, timing units, and light sensors. - Demonstrate the ability to incorporate motion sensors, timing circuits, and light sensors into new and existing lighting circuitry.	4	8	0
Indoor and Outdoor Lighting Practices	- Articulate recommendations regarding the safe reuse and refurbishment of existing fixtures versus replacement, and how these choices might be dependent on individual circumstances. - Delineate NEC regulations outlining precautions and location considerations when replacing, re-lamping, or refitting a fixture. - Describe design considerations when installing lighting fixtures in context with spatial volume, available alternative light sources, and the purpose (or repurpose) of any given space. - Identify resources that indicate recommended fixture types, lumens, candlepower, height, and spacing in given commercial and residential settings for optimal use of the space. - Demonstrate the ability to select and install lighting systems based on criteria such as working space, utilization, ambient lighting, and manufacturer's specifications.	3	6	0

Total Contact Hours

Lecture Hours	Lab Hours	Clinical Hours
15	30	0