



COURSE SYLLABUS

ELPT 1345 Commercial Wiring

Catalog Description: Commercial wiring methods. Includes overcurrent protection, raceway panel board installation, proper grounding techniques, and associated safety procedures.

Lecture Hrs = 2, Lab Hrs = 2

Prerequisites: None

Semester Credit Hours: 3

Lecture Hours per Week: 2

Lab Hours per Week: 2

Contact Hours per Semester: 64

State Approval Code: 1509030000

Course Subject/Catalog Number: ELPT 1345

Course Title: Commercial Wiring

Course Rationale: Provides the student a hands-on approach to learn various methods of commercial construction including running conduit, wire pulling, and termination.

Instructional Goals and Purposes: The purpose of this course is to provide the student with basic skills required to work in the commercial wiring industry. The course will include basic instruction in all facets of commercial wiring.

Learning Objectives: Upon completion of this course, the student will be able to accomplish the following competencies:

1. Define safety rules and electrical hazards. (1Ai, 1Aii, 1Bv)
2. Display proficiency in the use of common measuring instruments -such as multimeters, ammeters, voltage and circuit testers- to check current, voltages, resistance and continuity. (1Biii, 2Ci, 2Ciii, 2Di, 2Dii, 2Ei, 2Eii, 2Eiii)
3. Interpret blueprints and wiring schematics to perform electrical installations. (1Ai, 1Aii, 1Aiii, 2Ci, 2Ciii, 2Di, 2Dii, 2Ei)
4. Calculate circuit sizes and overcurrent protection needed for the installation of branch circuits, feeders and service entrance conductors. (1Ai, 1Aii, 1Aiii, 2Ci, 2Ciii, 2Di, 2Dii, 2Ei)
5. Calculate sizes and determine suitability of various boxes, conduit bodies and related hardware utilized in commercial installations. (1Ai, 1Aii, 1Aiii, 2Ci, 2Ciii, 2Di, 2Dii, 2Ei)

6. Explain the proper use and installation of wiring devices according to the National Electrical Code. (1Ai, 1Aii, 1Aiii, 2Ci, 2Ciii, 2Di, 2Dii, 2Ei)
7. Determine proper size and type of wires and conduit for specific applications. (1Ai, 1Aii, 1Aiii, 2Ci, 2Ciii, 2Di, 2Dii, 2Ei)
8. Describe the requirements of grounding and bonding of electrical installations & demonstrate proper grounding methods. (1Ai, 1Aii, 1Aiii, 2Ci, 2Ciii, 2Di, 2Dii, 2Ei)
9. Perform single- phase and three-phase load calculations in accordance with the National Electrical Code. (1Ai, 1Aii, 1Aiii, 2Ci, 2Ciii, 2Di, 2Dii, 2Ei)
10. Describe the requirements of a proper service entrance installation. (1Ai, 1Aii, 1Aiii, 2Ci, 2Ciii, 2Di, 2Dii, 2Ei)

Methods of Instruction/Course Format/Delivery: This course is taught either as weekly lecture class or an online course.

Course Grade:

Note: The instructor may implement a different grading policy.

Attendance and Participation:	10 %
Weekly assignments:	30 %
Quizzes:	30 %
Final Exam	30%

Exams: Any test missed by the student will be counted as a 0 unless prior arrangements have been made with the instructor.

Assignments: Assignments are due as assigned and 10 points for each day the work is late.

Texts, Materials, and Supplies:

Title: Modern Commercial Wiring
Author: Harvey N. Holtzman
Publisher: Goodheart-Willcox
Catalog Number: ISBN # 978-1-59070-438-7

Note: See student counselor or instructor concerning the acquisition of the books for this course.

Secretary of Labor's Commission on Achieving Necessary Skills (SCANS)

1. BASIC SKILL COMPETENCIES

A. Basic Skills

- i. **Reading:** Locate, understand and interpret written information in prose and in documents such as manuals, graphs and schedules.
- ii. **Writing:** Communicate thoughts, ideas, information and messages in writing, and create documents such as letters, directions, manuals, reports, graphs, and flow charts.
- iii. **Arithmetic & Mathematical Operations:** Perform basic computations and approach practical problems by choosing appropriately from a variety of mathematical techniques.
- iv. **Listening:** Receive, attend to, interpret, and respond to verbal messages and other cues.
- v. **Speaking:** Organize ideas and communicate orally.

B. Thinking Skills

- i. **Creative Thinking:** Generate new ideas.
- ii. **Decision Making:** Specify goals and constraints generate alternatives, consider risks and evaluate and choose the best alternative.
- iii. **Problem Solving:** Recognize problems and devise and implement plan of action.
- iv. **Visualize ("Seeing Things in the Mind's Eye"):** Organize and process symbols, pictures, graphs, objects, and other information.
- v. **Reasoning:** Discover a rule or principle underlying the relationship between two or more objects and apply it when solving a problem.

C. Personal Qualities

- i. **Responsibility:** Exert a high level of effort and persevere toward goal attainment.
- ii. **Self-Esteem:** Believe in one's own self-worth and maintain a positive view of oneself.
- iii. **Sociability:** Demonstrate understanding, friendliness, adaptability, empathy, and politeness in group settings.
- iv. **Self-Management:** Assess oneself, set personal goals, monitor progress, and exhibit self-control.
- v. **Integrity & Honesty:** Choose ethical courses of action.

2. WORKPLACE COMPETENCIES

A. Resources:

- i. **Time:** Select goal-relevant activities, rank them, allocate time, and prepare and follow schedules.
- ii. **Money:** Use or prepare budgets, make forecasts, keep records, and make adjustments to meet objectives.
- iii. **Material & Facilities:** Acquire, store, allocate, and use materials or space efficiently.
- iv. **Human Resources:** Assess skills and distribute work accordingly, evaluate performance and provide feedback.

B. Interpersonal Skills:

- i. **Participate as Member of a Team:** Contribute to group effort.
- ii. **Teach Others New Skills.**
- iii. **Serve Clients/ Customers:** Work to satisfy customers' expectations.
- iv. **Exercise Leadership:** Communicate ideas to justify position, persuade & convince others, responsibly challenge existing procedures & policies.
- v. **Negotiate:** Work toward agreements involving exchange of resources, resolve divergent interests.
- vi. **Work with Diversity:** Work well with men and women from diverse backgrounds.

C. Information:

- i. **Acquire and Evaluate Information.**
- ii. **Organize and Maintain Information.**
- iii. **Interpret and Communicate Information.**
- iv. **Use computers to process information.**

D. Systems:

- i. **Understand Systems:** Know how social, organizational and technological systems work and operate effectively with them.
- ii. **Monitor & Correct Performance:** Distinguish trends, predict impacts on system operations, and diagnose deviations in systems' performance.
- iii. **Improve or Design Systems:** Suggest modifications to existing systems and develop new or alternative systems to improve performance.

E. Technology

- i. **Select Technology:** Choose procedures, tools or equipment including computers and related technologies.
- ii. **Apply Technologies to Task:** Understand overall intent and proper procedures for setup and operation of equipment.
- iii. **Maintain and Troubleshoot Equipment:** Prevent, identify, or solve problems with equipment, including computers and other technologies.