

Best Practices in Overhead Distribution Line Design

All times below are **Eastern**.

Tuesday, January 21

12:00 p.m. Welcome & Introductions

- Purpose, agenda, and learning objectives
- Logistics

12:15 p.m. Session 1: Overhead Line Design Accountabilities and Process

- Overview, Line Design Accountabilities & Protocols
- Line Design Documentation
- Line Design Process, Process Improvement, Best Practices

01:30 p.m. Break

01:40 p.m. NESC Part 2: General Requirements Applied to Overhead Lines

02:50 p.m. Break

03:00 p.m. Overhead Joint Use

03:45 p.m. Session 1 Wrap-up/Kahoot Quiz/Quiz (Assigned)/Q&A

4:00 p.m. End of Day 1

Wednesday, January 22

12:00 p.m. Session 1 Review/Quiz Review /Q&A

12:15 p.m. Session 2: Conductor Sag & Tension

- Introduction
- Maximum Tension Determination
- Sag & Tension Design

1:40 p.m. Break

1:50 p.m. Conductor Sag & Tension (continued)

- Application Examples
- Engineering Specifications

- 2:40 p.m. Break**
- 2:50 p.m. Conductor Sag & Tension (continued)**
- Application Examples
 - Overview& Demo of Utility Line Design & Sag10 Software
 - Session 2 Practice Problem Overview
- 3:50 p.m. Session 2 Kahoot Quiz/Quiz (Assigned)**
- 4:00 p.m. End of Day 2**

Thursday, January 23

- 12:00 p.m. Conductor Sag & Tension (continued)**
- Session 2 Example & Solution
 - Session 2 Practice Problem Review (selected problems)
- 12:30 p.m. Session 2 Wrap-up/Kahoot Quiz/Quiz (Assigned)/Q&A**
- 12:45 a.m. Session 3: Overhead Line Clearances**
- Introduction
 - NESC Sections 220-231
 - NESC Section 232
 - NESC Section 233
- 1:50 p.m. Break**
- 2:00 p.m. Overhead Line Clearances (continued)**
- NESC Section 234
 - NESC Section 235
 - NESC Section 236-239
- 3:00 p.m. Break**
Session 3 Practice Problem Overview
- 3:10 p.m. Overhead Line Clearances (continued)**
- In-Class Practice Problems
 - Session 3 Practice Problem Review (selected problems)
- 3:45 p.m. Session 3 Wrap-up/Kahoot Quiz/Quiz (Assigned)/Q&A**
- 4:00 p.m. End of Day 3**

Tuesday, January 28

12:00 p.m. Session 3 Review/Quiz Review/Q&A

12:15 p.m. Session 4: Overhead Line Structure Loading & Strength: Part 1

- NESC Requirements for Supporting Structure Design
- NESC Section 24: Grades of Construction
- NESC Section 25: Loadings for Grades B&C
- NESC Section 26: Strength Requirements
- Determination of Mechanical Forces on Overhead Line Supporting Structures
- Wood Pole Sizing

1:50 p.m. Break

2:00 p.m. Overhead Line Structure Loading & Strength: Part 1 (continued)

- Functions of Guys & Guy Forces
- Guy Types, characteristics & Applications
- Anchor Types, Characteristics & Applications

2:40 p.m. Break

2:50 p.m. Overhead Line Structure Loading & Strength: Part 1 (continued)

- Anchor Types, Characteristics & Applications
- Guy Scheme Loading, Strength & Application Examples
- Session 4 Practice Problem Overview

3:45 p.m. Session 4 Kahoot Quiz/Quiz (Assigned)/Q&A

4:00 p.m. End of Day 4

Wednesday, January 29

12:00 p.m. Session 4 Quiz Review/Q&A

12:15 p.m. Session 4 Practice Problems

- Session 4 Practice Problem Review (selected problems)
- Session 4 In-Class Practice Problems (breakout Groups)

1:15 p.m. Session 4 Wrap-up/Q&A

1:30 p.m. Break

- 1:40 p.m. Session 5: Overhead Line Structure Loading & Strength: Part 2**
- Introduction
 - Wood Poles
- 3:00 p.m. Break**
- 3:10 p.m. Overhead Line Structure Loading & Strength: Part 2 (continued)**
- Manufactured Poles
- 4:00 p.m. End of Day 5**

Thursday, January 30

- 12:00 p.m. Overhead Line Structure Loading & Strength: Part 2 (continued)**
- Pole Embedment
- 1:00 p.m. Session 5 Group Practice Problem**
- 1:30 p.m. Break**
- 1:40 p.m. Session 5: Overhead Line Structure Loading & Strength: Part 2 (continued)**
- Pole Sizing Example
- 2:20 p.m. Session 5 Kahoot Quiz/Wrap-up/Q&A**
- 2:40 p.m. Break**
- 2:50 p.m. Sessions 3, 4, & 5 Practice Problem Workshop**
- 3:45 p.m. Course Wrap-up/Q&A/Evaluation**
- 4 p.m. End of Course**

Best Practices in Overhead Distribution Line Design

Recommended CEUs 2.2/PDHs 22

Field of Study: Specialized Knowledge

Upon completion of this course, participants will be able to successfully explain and apply basic principles underlying:

1. Legal, Regulatory and Business Requirements Associated with Overhead Line Design
2. Overview of the Overhead Line Design Process and Protocols
3. Purpose, Scope, and Organization of the National Electrical Safety Code (NESC)
4. NESC General Requirements for Overhead Lines
5. NESC Clearance Requirements for Overhead Lines
6. Overhead line Conductors and Cables
7. Sag-Tension Software
8. Overhead Line Grounding, insulation, and overvoltage protection
9. Elements of the Line Design Process
10. Overhead line Designer Accountabilities
11. Line Design Software and Application