TVPPA / UTS Power Line Design & Staking Certification

The Power Line Design & Staking Certification program, presented by TVPPA and Utility Training Services (UTS), is made up of four stages. Course descriptions for the stages are below. This program is offered in an option online format for ease of attendance.

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// Level 1: Power Line Design & Staking — 3 Days

Hours: 21 CEUs: 2.1 Pre-Requisite: None

In Level 1 Power Line Design and Staking, students will gain a strong foundation necessary to help them advance in the field of line design and staking. This class will include the basic engineering of overhead single-phase lines typically expected of beginning line design personnel. After completion of this course, participants will be able to complete overhead transformer and service conductor sizing, calculate accurate guy leads for both angle and dead end situations, interpret and implement sag charts in clearance design, and will be able to navigate the NESC in order to locate important rules and tables necessary for safe design. Course manual and supplies provided. Final exam. Certificate of successful completion.

Additional course material requirements:
Bring to class - copy of the current (2023) NESC

// Level 2: Power Line Design & Staking — 3 Days

Hours: 21 CEUs: 2.1 Pre-Requisite: Power Line Design & Staking, Level 1

In Level 2 of the Power Line Design and Staking series, students will build on the foundation created in the prerequisite course, Level 1. This class places emphasis on horizontal and vertical clearances, joint use remedy and make ready, as well as mechanical loading calculations. After completion of Level 2, participants will be able to complete the layout and design of most overhead projects, understand and utilize NESC and sag chart criteria, evaluate and design make ready/remedy for joint use facilities, calculate the mechanical loading effects of line design, and understand conductor blowout and design for/around grain bins. Course manual provided. Final exam. Certificate of successful completion.

Additional course material requirements:
Bring to class - Scientific Calculator provided in Level 1 (or a similar model with trigonometric functions), and a copy of the current (2017) NESC

// Level 3: Power Line Design & Staking — 3 Days

Hours: 21 CEUs: 2.1 Pre-Requisite: Power Line Design & Staking, Level 1 & 2

In Level 3, students will build on the foundation created in the prerequisite courses, Levels 1 and 2. Attention is given to underground line design basics, understanding how to apply the theories of line design to solve special problems and situations—such as transmission line crossings. After completion of this course, participants will understand the effects of physical loads on the distribution system and associated hardware, read DOT projects, class poles, design for special guying situations, calculate sag and create a stringing chart, estimate sag on uneven terrain, and be able to complete the layout and design of most underground projects. Course manual provided. Final exam. Certificate of successful completion.

Additional course material requirements:
Bring to class - Scientific Calculator provided in Level 1 (or a similar model with trigonometric functions), and a copy of the current (2023) NESC

// Level 4: Power Line Design & Staking 3 Days

Hours: 21 CEUs: 2.1 Pre-Requisite: Power Line Design & Staking, Level 1, 2 & 3

In Level 4 of the Power Line Design series, students will be taken beyond the basics of power line design and staking and will focus on reliability and efficiency. They will discuss the aging power infrastructure and system reliability. Students will look at mechanical loading for multi-circuits, learn about commercial load sizing and will be guided through the process of calculating loads on manufactured products. Students will review NESC and will learn when and how to apply Rule 250 C and D. Classroom discussion will include a brief look at how local requirements and/or RUS standards and bulletins incorporate (and compare to) NESC rules. System protection and balance will review equipment descriptions and purpose, and will also include an overview of smart grid and distribution automation. Students will discuss storm preparation (hardening of the system) and recovery (getting the system back operational). Course manual provided. Final exam. Certificate of successful completion.

Additional course material requirements:
Bring to class - Scientific Calculator provided in Level 1 (or a similar model with trigonometric functions), and a copy of the current (2023) NESC