ELEC 101

● ○ ○ Foundation 45 hours 3 modules · 21 lessons

Electrical Codes, Power Distribution & Safety

The code book, the single-line diagram and the safe-work rules every plant electrician needs before touching equipment.

45	3	21	3,000	105	9
HOURS OF TRAINING	MODULES	LESSONS	STUDY CARDS	SCENARIOS	3D SIMULATORS

COURSE OBJECTIVES

By the end of this course you will be able to:

1. Explain how the NEC (2020 edition under Virginia's 2021 USBC), NFPA 70E, NFPA 820 and OSHA fit together, and who the AHJ is.
2. Classify wet wells, digesters and chemical rooms by class, division or zone and group, and choose wiring methods, seals and enclosures to match.
3. Read single-line diagrams and trace utility service through medium-voltage switchgear, transformers and low-voltage distribution.
4. Apply grounding and bonding, overcurrent protection, coordination and fault-current / SCCR rules to real plant equipment.
5. Identify arc-flash and shock hazards, read equipment labels and respect approach boundaries.
6. Plan and verify an electrically safe work condition with lockout/tagout and live-dead-live testing.
7. Select PPE and justify when energized work is permitted under NFPA 70E.

WHAT YOU WILL LEARN

Codes in the real world
Which document governs, which edition is enforced, and how listing, labeling and working space decide a pass or a fail.

Hazardous (classified) locations
NFPA 820 ventilation-based classification, Class I wiring, sealing, intrinsic safety and corrosive-area construction.

Reading one-lines
Utility service, MV switchgear, transformers, switchboards and feeders — and what each symbol tells you to check.

Grounding & protection
Bonding paths, ground-fault clearing, coordination curves and why interrupting ratings matter.

Arc flash & shock
Boundaries, incident-energy labels, PPE categories and the hierarchy of controls.

Safe work practices
Energy-control procedures, test-before-touch, job briefings and management of change.

MAJOR TOPICS COVERED

Module 1	Regulatory Codes, Standards & Hazardous Locations (NEC & NFPA 820)	7 lessons
Module 2	Power Distribution & Medium/Low Voltage Infrastructure	7 lessons
Module 8	Electrical Safety, Arc Flash & Live-Working Protocols (NFPA 70E)	7 lessons

COURSE HIGHLIGHTS

- **45 hours** of structured, self-paced instruction with active-time tracking.
- **9 interactive 3D simulators** — rotate, explode and cut away real equipment, then change the controls and watch the numbers respond.
- **105 field scenarios** with background, decision points and worked answers.
- **3,000 study cards**, 21 printable checklists and hands-on calculators.
- **Module quizzes** and a completion certificate with a verification code.

WHO IT'S FOR

Apprentice and journeyman electricians, I&C techs and maintenance staff who work in or around treatment plants, pump stations and collection systems; supervisors who sign electrical work.

BEFORE YOU START

None. Basic electrical theory and shop math help. Take this course first in the Electrical track.

WHERE TO NEXT

ELEC 102 — Motors, Drives & Standby Power

Start learning Create a free account at tryetech.com, open **Electrical & Controls** and begin with Module 1.