NEPPA's is pleased to offer the revitalized Substation I Program which is held 4-days/week for 4 weeks/year. Substation I is designed to be an introduction to substations including safety, design, operation, equipment and theory. Upon successful completion of the Program, students are awarded a Certificate of Completion.

In addition to in-class lecture, the Substation I Program incorporates hands-on application of concepts and testing, field visits and tours of different installations, and weekly testing including a final exam to demonstrate knowledge and comprehension of the course content.

Beginning in 2021, each Friday of the session will be conducted virtually for review and testing.

WHO SHOULD ATTEND

This course is designed for:

- Lineworkers or operations employees
- Substation Technicians
- Employees or Supervisors transitioning from other departments
- Engineers
- Construction Supervisors
- Project Managers

LEARNING OBJECTIVES

Upon completion of this four-week program, participants will be able to successfully:

1. Recognize safety hazards in a substation
2. Demonstrate a foundational knowledge of how electricity is transmitted through substations
3. Practice safely entering, exiting and performing maintenance in a substation.
4. Apply concepts of the substation's role in a distribution system.
5. Identify and classify equipment found in a substation, including applicable safety precautions including PPE
6. Demonstrate an understanding of SCADA, as well as basic switching and tagging.
7. Ability to deenergize and reenergize a power transformer
8. Recognize applicable standards, specifications and regulations such as OSHA and the National Electrical Safety Code (NESC).

TESTING

Weekly Tests (20 Questions); Mid-Term Exam (25 Questions); Final Exam (50 Questions)

AGENDA

Agenda details are subject to change.

Session I: March 30 – April 2, 2021

Day 1 (Basic Electricity & Mathematics for Utility Operations)

8:00 am	Welcome & Introductions
8:15 am	Module 1: Basic Electricity
9:15 am	Break
9:30 am	Module 2: Basic Mathematics
10:45 am	Module 3: Electrical Safety
11:30 am	Lunch
12:00 pm	Module 4: Electric Power & Energy
12:45pm	Module 5: Power System Overview
1:45 pm	Final Exam & Practical
2:30 pm	Review Final
2:45 pm	Certificates of Completion
3:00 pm	Adjourn**

*** Day 1 goes until 3:00 pm*

Day 2

8:00 am	Substation I Program Welcome
8:30 am	Types of Substations
9:15 am	Break
9:30 am	Substation & Arc Flash Safety
11:30 am	Lunch
12:00 pm	Introduction to SCADA
2:00 pm	Adjourn

Day 3

8:00 am	Switching & Tagging
9:45 am	Break
10:00 am	Introduction to the NESC
11:30 am	Lunch
12:00 pm	Introduction to Inspections
1:00 pm	Introduction to Test Equipment
2:00 pm	Adjourn

Day 4 (Virtual)

8:00 am	Review the Week;
9:00 am	Break
9:15 am	Week 1 Test & Review Results
11:00 am	Adjourn

Session II: April 20 – 23, 2021

Day 1

8:00 am	Welcome, Introductions & Recap
9:00 am	Major Substation Equipment: Power Transformers
9:45 am	Break
10:00 am	Power Transformers (cont.)
11:30 am	Lunch
12:00 pm	Major Substation Equipment: Circuit Breakers
2:00 pm	Adjourn

Day 2

8:00 am	Major Substation Equipment: Relays
9:45 am	Break
10:00 am	Major Substation Equipment: Disconnectors, Instrument Transformers, Bus Bar, Surge Arresters
11:30 am	Lunch
12:00 pm	Hands-On Exercises and/or Testing
1:30 pm	Summary
2:00 pm	Adjourn

Day 3

8:00 am	Hands-On Exercises & Testing
11:30 am	Lunch
12:00 pm	Field Visit & Tour
2:00 pm	Adjourn

Day 4 (Virtual)

8:00 am	Review the Week;
9:00 am	Break
9:15 am	Week 2 Test & Review Results
11:00 am	Adjourn

Session III: May 18 – 21, 2021

Day 1

8:00 am	Welcome, Introductions & Recap Weeks 1 & 2
8:30 am	Secondary Substation Equipment: Voltage Regulation
9:45 am	Break
10:00 am	Secondary Substation Equipment: Breakers
11:30 am	Lunch
12:00 pm	Secondary Substation Equipment: Capacitors & Capacitor Banks
2:00 pm	Adjourn

Day 2

8:00 am	Auxiliary Substation Equipment: DC Supplies (Batteries, Cells & Chargers)
9:30 am	Break
9:45 am	DC Supplies (Batteries, Cells & Chargers, cont.)
11:30 am	Lunch
12:00 pm	Hands-On Exercises and/or Testing
2:00 pm	Adjourn

Day 3

8:00 am	Hands-on Exercises and/or Testing
11:30 am	Lunch
12:00 pm	Substation & Battery Installation Tour
2:00 pm	Adjourn

Day 4 (Virtual)

8:00 am	Review the Week
9:00 am	Break
9:15 am	Week 3 Test & Review Results
11:00 am	Adjourn

Session IV: June 15 – 18, 2021

Day 1

8:00 am	Welcome, Introductions & Recap
9:00 am	Auxiliary Station Equipment: AC Supplies/Transformers, Electrical Panelboards, Lighting & Heating
10:00 am	Break
10:15 am	Introduction to Print Reading
11:30 am	Lunch
12:00 pm	Introduction to Print Reading (cont.)
2:00 pm	Adjourn

Day 2

8:00 am	Introduction to Print Reading (cont.)
9:45 am	Break
10:00 am	Hands-On Exercises Students bring examples of diagrams and layouts to review as a group
11:30 am	Lunch
12:00 pm	Hands-On Exercises (cont.)
2:00 pm	Adjourn

Day 3

8:00 am	Hands-On Testing
11:30 am	Lunch
12:00 pm	Field Visit & Tour
2:00 pm	Adjourn

Day 4 (Virtual)

8:00 am	Final Recap of Weeks 1 – 3
9:45 am	Break
10:00 am	Final Exam
11:15 am	Certificates of Completion
11:30 am	Adjourn

INSTRUCTORS

Tim Richardson, P.E., Technical & Safety Trainer

Tim Richardson joined NEPPA in September of 2019 and has been an asset to the training team. Tim has a long history working in the electric utility industry, including as General Manager of Belmont Municipal Light Department from 1995 - 2007.

Most recently, Tim has worked as Principal of Fundy Power Services, LLC and at Consulting Engineers Group prior to that.

Tim brings a wealth of both technical and safety expertise to the organization and applies his expertise of both in an easy-to-understand and easy-to-learn approach.

Thomas (Tom) Succi, Technical & Safety Trainer
Day 1: Basic Electricity & Mathematics for Utility Operations

Tom has worked in metering in New England for the past 48 years as a meter technician, instructor, engineer and manager. He has created instructional programs and taught in the region for most of his career and also ran the meter apprentice training for many years at National Grid as a Principal Trainer.

He recently retired as the Supervisor of Meter Test and Engineering at United Illuminating and looks forward to continuing his career as an instructor. Tom holds a BS and an AS in Engineering Technology as well as an advanced certificate in Management from WPI.

Tom and his wife Arlene currently reside in Connecticut.