

## Background

This online course is delivered through [Spark! By OES-NA](#). The course is intended to provide system personnel and support personnel with an understanding of frequency control in operating and managing the Bulk Electric System. The course identifies frequency control fundamentals, system components and their operation related to frequency, AGC or automatic generation control, time error, NERC control performance, impacts of frequency deviations, and system protection for under-frequency conditions. It is intended to provide operating personnel with the knowledge necessary for maintaining system frequency. Each lesson is culminated with a review and quiz. Upon completion of the lessons, there is a final assessment that consists of 10 multiple choice questions. Individuals must attain a passing grade of 70% on the final assessment in order to be awarded the NERC CEHs.

## Course Level

Not Applicable

## Target Audience

The course is intended for System Operators responsible for balancing and frequency control, Transmission Operators who desire to expand their knowledge of systems control related to frequency, and any other personnel who want to gain or expand their knowledge of operating the Bulk Electric System.

## NERC Continuing Education Hours

**TOTAL:** 1.5 CEHs  
**Standards:** 1.5 CEHs  
**Ops Topics:** 1.5 CEHs  
**Sim:** 0.0 CEHs

## NERC Emergency Training Requirement

1.5 hours of Emergency Training

*Educating System Operators in the New Millennium!*

## Course Content

The course steps through lessons related to the frequency and controlling frequency in the course of maintaining a reliable Bulk Electric System. Each lesson identifies and explains the various aspects related the following content:

- Frequency control fundamentals
- System components and operation for controlling frequency
- Automatic Generation Control
- Time Error
- NERC control performance
- Impacts of frequency deviations
- Under-frequency protection on the system

## Delivery Schedule

Since the course is delivered on an individual basis via the Internet, individuals have the ability to set their own pace and schedule for completion of the course. Registered students are provided with 6 months from the time of registration to complete the course.

## Student Requirements

- Students must sign-in using their individual log-in and password to access the course.
- Students are required to provide their NERC SO Certification # and other applicable contact information during the course registration process.
- Students must complete all course material prior to attempting the final assessment.
- Students must successfully earn a 70% grade on the final activity assessment.
- Students must submit a course evaluation form. (Level of completion is not measured, but full completion is desired)

*Educating System Operators in the New Millennium!*