

NERC Certification Training Courses and Pricing

HSI offers a library of courses to prepare for the NERC certification exam and maintain your NERC Continuing Education Hours. Maximize your training value by purchasing a subscription for the entire CEH library.

Simulation Based Training

Many HSI transmission and distribution courses include simulation on our proprietary simulator built from the ground up. To ensure operator and system reliability, our platform focuses on enhancing learner engagement for improved performance, knowledge retention, and operator experience.

The HSI power system simulator is a web-based tool that facilitates the application of distribution, transmission, and balancing functions. Students can predict system behavior in response to operator actions and events using real-time and scenario-based data. Our tools make simulation training realistic and relevant for the system operator.



Online CEH Subscription

Prices Starting at:

**30 ONLINE
NERC CEHs**
\$1,400/year

**50 ONLINE
NERC CEHs**
\$2,100/year

**70 ONLINE
NERC CEHs**
\$2,875/year

Prices are for individual students. Volume discounts are available. NERC CEH courses can be purchased individually or by CEH. Please contact your account manager.

NERC Certification: Exam Preparation

Our program assesses individual strengths and weaknesses, then guides the student through a program devised with their end goal in mind – becoming a System Operator. We offer a combination of online and instructor-led training designed to help students pass the NERC certification exam. Our program not only gets students certified, but helps them maintain the reliability and safety of the grid.

The HSI program prepares students for all four exams:

- Reliability Operator
- Balance and Interchange Operator
- Transmission Operator
- Balancing, Interchange, and Transmission Operator

NERC Exam Prep
LEARN MORE – CLICK HERE

| | PRICE |
|--|-------------------------------|
| NERC Certification: Exam Preparation Online | \$ 2,200 |
| NERC Certification: Exam Preparation Instructor-led – 3.5 day | \$ 1,750 |
| | CEH : 28† STD : 27 EO : ✓ |

- HSI NERC Certification: Exam Preparation materials are based on the NERC Certification Content Outline. This information is on the NERC website at: <http://www.nerc.com/pa/Train/SysOpCert/Pages/default.aspx>
- We recommend our online training and intensive classroom review, based on the Content Outline, as the best source for exam study
- After NERC exam scores have been added to our University (under the My Info section), NERC Certification: Exam Preparation online will be converted to NERC Standards for System Operators for the balance of a 1-year access life

INSTRUCTOR-LED COURSE: † CEHs offered for students NERC certified prior to attending class
✓ For PER compliance, EO training must be applicable to each individual organization. Please check with your compliance group for eligibility.

Online Courses

| | | CEH | STD | SIM | EO |
|--------|--|-----|-----|-----|----|
| 301-02 | Electrical Distribution System Fundamentals | 2.0 | -- | 1.0 | -- |
| 301-06 | Load Characteristics and Management | 1.5 | 1.0 | -- | -- |
| 301-08 | Single and Poly-Phase Metering | 1.5 | -- | -- | -- |
| 312-01 | Basic Electricity | 1.0 | -- | -- | -- |
| 312-02 | Laws of Electricity | 1.0 | -- | -- | -- |
| 312-03 | AC, DC, and Circuit Interactions | 1.0 | -- | -- | -- |
| 312-04 | Three-Phase AC Connections and Effects | 1.5 | -- | -- | -- |
| 312-05 | Electric Devices | 1.0 | -- | -- | -- |
| 312-06 | Ohm's Law, Energy Formulas, Basic Concepts, Circuits | 1.0 | 1.0 | -- | -- |
| 312-07 | Formulas for Voltage and Current Division | 1.0 | 1.0 | -- | -- |
| 312-08 | Inductance, Capacitance, and Phase and Power Angles | 1.0 | 1.0 | -- | -- |
| 312-09 | Phasors, Capacitance, Inductance, and Symmetrical Components | 1.0 | 1.0 | -- | -- |
| 312-10 | Electromagnetism, Induction, Transformers, and Conductors | 1.0 | 1.0 | -- | -- |
| 312-11 | Generators, Torque Angle, and Synchronizing | 1.0 | 1.0 | -- | -- |
| 320-01 | Market Concepts | 1.0 | -- | -- | -- |
| 320-02 | Regulators, RTOs, ISOs, Long Term Power Supply | 1.5 | -- | -- | -- |
| 320-03 | Near Term, Day Ahead, Hour Ahead, Real Time Power Supply | 1.0 | -- | -- | -- |
| 320-04 | Ancillary Services | 1.0 | -- | -- | -- |
| 320-05 | Risk Protection | 1.0 | -- | -- | -- |
| 345-01 | NERC Overview and Application for Generator Operators | 2.0 | -- | -- | -- |
| 345-10 | FERC Standards of Conduct (SOC) | 1.0 | -- | -- | -- |
| 350-01 | Elements of System Protection | 2.5 | 1.0 | -- | -- |
| 350-02 | Types of Protective Relays | 2.5 | 0.5 | -- | -- |
| 350-03 | Monitoring System Conditions | 2.5 | 0.5 | -- | -- |
| 350-04 | Disturbance Monitoring Equipment | 2.0 | 1.0 | -- | -- |
| 350-05 | Line Protection | 1.0 | 0.5 | -- | -- |
| 350-06 | Transformer Protection | 1.0 | -- | -- | -- |
| 350-07 | Pilot Protection | 1.5 | -- | -- | -- |
| 350-09 | Bus Protection | 1.5 | -- | -- | -- |
| 350-10 | Generator Protection | 2.5 | 2.0 | -- | -- |
| 350-11 | Protection System Misoperation | 1.5 | 1.0 | -- | -- |
| 350-12 | Protection Systems Maintenance Programs | 2.0 | 1.0 | -- | -- |
| 350-14 | General Relay Operations and Categories and Input | 1.5 | -- | -- | -- |
| 350-15 | Auxiliary Relays | 1.0 | 1.0 | -- | -- |
| 350-16 | Fault Analysis, Relay Coordination, and Back-up Protection | 1.5 | -- | -- | -- |
| 350-17 | Breaker Operations | 1.5 | -- | -- | -- |
| 350-18 | Protection and Control | 2.0 | 2.0 | -- | -- |

| | | CEH | STD | SIM | EO |
|--------|---|-----|-----|-----|----|
| 350-19 | Protection and Switching | 2.0 | -- | -- | -- |
| 350-20 | Remedial Action Schemes | 1.0 | -- | -- | -- |
| 375-12 | Real Power Balancing Control Performance (BAL-001) | 1.0 | 1.0 | -- | -- |
| 375-13 | Disturbance Control Performance (BAL-002) | 1.0 | 1.0 | -- | -- |
| 375-14 | Inadvertent Interchange | 1.5 | 1.0 | -- | -- |
| 375-15 | Area Control Error (ACE) Equation | 1.5 | -- | -- | -- |
| 375-16 | Evaluation and Implementation of Interchange Transaction (INT-006) | 1.0 | 1.0 | -- | ✓ |
| 375-17 | Generation | 1.0 | -- | -- | -- |
| 376-04 | Communications (COM-001, COM-002) | 1.5 | 1.5 | -- | ✓ |
| 376-05 | Principles of Synchrophasors | 1.0 | -- | -- | ✓ |
| 376-06 | Application of Synchrophasors | 1.5 | -- | -- | ✓ |
| 376-07 | Overview | 1.0 | 1.0 | -- | -- |
| 376-08 | Effective Verbal Communication | 1.0 | 1.0 | -- | -- |
| 376-09 | Effective Written Communication | 1.0 | 1.0 | -- | -- |
| 376-10 | Effective Communication Strategies and Best Practices | 1.5 | 1.0 | -- | -- |
| 377-06 | Critical Infrastructure Protection Overview | 1.0 | 1.0 | -- | -- |
| 377-07 | CIP Physical and Electronic Access | 1.5 | 1.5 | -- | -- |
| 377-08 | CIP Incident Response and Recovery and Supply Chain Risk Management | 1.0 | 1.0 | -- | -- |
| 378-09 | Event Reporting and Emergency Operations (EOP-004, EOP-011) | 1.0 | 1.0 | -- | ✓ |
| 378-10 | System Restart from Blackstart and System Restoration Coordination (EOP-005, EOP-006) | 1.0 | 1.0 | -- | ✓ |
| 378-11 | Loss of Control Center and Geomagnetic Disturbance Operation (EOP-008, EOP-010) | 1.5 | 1.0 | -- | ✓ |
| 378-12 | Energy and Weather Events | 1.5 | 1.5 | -- | ✓ |
| 378-13 | Energizing and Restoring the Electric System | 1.0 | 1.0 | -- | ✓ |
| 378-14 | Identifying and Responding to Blackouts | 1.0 | 1.0 | -- | ✓ |
| 378-15 | Performing System Restoration | 1.0 | 1.0 | -- | ✓ |
| 378-18 | Blackout Events | 1.0 | -- | -- | -- |
| 378-19 | Geomagnetic Disturbances | 2.5 | 2.5 | -- | -- |
| 381-07 | Reliability Coordinator Responsibilities (IRO-001, IRO-008, IRO-009) | 2.0 | 1.5 | -- | ✓ |
| 381-08 | Reliability Coordinator Data Needs (IRO-002, IRO-010, IRO-014, IRO-018) | 1.5 | 1.5 | -- | ✓ |
| 387-03 | Economic Power System Operations | 1.0 | -- | -- | ✓ |
| 387-05 | Interconnected Energy Accounting | 2.0 | -- | -- | ✓ |
| 387-07 | Supervisory Control and Data Acquisition Systems (SCADA) | 2.0 | -- | -- | -- |
| 387-11 | Basics of Power System Operations | 1.0 | -- | -- | -- |

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Online Courses *(continued)*

| | | CEH | STD | SIM | EO |
|--------|---|-----|-----|-----|----|
| 387-12 | Human Performance for System Operators | 1.5 | -- | -- | -- |
| 387-13 | Renewable Energy Integration | 1.0 | 1.0 | -- | ✓ |
| 387-14 | Solar, Hydro, Tidal, Geothermal, and Variable Generation | 1.5 | -- | -- | -- |
| 387-15 | Wind Generation | 1.0 | -- | -- | -- |
| 387-16 | Operations Planning, Monitoring, Analysis (TOP-002, TOP-003, TOP-010) | 1.0 | 1.0 | -- | -- |
| 387-17 | Transmission Operations (TOP-001) | 1.0 | 1.0 | -- | -- |
| 387-18 | Power System Concepts | 1.5 | -- | -- | -- |
| 387-19 | Transmission and Distribution Operations | 2.0 | -- | -- | -- |
| 387-20 | Emergency Response Application with Simulation | 1.0 | -- | 0.5 | -- |
| 387-21 | Transmission Stations and Switchyards | 1.0 | -- | -- | -- |
| 387-22 | Transformer Principles | 1.0 | -- | -- | -- |
| 387-23 | Circuit Breakers and Disconnects | 1.0 | -- | -- | -- |
| 387-24 | Transmission Lines, Station Protection, and Monitoring and Control | 1.5 | -- | -- | -- |
| 387-25 | Distribution and Shift Factors | 1.0 | -- | -- | -- |
| 387-27 | Contingency Analysis with Simulation | 1.5 | -- | 0.5 | -- |
| 387-29 | Advanced Human Performance for System Operators | 1.0 | 1.0 | -- | -- |
| 387-30 | Overview, Interconnected Power System Operations | 1.5 | -- | -- | -- |
| 387-31 | Transmission, Substations, and System Protection | 1.5 | -- | -- | -- |
| 387-32 | Control Center Operations and Governance | 1.0 | -- | -- | -- |
| 387-33 | Basic Electricity Concepts for System Operators | 1.0 | -- | -- | -- |
| 387-34 | Transmission Application with Simulation | 1.5 | -- | 0.5 | -- |
| 387-35 | Math for System Operators | 1.0 | -- | -- | -- |
| 388-08 | Reactive Power Fundamentals | 1.0 | 1.0 | -- | ✓ |
| 388-09 | Reactive Power Production Equipment | 1.0 | 1.0 | -- | ✓ |
| 388-10 | Power Control Scenarios | 1.0 | 1.0 | -- | ✓ |
| 388-11 | Electric Power Principles | 1.0 | -- | -- | -- |
| 388-12 | Voltage and Reactive Control | 1.5 | 1.0 | -- | -- |
| 388-13 | Generators and Transmission Lines | 1.0 | -- | -- | -- |
| 388-14 | Generation Operations for Maintaining Network Voltage Schedules | 1.0 | 1.0 | -- | -- |
| 388-15 | Voltage and Power Control Equipment | 1.5 | 1.0 | -- | ✓ |
| 505-02 | Steam Turbine Control and Operation | 1.5 | -- | -- | ✓ |
| 507-01 | Generator and Auxiliary Systems' Functions | 1.0 | 1.0 | -- | ✓ |
| 507-03 | Generator Construction and Process Control | 1.0 | 1.0 | -- | -- |
| | Compliance Awareness | -- | -- | -- | -- |
| | Generator Operator Initial Operator Training | -- | -- | -- | -- |
| | GOP Reliability Standards Program | -- | -- | -- | -- |
| | Systematic Approach to Training Overview | -- | -- | -- | -- |

Instructor-led Courses

| | CEH | STD | SIM | EO |
|--|-----|-----|-----|----|
| Adequate Level of Reliability | 4 | - | 3 | ✓ |
| Analyzing & Mitigating Contingencies: Operation Situational Awareness | 8 | 1 | 6 | ✓ |
| Balancing, Voltage Control, and Congestion Management | 8 | 2 | 4 | ✓ |
| Communication, Relay Protection, Emergency Operations | 8 | 2 | 4 | ✓ |
| Emergency Operations and Communication | 8 | 2 | 3 | ✓ |
| Emergency Operations Overview | 4 | 3 | 3 | ✓ |
| Frequency Response and Balancing | 4 | 2 | 3 | ✓ |
| Human Performance for System Operators | 16 | - | 11 | ✓ |
| Integrating Renewable Energy Resources | 4 | - | 1 | ✓ |
| Power System Frequency Impacts and Control | 8 | 4 | 4 | ✓ |
| Principles for System Reliability: Generation, Transmission & Critical Decision Making | 16 | 3 | 6 | ✓ |
| Real Power Balancing and Congestion Management | 8 | 2 | 3 | ✓ |
| System Restoration | 8 | 1 | 6 | ✓ |
| Voltage Control 1 | 8 | 3 | 4 | ✓ |
| Voltage Control 2 | 8 | 1 | 4 | ✓ |
| Voltage Control and Relay Protection | 8 | 2 | 3 | ✓ |
| Voltage Control Overview | 4 | 2 | 3 | ✓ |

Train-the-Trainer: Instructor-led

| |
|---------------------------------------|
| Effective On-the-Job Training – 2 day |
| Mentoring – 1 day |
| Presentation Skills – 2 day |
| SAT Complete – 3 day |
| SAT Fundamentals - 4 day |

Instructor-led Classes:

| | |
|------------------------|--------------|
| Public Courses | \$450/day |
| Private Courses | \$4,000/day* |

*Instructor travel and expenses additional

- ✓ For PER compliance, EO training must be applicable to each individual organization. Please check with your compliance group for eligibility.



HSI and HSL_SOS_001 are recognized by the North American Electric Reliability Corporation as a continuing education provider who adheres to NERC Continuing Education Program Criteria.

[hsi.com/industrial-skills](https://www.hsi.com/industrial-skills)

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