COURSE OVERVIEW HE0387

Electrical Safety
(E-Learning Module)

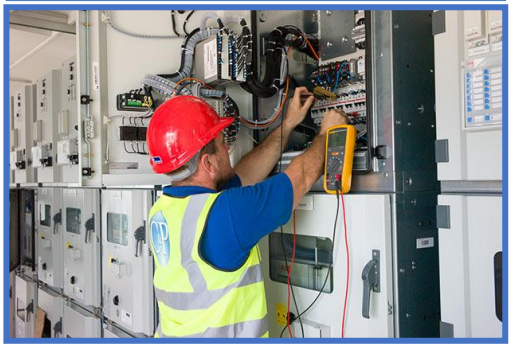
Course Title
Electrical Safety
(E-Learning Module)

Course Reference
HE0387

Course Format & Compatibility
SCORM 1.2. Compatible with IE11, MS-Edge, Google Chrome, Windows, Linux, Unix, Android, IOS, iPadOS, macOS, iPhone, iPad & HarmonyOS (Huawei)

Course Duration
30 online contact hours
(3.0 CEUs/30 PDHs

Course Description



This E-Learning course is designed to provide participants with a detailed and up-to-date overview of electrical safety. It covers the basics of electricity including water circuit, electrical circuit, AC and DC electricity, single phase distribution and cables; the measurement of current in household appliances, electricity shock, charge and how battery works; the changing of energy from one form to another; the types of circuits that includes parallel circuit and perform a series of circuit calculations; the circuit symbols, electricity terms and formulae and Ohm's law; and the various types of electrical hazards including the primary hazards of electricity.

Further, the course will also discuss the burns, electrocution, shock, arc flash/arc blast, fire and explosions and examples of fatal accidents; the types of electrical hazards; avoiding contact with overhead power lines, energized sources, damaged or bare wires, defective equipment or tools, improper repairs and improper use of tools; the use of power strips, portable heaters and appliances properly; the electrical hazards, cords and equipment, electrical panels and trip hazards; the effects of electrical current on the human body; and the four major types of electrical injuries.

During this interactive course, participants will learn the electrical hazards protections, fuses, circuit breakers, personal protective equipment, electrical safety rules and work practices; responding/reporting a problem efficiently; the supervisor and employee responsibilities including the basic six steps to safety; avoiding the common causes of accidents; the 8 step application of the energy control procedure (lockout); the start-up procedures, controlling top electrical hazards, preventing electrical hazards, testing and repairing; working on live circuits safely; the safety signs and colors; the use of electrical gloves, one hand rule, temporary electrical installations and portable power equipment; the things about electricity that can kill you; the 21 safety rules for working with electrical equipment; and the electrical safety best practice.

Course Objectives

After completing the training, the employee will:-

- Apply and gain a comprehensive knowledge on electrical safety
- Understand what is electrical safety and how to cope with any electrical hazards you may come across during your day-to-day duties
- Understand the types of electrical hazards, how to identify different voltages/load-identification of electrical equipment at work and at home, how electric shocks can occur, the effects of electrical current on the human body, and the associated risks and forces of electricity
- Discuss the basics of electricity including water circuit, electrical circuit, AC and DC electricity, single phase distribution and cables
- Measure current in household appliances, describe electricity shock, charge and how battery works
- Describe the changing of energy from one form to another
- Identify the types of circuits that includes parallel circuit and perform a series of circuit calculations
- Discuss circuit symbols, electricity terms and formulae and Ohm's law
- Identify the various types of electrical hazards including the primary hazards of electricity
- Determine burns, electrocution, shock, arc flash/arc blast, fire and explosions and examples of fatal accidents
- Identify the types of electrical hazards and avoid contact with overhead power lines, energized sources, damaged or bare wires, defective equipment or tools, improper repairs and improper use of tools
- Use power strips, portable heaters and appliances properly
- Recognize electrical hazards, cords and equipment, electrical panels and trip hazards
- Identify the effects of electrical current on the human body and the four major types of electrical injuries

- Discuss electrical hazards protections, fuses and circuit breakers, personal protective equipment, electrical safety rules and work practices
- Respond/report a problem efficiently as well as recognize the supervisor and employee responsibilities including the basic six steps to safety
- Avoid the common causes of accidents and discuss the 8 step application of the energy control procedure (lockout)
- Employ start-up procedures, controlling top electrical hazards, preventing electrical hazards, testing and repairing
- Work on live circuits safely and identify the safety signs and colors
- Use electrical gloves, one hand rule, temporary electrical installations and portable power equipment
- Recognize the things about electricity that can kill you, implement the 21 safety rules for working with electrical equipment and apply the electrical safety best practice

Who Should Attend

This course provides an overview of all significant aspects and considerations of electrical safety for electrical engineers, supervisors and technicians who need to handle operation and maintenance of electrical equipment. Supervisors or managers concerned with the safety of electrical workers will find this course especially useful in providing an insight into electrical safety.

Training Methodology

This Trainee-centered course includes the following training methodologies:-

- Talking presentation Slides (ppt with audio)
- Simulation & Animation
- Exercises
- Videos
- Case Studies
- Gamification (learning through games)
- Quizzes, Pre-test & Post-test

Every section/module of the course ends up with a Quiz which must be passed by the trainee in order to move to the next section/module. A Post-test at the end of the course must be passed in order to get the online accredited certificate.

Course Fee

As per proposal

Course Certificate(s)
Internationally recognized certificates will be issued to all participants of the course.

Certificate Accreditations
Certificates are accredited by the following international accreditation organizations: -

- USA International Association for Continuing Education and Training (IACET)

  Haward Technology is an Authorized Training Provider by the International Association for Continuing Education and Training (IACET), 2201 Cooperative Way, Suite 600, Herndon, VA 20171, USA. In obtaining this authority, Haward Technology has demonstrated that it complies with the **ANSI/IACET 1-2013 Standard** which is widely recognized as the standard of good practice internationally. As a result of our Authorized Provider membership status, Haward Technology is authorized to offer IACET CEUs for its programs that qualify under the **ANSI/IACET 1-2013 Standard**.

  Haward Technology's courses meet the professional certification and continuing education requirements for participants seeking **Continuing Education Units** (CEUs) in accordance with the rules & regulations of the International Association for Continuing Education & Training (IACET). IACET is an international authority that evaluates programs according to strict, research-based criteria and guidelines. The CEU is an internationally accepted uniform unit of measurement in qualified courses of continuing education.

  Haward Technology Middle East will award **3.0 CEUs** (Continuing Education Units) or **30 PDHs** (Professional Development Hours) for participants who completed the total tuition hours of this program. One CEU is equivalent to ten Professional Development Hours (PDHs) or ten contact hours of the participation in and completion of Haward Technology programs. A permanent record of a participant's involvement and awarding of CEU will be maintained by Haward Technology. Haward Technology will provide a copy of the participant's CEU and PDH Transcript of Records upon request.

- British Accreditation Council (BAC)

  Haward Technology is accredited by the **British Accreditation Council** for **Independent Further and Higher Education** as an **International Centre**. BAC is the British accrediting body responsible for setting standards within independent further and higher education sector in the UK and overseas. As a BAC-accredited international centre, Haward Technology meets all of the international higher education criteria and standards set by BAC.

Course Contents

- Basics of Electricity
- What is Electricity
- The Water Circuit
- The Electrical Circuit
- AC & DC Electricity
- Single Phase Distribution
- Cables
- Introducing Some terms
- Measuring Current
- Current in Household Appliances
- Electric Shock
- Charge
- Batteries
- How a Battery Works
- Changing Energy from One Form to Another
- Measuring the “Pump”
- Types of Circuits
- Parallel Circuit – the Electricity has a Choice of Paths.
- Series Circuit Calculations
- Circuit Symbols
- Electricity Terms and Formulae
- Ohm’s Law
- Knowledge Check
- Types of Electrical Hazards
- Electrical Hazards
- Primary Hazards of Electricity
- Burns
- Electrocution
- Shock
- Arc Flash/Arc Blast
- Arc Blast

- Fire
- Explosions
- Examples of fatal accidents
- Statistics
- Types of Electrical Hazards
- Contact with Overhead Power Lines
- Contact with Energized Sources
- Damaged or Bare Wires
- Defective Equipment or Tools
- Improper Repairs
- Improper Use
- Power Strips
- Portable Heaters and Appliances
- Knowledge Check
- Electrical Hazards Recognition
- Hazard Recognition
- Cords & Equipment
- Electrical Panels
- Trip Hazards
- Power Strips
- Knowledge Check
- Effects of Electrical Current on the Human Body
- Effects of Electricity in the Human Body
- The Four Major types of Electrical Injuries
- Effects of Electricity in the Human Body – Electrical Shock
- Effects of Electricity in the Human Body – Electrical Burns
- Effects of Electricity in the Human Body – Arc Blast
- Effects of Electricity in the Human Body – Falls
- Electricity's Effects
- Knowledge Check
- Electrical Hazards Protections
- Insulation
- Grounding

- Guarding
- Ground Fault Circuit Interrupters (GFCI)
- Fuses and Circuit Breakers
- Personal Protective Equipment
- How GFCI Works
- Types of GFCIs
- Knowledge Check
- Electrical Safety Rules
- Work Practices
- How to Respond/Report a Problem
- Supervisor Responsibilities
- Employee Responsibilities
- Basic Six Steps to Safety
- Pre-Job Briefing, SHEPP
- Energized or De-energized?
- Energized work
- Safe Conditions for De-Energized work
- Safe Conditions for De-Energized work - Locks and Tags
- Proximity Tester
- Contact Voltage Tester
- Voltage Measurement
- Racking In and Out Metal Clad Breakers
- Remote Racking of Breakers
- Safety Rules
- Knowledge Check
- Electrical Safety Lable
- One Minute Safety Audit
- Accident Prevention
- By Planning
- By Design
- By Installation
- By Operation
- Definitions

- Common Causes of Accidents
- What Kind of Injuries Can Happen?
- When is Lockout/Tag-out Required?
- Service & Maintenance Examples
- What is an Energy-Isolating Device?
- What is a Lockout Device?
- Electrical Lockout Devices
- What is Tag-out?
- 8 Step Application of the Energy Control Procedure (Lockout)
- Step 1: Prepare for Shutdown
- Step 2: Shut down equipment
- Step 3: Isolate all Energy Sources
- Step 4: Apply Locks & Tags
- Step 5: Release or Block all
- Stored Energy
- Step 6: Verify Equipment Isolation
- Step 7: Perform the Task
- Step 8: Release from Lockout
- Examples of Release of Stored Energy
- Examples of Attempt to Operate
- Start-up Procedures
- Knowledge Check
- Controlling Top Electrical hazards
- What's Wrong?
- Controlling Top Hazards
- Preventing Electrical Hazards
- Grounding
- Bonding
- Grounding & Bonding
- Panel Boxes
- Outlets & Cords
- Testing and Repairing
- Working on live circuits

- Safety Signs & Colors
- Electrical Gloves
- One Hand Rule
- Temporary Electrical Installations
- Portable Power Equipments
- Knowledge Check
- Things About Electricity That Can Kill You
- 21 Safety Rules for Working with Electrical Equipment
- Example of Human Stupidity and Ignorance of Basic Safety
- Electrical Safety Best Practice
- Electrical Safety
- Step 1 – Switching Off the Circuits
- Step 2 – Checking the Equipment
- Test 1 – Line and Earth
- Test 2 – Earth and Neutral
- Test 3 – Neutral and Line
- Step 3 – Re-check Equipment
- Step 4 – Fitting Covers, Locks and Warnings
- Necessity of Safety Management
- Legal Requirement
- Employee Health and Safety
- Financial Loss
- Industrial Relations
- Company Electrical Safety Team CEST
- Responsibilities of CEST
- Company's Commitment
- Knowledge Check