

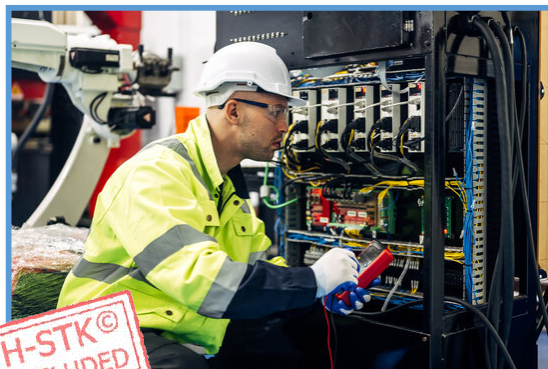
## COURSE OVERVIEW EE0372 Control Panel Maintenance

### Course Title

Control Panel Maintenance

### Course Date/Venue

Session 1: April 13-17, 2025/Boardroom 1,  
Elite Byblos Hotel Al Barsha,  
Sheikh Zayed Road, Dubai, UAE  
Session 2: December 15-19, 2025/Fujairah  
Meeting Room, Grand Millennium Al  
Wahda Hotel, Abu Dhabi, UAE



### Course Reference

EE0372



### Course Duration/Credits

Five days/3.0 CEUs/30 PDHs

### Course Description



***This practical and highly-interactive course includes various practical sessions and exercises. Theory learnt will be applied using our state-of-the-art simulators.***

This course is designed to provide participants with a detailed and up-to-date overview of Standards of Electrical & Control Panel Boards. It covers the electrical and control panel boards and their importance in electrical systems; the types of electrical and control panel boards, electrical components and devices; the international and national standards and design considerations for electrical and control panel boards; the importance of compliance with codes and standards, safety, reliability and efficiency in design; the electrical drawings, diagrams and schematics; and selecting electrical components and devices for electrical and control panel boards.



Further, the course will also discuss the wiring and cabling requirements for electrical and control panel boards; the types of wiring and cabling and their applications; the wiring and cabling standards and regulations; the types, components and devices of control systems; the safety requirements for electrical and control panel boards, safety devices and equipment; the compliance with safety regulations and standards; and installing and commissioning electrical and control panel boards.



During this interactive course, participants will learn the commissioning procedures, testing and maintenance; troubleshooting electrical and control panel boards; the common electrical and control panel board faults and their causes; the emerging trends and technologies in electrical and control panel boards; the smart electrical and control panel boards; and the advancements in electrical and control panel board automation and control.

### **Course Objectives**

Upon the successful completion of this course, each participant will be able to:-

- Apply and gain an in-depth knowledge on electrical and control panel boards
- Discuss electrical and control panel boards and their importance in electrical systems
- Identify the types of electrical and control panel boards, electrical components and devices
- Explain international and national standards as well as design considerations for electrical and control panel boards
- Discuss the importance of compliance with codes and standards including safety, reliability and efficiency in design
- Illustrate electrical drawings, diagrams and schematics
- Select electrical components and devices for electrical and control panel boards
- Identify wiring and cabling requirements for electrical and control panel boards, types of wiring and cabling and their applications and wiring and cabling standards and regulations
- Recognize the types, components and devices of control systems
- Discuss the safety requirements for electrical and control panel boards, safety devices and equipment
- Comply with safety regulations and standards as well as install and commission electrical and control panel boards
- Employ commissioning procedures and testing as well as electrical and control panel board maintenance
- Troubleshoot electrical and control panel boards and identify the common electrical and control panel board faults and their causes
- Discuss emerging trends and technologies in electrical and control panel boards
- Determine smart electrical and control panel boards and the advancements in electrical and control panel board automation and control

### **Exclusive Smart Training Kit - H-STK®**



Participants of this course will receive the exclusive “Haward Smart Training Kit” (**H-STK®**). The **H-STK®** consists of a comprehensive set of technical content which includes **electronic version** of the course materials conveniently saved in a **Tablet PC**.

### **Who Should Attend**

This course provides a basic overview of all significant aspects and considerations of power generator and control room operation for individuals those who are involved in the design, construction, installation, testing, and maintenance of electrical and control panel boards. This includes electrical engineers, technicians, electricians, panel builders, system integrators, and other professionals who work with electrical and control systems.

### **Training Methodology**

All our Courses are including **Hands-on Practical Sessions** using equipment, State-of-the-Art Simulators, Drawings, Case Studies, Videos and Exercises. The courses include the following training methodologies as a percentage of the total tuition hours:-

- 30% Lectures
- 20% Practical Workshops & Work Presentations
- 30% Hands-on Practical Exercises & Case Studies
- 20% Simulators (Hardware & Software) & Videos

In an unlikely event, the course instructor may modify the above training methodology before or during the course for technical reasons.

### **Course Fee**

**US\$ 5,500** per Delegate + **VAT**. This rate includes H-STK® (Haward Smart Training Kit), buffet lunch, coffee/tea on arrival, morning & afternoon of each day.

### **Accommodation**


Accommodation is not included in the course fees. However, any accommodation required can be arranged at the time of booking.

**Course Certificate(s)**

Internationally recognized certificates will be issued to all participants of the course completed a minimum of 80% of the total tuition hours.


**Certificate Accreditations**

Certificates are accredited by the following international accreditation organizations:-

- 

British Accreditation Council (BAC)

Howard 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, Howard Technology meets all of the international higher education criteria and standards set by BAC.

- 

The International Accreditors for Continuing Education and Training (IACET - USA)

Howard Technology is an Authorized Training Provider by the International Accreditors for Continuing Education and Training (IACET), 2201 Cooperative Way, Suite 600, Herndon, VA 20171, USA. In obtaining this authority, Howard Technology has demonstrated that it complies with the **ANSI/IACET 2018-1 Standard** which is widely recognized as the standard of good practice internationally. As a result of our Authorized Provider membership status, Howard Technology is authorized to offer IACET CEUs for its programs that qualify under the **ANSI/IACET 2018-1 Standard**.

Howard 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 Accreditors 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.

Howard 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 Howard Technology programs. A permanent record of a participant’s involvement and awarding of CEU will be maintained by Howard Technology. Howard Technology will provide a copy of the participant’s CEU and PDH Transcript of Records upon request.



### Course Instructor(s)

This course will be conducted by the following instructor(s). However, we have the right to change the course instructor(s) prior to the course date and inform participants accordingly:



**Mr. Tarek Aboushady** is a **Senior Electrical & Instrumentation Engineer** with over **30 years** of experience within the **Oil & Gas, Petrochemical** and **Power** industries. His wide expertise widely covers in the areas of **Gas Measurement & Flow Metering, Automation & Instrumentation, Alarm Management, P&D & Process Control** Safeguarding, **Alarm Design & Implementation, Alarm Operation & Maintenance, Alarm Performance, Monitoring & Assessment, DCS, PLC & SCADA System, Flow Measurements, Triconex ESD PLC, Process Control & Instrumentation, Process Reactors Operation & Troubleshooting, Control Valves Maintenance & Inspection, Turbine Control Panel & Maintenance, Pneumatic System Installation & Maintenance, Solar Gas Turbine Operation & Maintenance, Control Loop & Control System, Repair & Troubleshooting, Measurement & Instrumentation, Calibration Procedures, Control Valves, MOV & Pressure Safety Valve, Fire & Gas Retention System, CO2 Firefighting System, Process Equipment, Plant Instrumentation, Field Instrumentation, Emergency Shutdown System, ESP Oil Well Automation, Flow Meter, LACT, Custody Transfer Metering, Instrumentation Calibration, Safe Process Units, Safe Work Practices, Pneumatic Instrumentation, Computerized Maintenance Management System (CMMS), Site & Plant Layout, P&ID Drawing, Maintenance Procedures, Advanced Micro Processor Application, Fire Prevention & Firefighting and Seismic Tracing. He is currently the **Instrumentation Maintenance General Manager** wherein he is responsible for planning and following up instrument and maintenance activity.**

During his career life, Mr. Tarek worked as the **Instrumentation Assistance General Manager, Senior Instrument Engineer, Senior Geophysics Engineer, Electrical Team Leader, Project Coordinator** and **Senior Instructor/Trainer** from various companies such as the **PETROBEL (ENI Joint Venture), Port Said Gas Fields** and **Tensor Geophysical**.

Mr. Tarek has a **Bachelor's** degree in **Electronic & Telecommunication Engineering**. Further, he is a **Certified Instructor/Trainer**, and held certificates in **Train the Trainers (TOT)** and **Project Management Professional (PMI-PMP)**. He has further delivered numerous trainings, seminars, courses, workshops and conferences internationally.

### Course Program

The following program is planned for this course. However, the course instructor(s) may modify this program before or during the course for technical reasons with no prior notice to participants. Nevertheless, the course objectives will always be met:

#### **Day 1**

0730 – 0800	<i>Registration &amp; Coffee</i>
0800 – 0815	<i>Welcome &amp; Introduction</i>
0815 – 0830	<b>PRE-TEST</b>
0830 – 0930	<b>Introduction to Electrical &amp; Control Panel Boards</b> <i>What are Electrical and Control Panel Boards? • Why are they Important in Electrical Systems? • Types of Electrical and Control Panel Boards</i>
0930 – 0945	<i>Break</i>
0945 – 1100	<b>Electrical Codes &amp; Standards</b> <i>International and National Standards</i>

1100 - 1230	<b>Electrical Codes &amp; Standards (cont'd)</b> <i>The Importance of Compliance with Codes and Standards</i>
1230 - 1245	<i>Break</i>
1245 - 1420	<b>Electrical Codes &amp; Standards (cont'd)</b> <i>The Importance of Compliance with Codes and Standards (cont'd)</i>
1420 - 1430	<b>Recap</b>
1430	<i>Lunch &amp; End of Day One</i>

**Day 2**

0730 - 0830	<b>Electrical Design</b> <i>Design Considerations for Electrical and Control Panel Boards • Importance of Safety, Reliability and Efficiency in Design</i>
0930 - 0945	<i>Break</i>
0945 - 1100	<b>Electrical Design (cont'd)</b> <i>Electrical Drawings, Diagrams and Schematics</i>
1100 - 1230	<b>Electrical Components &amp; Devices</b> <i>Selection of Electrical Components and Devices for Electrical and Control Panel Boards</i>
1230 - 1245	<i>Break</i>
1245 - 1420	<b>Electrical Components &amp; Devices (cont'd)</b> <i>Types of Electrical Components and Devices and their Applications</i>
1420 - 1430	<b>Recap</b>
1430	<i>Lunch &amp; End of Day Two</i>

**Day 3**

0730 - 0830	<b>Wiring &amp; Cabling</b> <i>Wiring and Cabling Requirements for Electrical and Control Panel Boards</i>
0930 - 0945	<i>Break</i>
0945 - 1100	<b>Wiring &amp; Cabling (cont'd)</b> <i>Types of Wiring and Cabling and their Applications • Wiring and Cabling Standards and Regulations</i>
1100 - 1230	<b>Control Systems</b> <i>Types of Control Systems</i>
1230 - 1245	<i>Break</i>
1245 - 1420	<b>Control Systems (cont'd)</b> <i>Control System Components and Devices</i>
1420 - 1430	<b>Recap</b>
1430	<i>Lunch &amp; End of Day Three</i>

**Day 4**

0730 - 0830	<b>Safety Considerations</b> <i>Safety Requirements for Electrical and Control Panel Boards • Safety Devices and Equipment</i>
0930 - 0945	<i>Break</i>
0945 - 1100	<b>Safety Considerations (cont'd)</b> <i>Compliance with Safety Regulations and Standards</i>
1100 - 1230	<b>Installation &amp; Commissioning</b> <i>Installation and Commissioning of Electrical and Control Panel Boards • Commissioning Procedures and Testing</i>

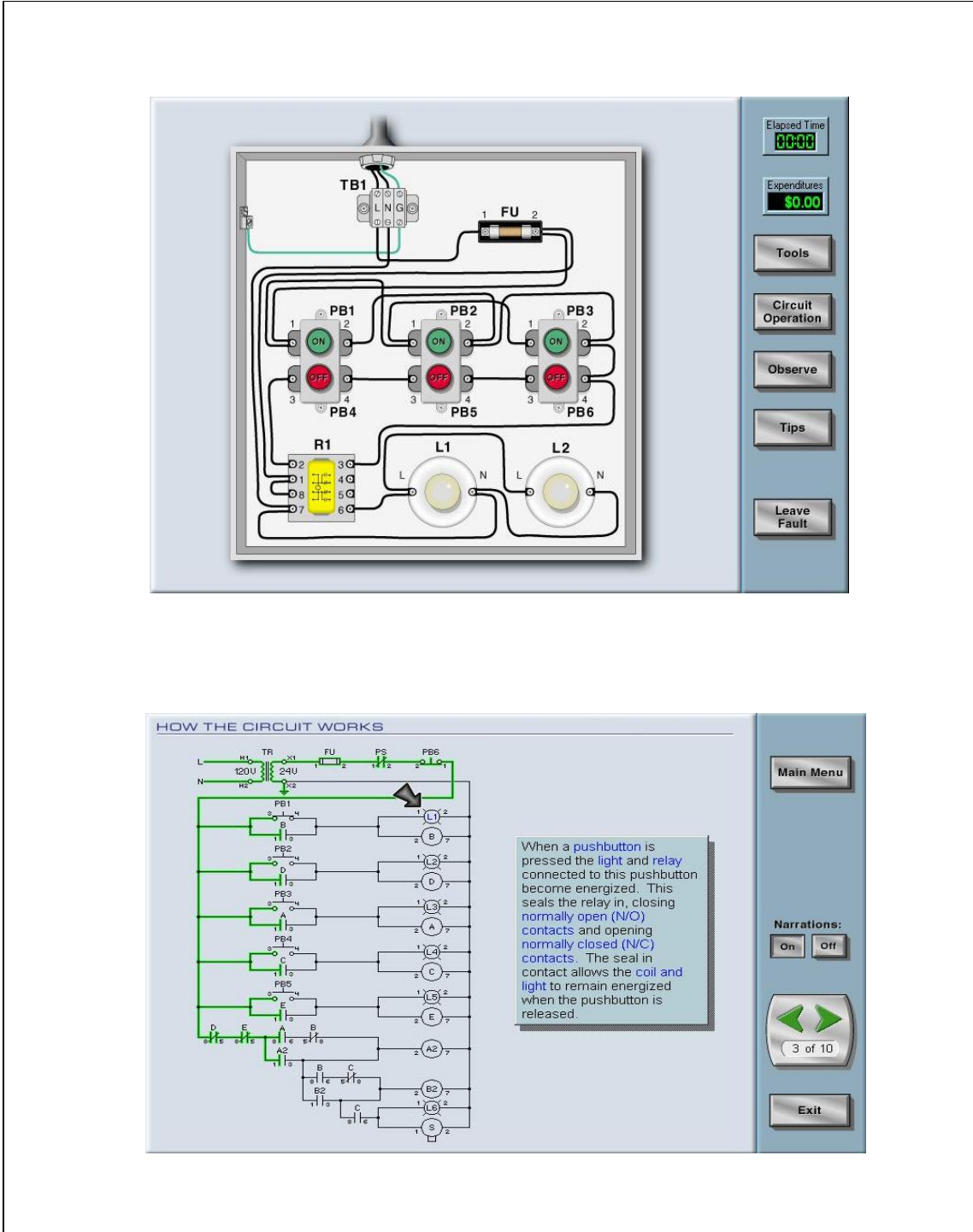
1230 – 1245	Break
1245 - 1420	<b>Installation &amp; Commissioning (cont'd)</b> Electrical and Control Panel Board Maintenance
1420 – 1430	<b>Recap</b>
1430	Lunch & End of Day Four

**Day 5**

0730 – 0830	<b>Troubleshooting</b> Troubleshooting of Electrical and Control Panel Boards • Common Electrical and Control Panel Board Faults and their Causes
0930 – 0945	Break
0945 – 1100	<b>Troubleshooting (cont'd)</b> Troubleshooting Techniques and Tools
1100 – 1230	<b>Future Trends &amp; Technologies</b> Emerging Trends and Technologies in Electrical and Control Panel Boards • Smart Electrical and Control Panel Boards
1230 – 1245	Break
1245 - 1345	<b>Future Trends &amp; Technologies (cont'd)</b> Advancements in Electrical and Control Panel Board Automation and Control
1345 – 1400	<b>Course Conclusion</b>
1400 – 1415	<b>POST-TEST</b>
1415 – 1430	Presentation of Course Certificates
1430	Lunch & End of Course

### **Simulators (Hands-on Practical Sessions)**

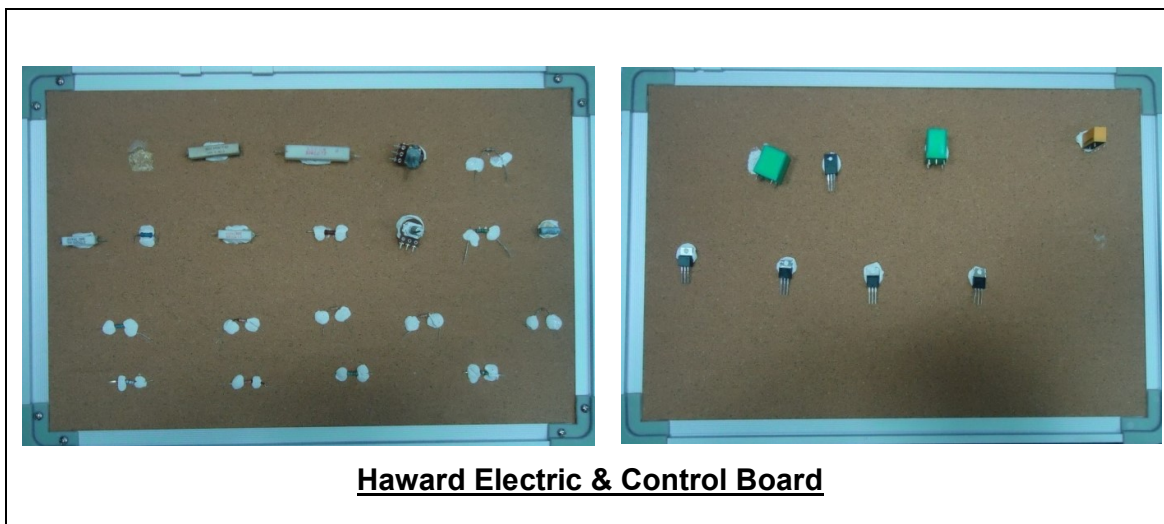
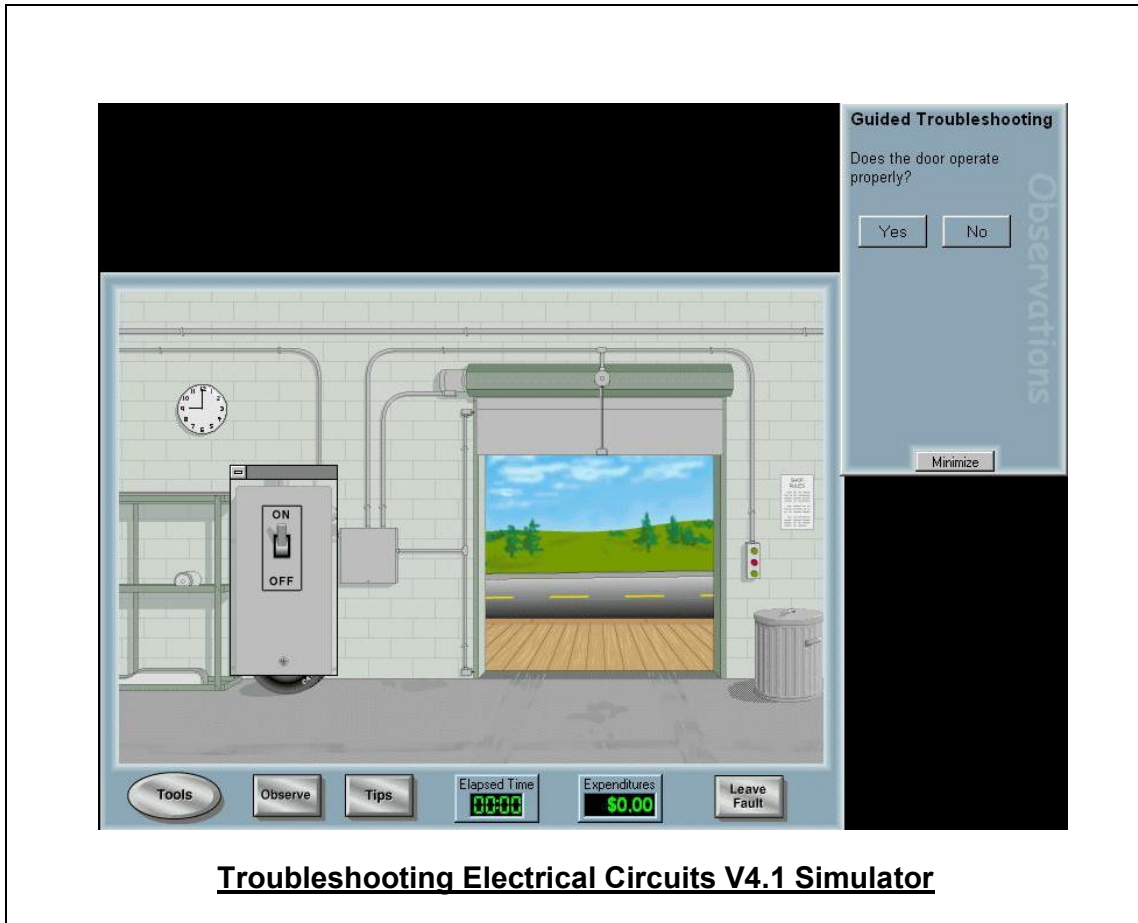
Practical sessions will be organized during the course for delegates to practice the theory learnt. Delegates will be provided with an opportunity to carryout various exercises using our state-of-the-art “Haward Troubleshooting”, “Haward Electric & Control Board” and “Switchgear” simulators.



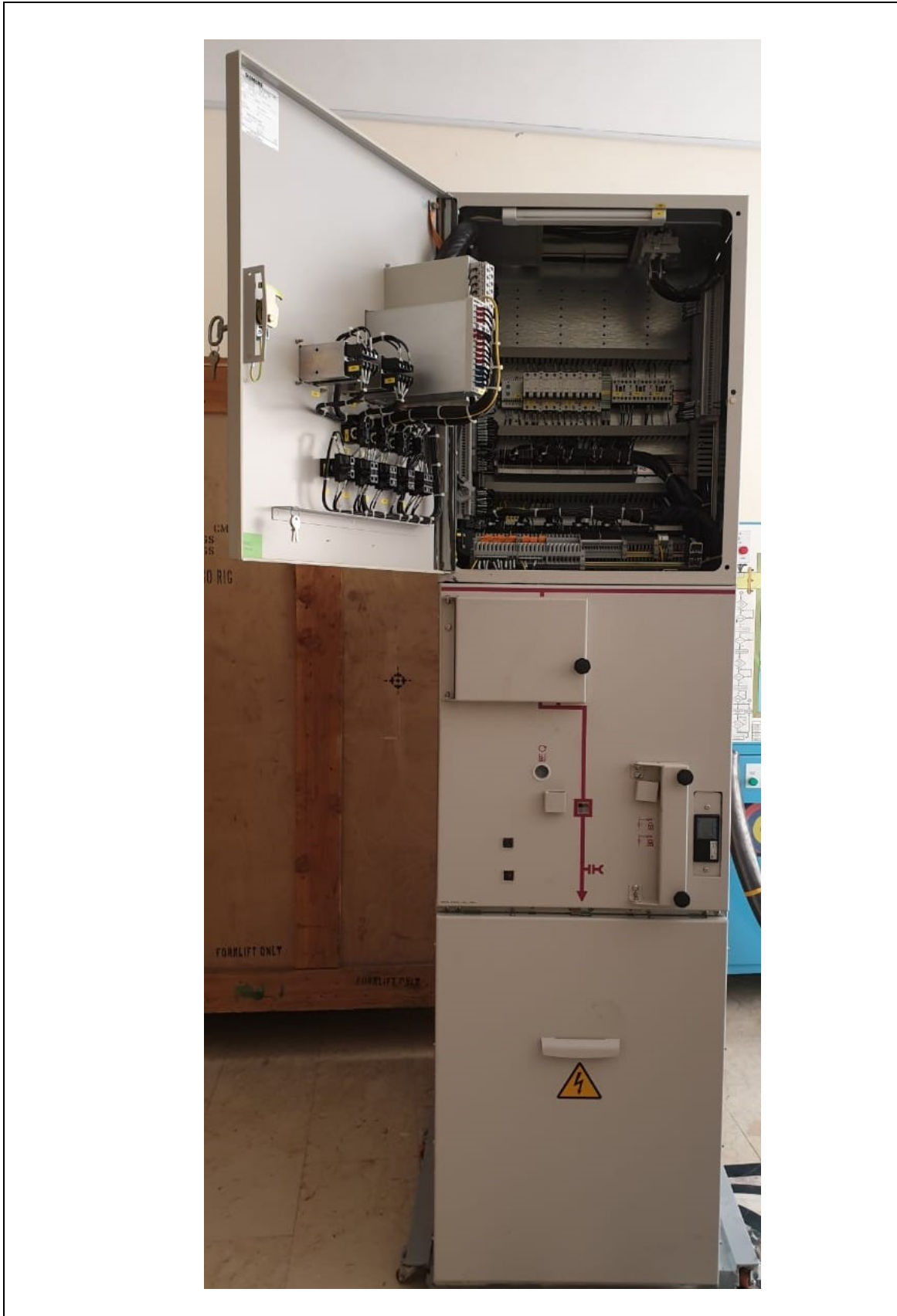
The simulator interface is divided into two main sections:

- Top Section: Physical Circuit Board**
  - Shows a 3D representation of a control board with components: TB1 (terminal block), FU (fuse), PB1-PB6 (pushbuttons), R1 (relay), and L1-L2 (lights).
  - Each pushbutton (PB1-PB6) has four terminals (1, 2, 3, 4) and a central indicator (ON/OFF).
  - The relay (R1) has terminals 1-7 and a coil.
  - Lights (L1, L2) have terminals L, N, and G.
- Right Panel (Top):**
  - Elapsed Time: 00:00
  - Expenditures: \$0.00
  - Buttons: Tools, Circuit Operation, Observe, Tips, Leave Fault
- Bottom Section: Schematic Diagram**
  - Title: HOW THE CIRCUIT WORKS
  - Shows a detailed wiring diagram with components labeled: L, TR, FU, PS, PB6, PB1, PB2, PB3, PB4, PB5, R1, L1, L2.
  - Includes a text box explaining the latching mechanism: "When a pushbutton is pressed the light and relay connected to this pushbutton become energized. This seals the relay in, closing normally open (N/O) contacts and opening normally closed (N/C) contacts. The seal in contact allows the coil and light to remain energized when the pushbutton is released."
- Right Panel (Bottom):**
  - Main Menu
  - Narrations: On, Off
  - Navigation: 3 of 10
  - Exit



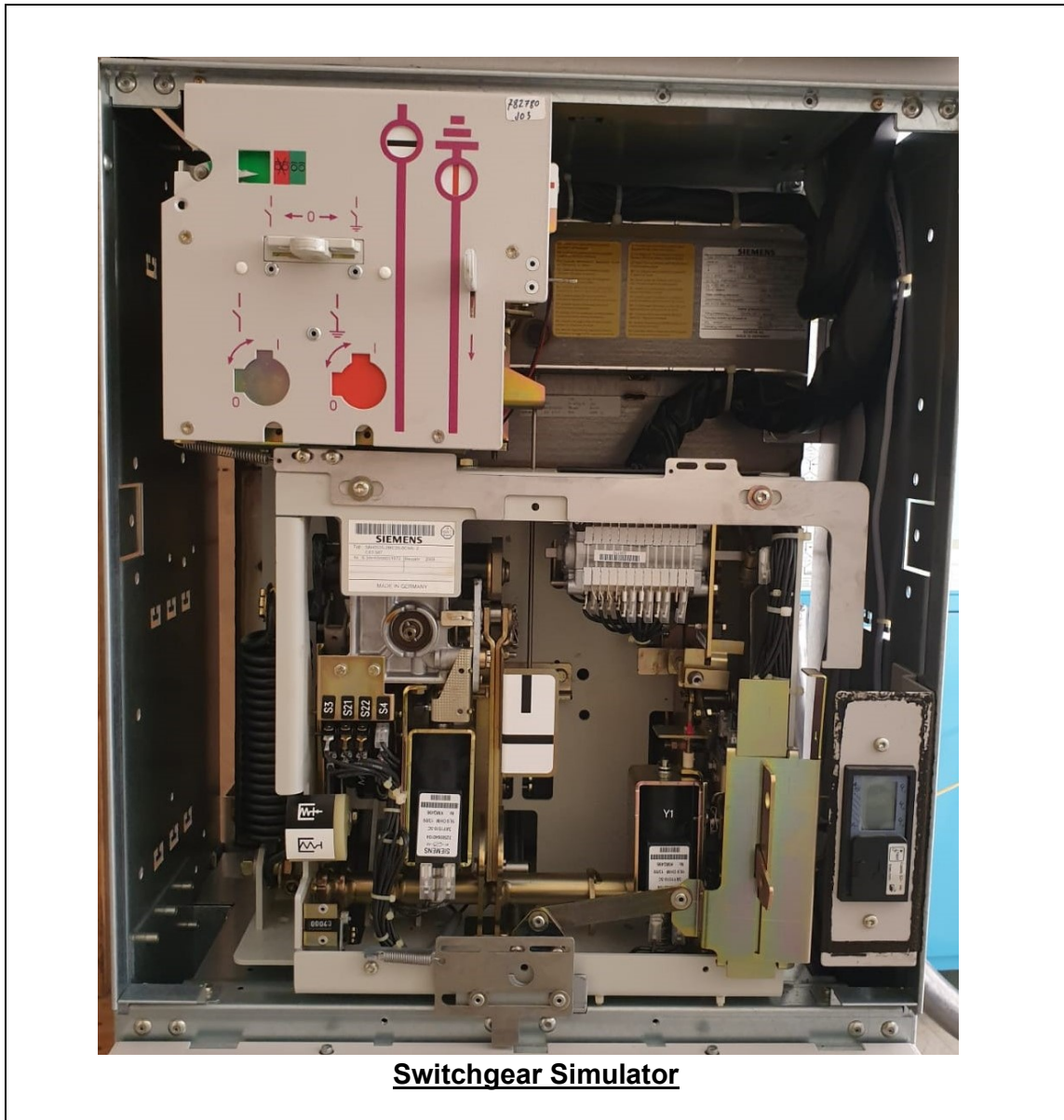












**Course Coordinator**

Mari Nakintu, Tel: +971 2 30 91 714, Email: [mari1@haward.org](mailto:mari1@haward.org)