

International Research, Education and Training Center NGO (R/C 80550594)
Rahvusvaheline teadus-, haridus- ja koolituskeskus MTÜ
Non-Profit Organization / Mittetulundusühing

TRAINING PROGRAM

FOR ELECTRICAL AND ELECTRONIC ENGINEERING

EHVE-ELECTRICAL HIGH VOLTAGE ENGINEERING-01
EMVE-ELECTRICAL MEDIUM VOLTAGE ENGINEERING-02
ELVE-ELECTRICAL LOW VOLTAGE ENGINEERING-03

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01011-Electrical Circuits and Wiring Systems
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01014-Transformers: Basics, Maintenance, and Diagnostics
01016- Electric Power Distribution Systems Design and Installation
01017-Electrical Design of Overhead Power Transmission Lines and Installation
01018-Electrical Grounding, Surge and Lightning Protection.
01019-Power Distribution Systems. Smart Grid
01020-Maintenance and Troubleshooting of UPS Systems
01021- Electric Motors and Variable Speed Drives
01022- Electrical Distribution Principles and Applications
01023- Power Compensation Control Strategy and Modelling
01024- Supervisory Control and Data Acquisition-SCADA Systems
01025- Partial Discharge Detectors & Testing
01026-Reactive Power Management and Power Factor Correction
01027- Theory and Application of Industrial Electronics
01028- Overhead Lines, Maintenance and Construction
01029- Construction & Design of Overhead Transmission Lines
01030- Cable Termination & Wire Connectors
01031- Load Flow or Power Flow Analysis
01032- Design and Optimization of Overhead Transmission Lines
01033- High Voltage Electrical Safety
01034-Instrumentation, Controls and Electrical Systems for Facilities Engineers
01035- Distributed Control Systems DCS Programming Essentials
01036-Design & Development of Isolated DC to DC Converters (7 Days)
01037- Air Circuit Breaker Construction and Operation
01038- Troubleshooting Printed Circuit Boards, Design, Implementation
01039- Electrical Protection Devices: Construction & Maintenance
01040-Diesel Generator: Operation and Maintenance
01041- Power System Control and Protection
01042-CYMGRD-Grounding Grid Analysis
01043-Industrial Electronics Maintenance Skills
01044-Arc Flash Analysis and Prevention Techniques
01045- Electrical Insulators Specifications
01046- Transmission Lines Operations, Protection and Maintenance
01047-Power Plant Operations and Maintenance
01048-Switchgear and Circuit Breakers
01049-Basic Instrumentation For Process Operators
01050-Digital Image Processing Using MATLAB (DIP)
01051-Introduction to Digital Filters with Audio Applications

01012 Electrical Troubleshooting and Faults

Course Description

The primary goal of this course is to teach participants how to protect themselves and others from injuries coming, directly or indirectly, from electricity. Learning common-sense electrical troubleshooting techniques will help them to achieve this goal as well as keeping facilities and equipment up and running. This course covers the basic electrical and electronics including fundamentals of electrical principles and electrical practices and electricity problems.

Course Objectives

Learning how to use electrical installation tools
Being able to read control system schematics
Learning how to recognize the elements and operations of circuits
Being familiar with the types of faults
Understanding the types of controls and their operation
Practicing hands-on troubleshooting

Who Should Attend?

- ✓ Engineers
- ✓ Electricians
- ✓ Technicians
- ✓ Contractors
- ✓ Anyone aspire to increase his capabilities in this area

Course Details/Schedule

Day 1

- Electrical theory, atoms and elements and compounds
- Electric charges and electron flow
- The importance of electrical safety and safe electrical practices
- Electrical references and tools needed for electric troubleshooting.

Day 2

- Color codes encountered as an electrician
- Capacitive circuits, inductive circuits, and resistive circuits
- Insulators and conductors
- Metering and explain the types of meters
- Analog and digital meters

Day 3

- Ghost voltage
- Reading measurements
- Circuit conductors, connections, and protection
- Ohms law and power formula
- What are series circuits and parallel circuits

Day 4

- Magnetism and electromagnetism
- The difference between solenoids and transformers
- Current draw
- Temperature compensation
- Transformer taps / connections

Day 5

Electric motors in industry

- What circuit elements and what are complex circuits
- Load power requirements and power sources
- High and low voltage and voltage stabilizers and transient voltage
- Electrical requirements for control, protection, monitoring, and improper phase sequencing

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