



ELECTRICITY AND TROUBLESHOOTING WORKSHOP FOR TECHNICIANS

October 19 & 20, 2022 (Wednesday & Thursday)
8.45 am – 5.00 pm **Remote Online Learning via Zoom**



The “Electricity & Troubleshooting” course provides a Fundamental Understanding of how electricity works in commercial and industrial settings. Participants will understand basic practical examples that illustrate electrical circuits and troubleshooting in their facilities. Participants will also understand on how to use Electrical Test before putting equipment to service.

The goal of this course is to ensure participants understand how to reduce equipment downtime, improve efficiency and safety at workplace. Most important, Participants will also understand on how to perform LOTO before performing jobs on equipment or a system.

.... COURSE CONTENTS....

MODULE 1 – INTRODUCTION OF ELECTRICAL SYSTEMS

- Understand the Electrical System in Theory.
- What is Electricity
- Suruhanjaya Tenaga – Act & Regulations.
- Transmission, Generation and Distribution.
- Broaden knowledge on In-House Power Distribution Systems.
- Ability to differentiate the different Voltages in a Manufacturing Plant.
- Types of Current
 - AC
 - DC

MODULE 2 – OHM’S LAW, POWER FORMULA AND CALCULATIONS

- Voltage
- Resistance
- Current
- Resistance in Series
- Resistance in Parallel
- Power – kW, HP, kVA
- How to size up an equipment
- Ability to size up cables and Breakers for an Installation.

MODULE 3 – CIRCUIT DESIGN

- Single Phase
- Three Phase

- Industrial, commercial and residential distribution systems.
- Star and Delta Connection.
- Electrical Test Equipment
 - AVO Meter
 - Insulation Megger
 - Earth Megger
 - Clamp Meter
 - How to use Electrical Test equipment

MODULE 4 – ELECTRICAL COMPONENTS

- Transformer types.
- Step Up Transformer
- Step Down Transformer
- Transformer Windings – Primary and Secondary

MODULE 5 – TYPES OF ELECTRICAL FAILURES

- Open Circuit
- Short Circuit
- Earth Fault
- Causes of Electrical failures
 - Weather
 - Human error
 - Equipment
- Causes of Electrical failures
 - Danger to humans.
 - Loss of equipment.
 - Electrical fires
- Fault Limiting Devices

- Fuses
- Circuit Breakers
- RCCB

MODULE 6 – TEST TO BE PERFORMED

- Understand the various Tests to be performed before equipment is put into service.
- Insulation Resistance Test.
- Earth Resistance Test.
- Continuity Test.
- Polarity Test.
- DC Pressure Test

MODULE 7 – POWER FACTOR AND ITS EFFECT

- Understanding Power Factor
- How to improve Power Factor in an Installation.
- Effects of Low Power Factor.
- Power Factor penalty charges
- Power Factor calculations.

MODULE 8 – ELECTRICITY SAFETY

- Basic understanding on Electrical Safe Practice and LOTO.
- Understand the hazards of Electricity.
- Understand all Electrical Safety signage.
- PPE – Use proper PPE
- Good Electrical practices.

.... OBJECTIVES....

- This 2 day Training is aimed on understanding the Electrical System in an Industry.
- With proper understanding, the risk of Electrical related accidents can be reduced and eventually eliminated.
- This Training will focus on Electrical Hazards, Electrical Failures, Health Effects and Control Measures necessary to prevent injuries and fires.
- Understand Single Phase and Three Phase Systems and the corresponding Voltages.
- Broaden knowledge on the In-House Power Distribution System.
- Ability to differentiate the different Voltages in a Manufacturing Plant.
- Able to size up Breakers for an Equipment.
- Understand the various Tests to be conducted before an Equipment is put into service.

.... LEARNING OUTCOMES....

Upon completion of the course, participants should be able to:

- Understand the Theories of Generation, Transmission & Distribution.
- Calculate Voltage, Current & Power.
- Basic Electrical Theories.
- Types and Size of Cables and Current carrying capacity.
- Faults and How to solve the problems.
- Electrical Safety and LOTO.
- Suruhanjaya Tenaga Requirements – Act and Regulations.
- Understand your own Electrical System.
- Simple Trouble Shooting Techniques

.... WHO SHOULD ATTEND....

Operators, Line Leaders, Technicians, Supervisors, Engineers and Managers

.... TRAINER....

MR BALASUBRAMANIAM A/L SANYASI is an experienced Instructor with more than 30 years' experience in the Industry. He has been working in the Electrical, Facilities & Maintenance field for more than 30 years and has vast knowledge in this area. He holds an Executive Diploma in Facilities and Building Maintenance Management from Universiti Teknologi Malaysia, an Executive Masters in Facilities & Building Maintenance Management from Open University Malaysia and a Diploma in Electrical Engineering from Butterworth Institute of Technology. Mr Balasubramaniam who is a competent Chargeman, is currently holding "Penjaga Jentera Voltan Tinggi" Sekatan BO 33kV, a registered Asean Engineering Technologist, a Certified Technician in Electrical & Electronics Technology with Malaysia Board of Technologist and also a Qualified Technician in Building & Construction Technology registered with Malaysia Board of Technologist. He is a registered trainer with PSMB.

MR BALASUBRAMANIAM had been a Chargeman AO Trainer since 2000 and a Technical Trainer since 2008 having conducted numerous trainings such as Trouble Shooting Skills, Electrical Maintenance, Preventive Maintenance, Facilities Systems. He is also conducting "Executive Diploma in Facilities & Building Maintenance Management" for University Teknologi Malaysia. He is the Secretary of Technological Association of Malaysia, Penang Branch. He has worked with various Multinationals in Managerial positions, namely Hitachi Metals Electronics Perai, Advanced Disk Technology/Hoya Electronics Kulim, Johnson Controls Malaysia Sdn. Bhd, Boral Plasterboard (Lafarge) Malaysia Sdn. Bhd, Sony Electronics Perai. Currently he is the Facilities Senior Engineer in a multinational company.

.... COURSE DETAILS

Date October 19 & 20, 2022 (Wednesday & Thursday)
Time 8.45am - 5.00pm
Platform Remote Online Learning via Zoom
Medium of Instruction English
CPD 14 hours
Fees Members RM689.00/pax Non-Members RM848.00/pax
(Fees inclusive of Service Tax at 6%, Downloadable Course Materials and Certificate of Attendance)

- Download and install ZOOM app on your laptop/desktop before the Webinar session
Good Internet / Wi-Fi connectivity
Username and Password will be provided upon confirmation of Webinar session

.... ADMINISTRATIVE DETAILS

HRD CORP CLAIMABLE COURSE DETAILS

- Training Provider: FMM Institute Perak MyCoID : 475427W_PERAK
HRD Corp Programme No: Provided upon confirmation

DISCLAIMER

The FMM Institute reserves the right to change the facilitator, date and to vary / cancel the course should unavoidable circumstances arise. All efforts will be taken to inform participants of the changes.

REGISTRATION

- Upon Faxing/Mailing the completed Registration Form to FMM Institute, you are deemed to have read and accepted the terms and conditions. The course would also be deemed as confirmed unless informed otherwise.
Will be based on First-Come-First served basis.

PAYMENT

- Cheques made in favour of "FMM Institute" should be forwarded to FMM Institute Perak.
For SBL Scheme, an Attendance of 100% is a must, in any case, employers will be billed in full.
FMM Institute SST Registration No. W10-1901-32000105

CANCELLATION

- Must be in Writing with Reasons
7 days before the course - No payment charged
3 - 6 days before the course - 50% payment charged
< 3 days before the course - Full payment charged
Participants who did not turn-up will be charged full payment
Replacements can be accepted at no additional cost

Closing Date:
OCTOBER 12,
2022

~ Registration Form ~

ELECTRICITY AND TROUBLESHOOTING WORKSHOP FOR TECHNICIANS

FMM Institute

No 1, Lorong Raja DiHilir, 30350 Ipoh, Perak

Fax: 05-5488221

Dear Sir / Madam, please register the following participant(s) for the above programme.

Table with 3 rows for participant registration. Columns: Name, NRIC, Designation, HP No, Email.

(Please attach a separate list if space is insufficient)

We hereby confirmed that (Please tick (✓) in appropriate box):-

- We will be claiming under SBL-Khas Scheme and full payment would made to FMM Institute in the event that no disbursement from HRDF under any circumstances
We will NOT BE CLAIMING under SBL-Khas Scheme. Enclosed cheque/bank draft No _____ for RM _____ being payment for _____ participant(s) made in favour of the "FMM Institute".

Submitted by:

Name: Designation:
Company: Tel: Fax:
Address:
Email: FMM Membership No