

BASIC ENGINEERING & TECHNICAL KNOWLEDGE FOR TROUBLESHOOTING OF INDUSTRIAL MACHINE CIRCUIT FAULTY

DATE : 16 & 17 APRIL 2025 (WED & THU)

VENUE : WYNDHAM GRAND BANGSAR KUALA LUMPUR HOTEL

OVERVIEW:

In manufacturing industry, most of the Industrial machine using electrical system, electronic system, electro-mechanical system and electro-pneumatic system to operate the machine and generates the desire output according to production required. To ensure an effectiveness of support service to production or manufacture department, the technicians and engineers shall have the basic knowledge to checking, verify and perform troubleshooting of Industrial machine faulty.

OTC Training Centre Sdn Bhd provides the Technical Training program to enhance Engineers and Technicians knowledge, skill and technique related to Industrial machine repair. Basic engineering and Technical Knowledge for Troubleshooting of Industrial Machine Circuit Faulty (2 Days program) contents:

- a) Theory/Quiz - Basic knowledge for engineering system - electrical, electronic and electro- mechanical system.
- b) Theory/Quiz- Basic block diagram of electrical machine
- c) Theory/Quiz - Basic wiring diagram of electrical system single & 3 phase
- d) Theory/Quiz - Basic component specification and Circuit function - Power Devices, Sensor, Control Devices and Output Devices
- e) Safety Guide - Safety Precaution & Guideline for Troubleshooting of Electrical machine
- f) Practical 1 - Application of Multimeters – Testing components and measurement technique.
- g) Practical 2- Testing, generate test point and measurement technique
- h) Practical 3- Perform electrical wiring and measurement technique of current and voltage.
- i) Practical 3- Circuit analysis - Electrical machine common problems, testing and verification technique.
- j) Practical 4- Wiring, Testing and Verification status of Electrical machine assembly:
 - AC Supply / AC Filter / Switching Mode Power Supply / DC Motor
 - AC Supply / Solid state Relay / Battery / AC Bulb
 - AC Supply / Inverter Motor / AC Motor
- k) Practical 5 - Electrical Component Testing and Verification Technique.
 - AC Filter / Switching Power Supply/ Main Circuit Breaker / ELCB
 - Magnetic Contactor / AC Relay /AC Valve/AC Motor / DC Motor / Heater
 - Electronic components – Fuse / Passive component/ diodes / Transistors

WHO MUST ATTEND:

Basic Engineering and Technical Knowledge for Troubleshooting of Industrial Machine Circuit Faulty suitable for engineers and technicians working at:

- Equipment Repair Centre
- Maintenance Department
- Production Department
- Service department
- University / college
- Equipment Supplier
- Telecommunication Industry
- Healthcare Industry

COURSE CONTENT

| No | Contents |
|----|---|
| 1 | <p>Introduction to Basic Engineering & Technical knowledge for Troubleshooting of Industrial machine circuit faulty</p> <ul style="list-style-type: none"> • Self rate skill & knowledge for troubleshooting of industrial machine • List down common machine problem in your area / production |
| 2 | <p>Basic knowledge for engineering system</p> <ul style="list-style-type: none"> • Electrical system • Electronic system • Electro mechanical system • Electro pneumatic system |
| 3 | <p>Understanding Basic block diagram of industrial machine</p> <ul style="list-style-type: none"> • Basic design of electrical machine <p>Generates basic block diagram of</p> <ul style="list-style-type: none"> • Machine with Single Phase Motor • Machine with 3 Phase Motor • Machine with Heater Assembly |
| 4 | <p>Basic wiring diagram of industrial machine</p> <ol style="list-style-type: none"> Single phase system 3 phase – Star wiring 3 phase – delta wiring PLC System / Ladder Diagram |
| 5 | <p>Basic Components / devices Identification, specification and basic function .</p> <ol style="list-style-type: none"> <p>Power Section</p> <ul style="list-style-type: none"> • Single Phase AC Supply / 3 Phase AC Supply • Main Circuit Breaker / ELCB (RCC) • Switch Mode Power Supply (SMPS) • Battery Assembly/ UPS <p>Sensors</p> <p>Control Section</p> <ul style="list-style-type: none"> • Micro controller (PIC) • PLC System • Inverter Motor Controller • Relay/ Solid state relay <p>Output Section</p> <ul style="list-style-type: none"> • Single Phase AC Motor • 3 Phase AC Motor • Heater Assembly |

COURSE CONTENT

| No | Contents |
|----|---|
| 6 | <p>Practical 1 Generate test point and measurement technique based on Wiring Diagram A</p> <ol style="list-style-type: none"> Generate test point for voltage measurement Identify High Pin (Red Probe) and Low Pin (Black Probe) for each measurement. |
| 7 | Safety Precaution & Guideline for Troubleshooting of industrial machine |
| 8 | <p>Practical 2 Application of Test equipment</p> <ol style="list-style-type: none"> Digital Multimeter <ul style="list-style-type: none"> Continuity Test / Resistance Test / Short & Open Test Capacitance Test / Diode Test Measurement Voltage |
| 9 | <p>Practical 3 Perform Electrical wiring and measurement technique based on Electrical Diagram B</p> <ol style="list-style-type: none"> Measurement of voltage & data collection Measurement of current & data collection |
| 10 | <p>Practical 4 Industrial machine Common Problems and Component faults.</p> <ol style="list-style-type: none"> Single Phase with 7 AC Motors AC DC Power Supply Micro controller not function Inverter Motor not function Heater Assembly not function |
| 11 | <p>Practical 5 Wiring , Testing and Verification circuit function of Industrial machine System</p> <ol style="list-style-type: none"> Project 1 <ul style="list-style-type: none"> AC Supply /AC Filter / Switching Power Supply /DC Motor Project 2 <ul style="list-style-type: none"> AC Supply / Solid state Relay / Switch / Battery /AC Bulb Project 3 <ul style="list-style-type: none"> AC Supply / AC Filter /Inverter Motor / AC Motor |
| 12 | <p>Practical 6 Electrical Component Testing and Verification Technique.</p> <ol style="list-style-type: none"> Main Circuit Breaker / ELCB Magnetic Contactor / AC Relay/ Basic Controller AC Filter / AC Motor / Stepper Motor Electronic components |
| 13 | Reference |