

Sub-Module	:	Fault Analysis – Electronics Equipment Troubleshooting & Repair.
Prerequisite	:	Basic Electrical & Electronics
Duration	:	3 Days
PSMB Scheme	:	SBL
Training Approach	:	Theory & Practical

At the end of the module, participants should be able to:

Summary of objectives :

1. Identify and name types of faults in electronic circuits.
2. Select and use suitable test equipment for troubleshooting.
3. Develop flow charts to assist in fault finding.

References:

1. **Electronics Fundamental: Circuit , Device & Applications**, Pearson, Thomas L. Floyd
2. **Complete Guide Electronics Troubleshooting**, James Perozzo,
3. **Process Control Instrument Engineer's Handbook**, Bela G. Liptak
4. **Make Electronics – Learning by Discovery**, Charles Platt

Course Outline:

1. Introduction

- 1.1 Safety (Electrical & Electronics).
- 1.2 Introduction on Electronics
- 1.3 Comprehend the Working Principles of Circuits.

2. Resistor, Capacitor and Inductor circuits

- 2.1 Explanation on ohm's law
- 2.2 Components familiarisation (colour code and components code identifications)
- 2.3 Measuring and testing tools.
- 2.4 AC, DC series and Parallel circuit

3. Troubleshooting Flow Charts.

- 3.1 Introduction to troubleshooting flow charts.
- 3.2 Electrical Equipment assembly and troubleshooting
- 3.3 Fluorescent Lamp (Assembly and testing).
- 3.4 1-phase wiring with safety devices (Assembly).
- 3.5 Electrical checking and testing (Fuse and plugs)

4. Electronics Components

- 4.1 Diodes, Zener Diode & LED.
- 4.2 Transformer
- 4.3 Integrated Circuit (IC)
- 4.4 Transistor - BJT and FET
- 4.5 Troubleshooting of electronics using meter.
- 4.6 Identifying and checking the component symbols and function.
- 4.7 Reading semiconductor master replacement guide book.

5. Troubleshooting and Electronic Board

- 5.1 Troubleshoot and repair electronic circuit board
- 5.2 Mini Electronics Project / Construct and Troubleshoot.

- 5.3 LED Running Light Project Kit
- 5.4 Soldering, de-soldering skills.
- 5.5 Identify type of electronic components and parts numbers.

6. Equipment / Machine/ Software

Machines/ Equipment	:	Electrical installation panel, electronics fault simulator
Brand Name	:	card / Lucas-Nulle
Software	:	-

7. Certification

Certificate of attendance will be issued to those who fulfil 80% of attendance.