



**SHUKELA TRAINING CENTRE**  
31 Sugar Mill Way, Mount Edgecombe, 4300  
P.O. Box 23, Mount Edgecombe, 4300  
Telephone: +27 31 508 7700  
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Website: [www.sasa.org.za](http://www.sasa.org.za)

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**COURSE TITLE:** ELECTRONICS

**COURSE DURATION :** 10 DAYS

**COURSE CONTENT:**

- Construct basic electronic circuits

**Outline**

The learners will be able to identify, test components and build basic electronics circuits.

- Identify and test basic electronic components. (Resistors, capacitors, inductors, diodes, transistors and thyristors )
- Identify, construct and test electronic circuits. (Power supplies, amplifiers and multi-vibrators)
- Use of electronic measuring instruments. (Multi-meters and oscilloscope)



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**COURSE TITLE:** INTRODUCTION TO PLC'S

**COURSE DURATION:** 5 DAYS

**COURSE CONTENT:**

- Demonstrate and understanding of basic Programmable Logic Controllers

**Outline**

Covering primarily the Mitsubishi PLC. In this course learners are introduced to the fundamentals of the PLC, working with ladder & statement list circuitry.

- Identify the three basic stages of a typical automation control system.
- Describe the operation of a two state switch and a two state logic system.
- Explain the operation of a two state relay and describe the function as a control device.
- Explain the basic differences between a relay logic controller and a programmable logic controller.
- Basic PLC ladder programming.
- Identifying and fault finding on ladder logic diagrams.



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**COURSE TITLE:** INSTALL AND MAINTAIN DC DRIVES

**COURSE DURATION:** 5 DAYS

**COURSE CONTENT :**

- Install and maintain DC drives

**Outline**

The learner identify, install and fault find D.C. drive systems.

- D.C. power supplies
- Acceleration/deceleration control circuits
- Current amplifier circuits
- Trigger channel stages
- Power control sections
- Commission and test D.C. drives.



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**COURSE TITLE:** INSTALL AND MAINTAIN AC DRIVES

**COURSE DURATION:** 5 DAYS

**COURSE CONTENT:**

- Install and maintain AC Drives

**Outline**

The learner identify, install and fault find A.C. drive systems.

- A.C. drive applications, ideal motors and common systems.
- Identify, apply and test power semiconductors.
- Describe construction and operation of three phase motors and starting systems.
- Describe the operating principles of variable frequency inverters and A.C. motors.
- Describe the working principle of A.C. drives.
- Install and set up A.C. drives.
- Describe the maintenance and fault finding procedures on A.C. drives.