

## **Course Syllabus: Electrical Installation**

**Course Title: Electrical Installation**

**Duration: (12 Weeks)**

**Hours: 9 hours per week**

**Total hours: 108**

**Level: Beginner / Technical-Vocational**

**Prerequisites: Knowledge of simple calculations and the use of hand tools**

### **Course Description:**

This course introduces learners to the fundamental principles of electrical installation, including safety practices, electrical theory, wiring techniques, and practical installation of lighting and outlet circuits. Emphasis is placed on hands-on skills, proper tool usage, and adherence to electrical codes and regulations.

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### **Course Objectives**

At the end of this course, students will be able to:

- Apply electrical safety practices and proper housekeeping
- Identify tools, equipment, and electrical materials
- Understand basic electrical principles and measurements
- Perform lighting and outlet circuit wiring and installation tasks
- Interpret simple electrical circuits and diagrams
- Follow electrical codes and safe working procedures

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## **Module 1: Electrical Safety and Fundamentals**

### **Unit 1: Electrical Safety and Housekeeping**

#### **Topics:**

- Importance of electrical safety
- Hazards (shock, burns, fire risks)
- Personal Protective Equipment (PPE)
- Safe workshop practices
- Housekeeping and workspace organization

**Learning Outcomes:**

- Identify electrical hazards
  - Demonstrate safe working practices
  - Maintain a clean and safe work environment
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**Unit 2: Identification of Tools, Measuring Devices, Cable Color Code, and Voltage Supply****Topics:**

- Hand tools (pliers, screwdrivers, wire strippers)
- Measuring devices (multimeter, tester, and measuring tape)
- Cable color codes (live, neutral, earth – Trinidad and Tobago)
- Types of voltage supply (single-phase, three-phase)

**Learning Outcomes:**

- Identify and use tools correctly
  - Interpret cable color codes
  - Distinguish between voltage supply types
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**Module 2: Introduction to Electricity****Unit 1: Electrical Generation and Ohm's Law****Topics:**

- Basic concept of electricity
- Sources of electrical energy
- Introduction to voltage, current, and resistance
- Ohm's Law and simple calculations

**Learning Outcomes:**

- Explain how electricity is generated
  - Apply Ohm's Law in simple problems
  - Define electrical quantities
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## **Unit 2: Identification of Fixtures and Fittings**

### **Topics:**

- Types of fixtures (lamps, holders, switches, boxes, cable glands)
- Electrical fittings and accessories

### **Learning Outcomes:**

- Identify common electrical fixtures
  - Select appropriate fittings for installations
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## **Unit 3: Use of Multimeters to Measure Electrical Units**

### **Topics:**

- Parts of a multimeter
- Measuring voltage, current, and resistance
- Safety when using a multimeter

### **Learning Outcomes:**

- Use a multimeter correctly
  - Measure electrical quantities safely
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## **Module 3: Introduction to Circuit Wiring**

### **Unit 1: Wiring an Extension Cord**

#### **Topics:**

- Components of an extension cord
- Cable selection
- Step-by-step wiring procedure

#### **Learning Outcomes:**

- Assemble and wire an extension cord safely
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### **Unit 2: One-Way Lighting Circuit Wiring and Material Estimate**

#### **Topics:**

- Circuit diagrams and symbols
- Wiring a one-way switch circuit
- Estimating materials and cost

**Learning Outcomes:**

- Wire a one-way lighting circuit
  - Prepare a basic material list
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**Assessment Methods**

- Practical Assignments (50%)
  - Written Tests (10%)
  - Projects / Installations (30%)
  - Participation & Safety Practices (10%)
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**Teaching & Learning Strategies**

- Demonstrations
  - Hands-on workshop activities
  - Group work and peer learning
  - Visual aids and circuit diagrams
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**Resources Required**

- Electrical tools and equipment
  - Multimeters
  - Wiring boards and materials
  - PPE (gloves, goggles, boots)
  - Instructional charts and diagrams
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**Course Outcome**

Learners will develop foundational skills in electrical installation, enabling them to perform wiring tasks safely and prepare for further technical training or entry-level employment.

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