

Certificate Course in Introduction to Basic Electrical Systems

Offered by Centre for Innovative Skill-Based Courses
Open Learning Development Centre, University of Delhi

Duration: 2 Months

Mode: Part-Time (Weekend Classes)

Eligibility: 10th Pass

Course Fee: ₹2000/-

COURSE OVERVIEW

This part-time course is designed to introduce students to the basics of electrical systems, with a focus on household wiring and electrical safety. Over a duration of two months, students will gain both theoretical knowledge and practical skills required to perform basic electrical tasks. The course aims to prepare learners for self-employment opportunities or entry-level job roles in the electrical field.

COURSE OBJECTIVES

- **Basic Electrical Knowledge:** Understand the fundamentals of electricity, electrical components, and basic wiring systems.
- **Hands-on Training:** Develop practical skills for handling electrical circuits, tools, and wiring techniques.
- **Electrical Safety:** Learn safety standards and precautions to prevent electrical hazards in residential environments.
- **Career & Self-Employment Preparation:** Enable students to provide basic electrical services or pursue further specialization in the electrical industry.

COURSE CONTENT

Module 1: Electrical Safety & Tools

- Importance of electrical safety
- Basic first aid and injury prevention
- Common electrical hazards and methods to avoid them
- Introduction to basic electrical tools (multimeter, pliers, wire cutters, etc.)
- Proper use and maintenance of electrical tools

Module 2: Basic Electricity & Electrical Circuits

- Introduction to electricity
 - Understanding current, voltage, and resistance
 - Ohm's Law and its practical applications
 - Simple electrical circuits: series and parallel connections
 - Identification of electrical components (wires, switches, fuses, sockets)
-

Module 3: Domestic Wiring Basics

- Types of wiring systems used in residential buildings
 - Planning a basic electrical layout for a house
 - Identification of common electrical components (outlet boxes, switches, lights)
 - Basic wiring techniques:
 - Stripping wires
 - Connecting wires
 - Making electrical joints
 - Installation of electrical outlets, switches, and lighting fixtures
-

Module 4: National Electrical Code (NEC) Basics

- Overview of National Electrical Code (NEC)
 - Understanding basic electrical code requirements for residential wiring
 - Importance of compliance with electrical safety standards
-

Module 5: Practical Wiring Exercises

- Hands-on practice with wiring switches, outlets, and lighting circuits
 - Creating a simple electrical circuit and testing it using a multimeter
 - Troubleshooting common electrical problems (e.g., dead outlets, faulty wiring)
 - Introduction to electrical fault detection
-

Module 6: Electrical Maintenance and Troubleshooting

- Identification and repair of common electrical faults in homes
 - Safe replacement of electrical components (fuses, switches, outlets)
 - Preventative maintenance practices for household electrical systems
-

COURSE DELIVERY

- **Format:** Part-time sessions conducted in the evening or on weekends (3–4 hours per session).
 - **Mode of Instruction:** In-person classes combining theoretical learning with practical training.
 - **Practical Sessions:** Each class includes hands-on exercises focusing on real-life electrical tasks.
 - **Assessments:** Practical evaluations will be conducted to measure student understanding and skill development.
-

CAREER & SELF-EMPLOYMENT OPPORTUNITIES

Part-Time Employment:

After completing the course, students may work as assistant electricians performing basic wiring, repairs, and installations in residential settings.

Self-Employment:

Students may start offering basic electrical services such as home wiring, electrical repairs, and maintenance for local customers.

Further Studies:

This course also serves as a foundation for advanced training in electrical systems and professional electrician certification programs.

COURSE COMPLETION & CERTIFICATION

A)	Attendance	40 1. If Attendance are more than 85% then Marks will be 40 2. If Attendance are more 70 % to 85 % then Marks will be 30 3. If Attendance are more 60 % to 70 % then Marks will be 20 4. If Attendance are more 50 % to 60 % then Marks will be 10 If Attendance are less than 50 % then Marks will be 00
B)	Final Practical & Viva	40 Marks
C)	Final Test (MCQ)	20 Marks
	Total	100
Marks		Abbreviation
35-45		Satisfactory
46- 55		Good
56-65		Very Good
66-90		Excellent
91-100		Outstanding

Upon successful completion of the course, participants will receive a **Certificate Course in Introduction to Basic Electrical Systems**.

The certificate will demonstrate foundational knowledge of household electrical wiring, electrical safety, and basic maintenance skills required for entry-level work in the electrical field.

TOOLS REQUIRED FOR TRAINING

Hand Tools

1. Screwdriver Set (Insulated – Flat and Cross)
2. Pliers Lineman's Pliers
3. Wire Strippers
4. Crimping Tool
5. Electrical Tape
6. Utility Knife

Power Tools

1. Cordless Drill

Testing Tools

1. Multimeter
2. Continuity Tester
3. Tester

Safety Gear

1. Insulated Gloves
2. Safety Glasses

Additional Tools

1. Fish Tape
2. Measuring Tape
3. Flashlight / Headlamp

MATERIALS FOR PRACTICAL TRAINING

1. **Electrical Wires**
 - Various sizes (e.g., 1.5 mm, 2.5 mm) for practice
 2. **Switches**
 - Single-pole switches
 - Double-pole switches
 3. **Sockets and Plugs**
 - For testing electrical connections
 4. **Bulbs and Holders**
 - For practicing lighting circuits
 5. **Electrical Board / Panel**
 - For mounting switches and sockets
 6. **Connectors and Terminals**
 - For proper joining of wires
 7. **PVC Conduits and Boxes**
 - For running and securing wires
 8. **Nails and Wire Cleats**
-