



**Electricity I**  
**TI108**

Hours :    In Class 102            Clinical            Total 102

**Description**

Welcome to the world of the electrical helper. This course is for the apprentice electrician who will receive basic training in the area of residential wiring. You will learn wiring design and code requirements for electrical installation and participate in hands-on shop activities that provide practical experience in installation of lights, switches, receptacles, and other devices. Hours earned in this class are credited toward required hours for licensure. Students must earn a passing grade of 70% or better and have at least 80% attendance to count the hours toward fulfilling the apprenticeship requirements.

**Prerequisites**

Students should have basic math skills: add, subtract, compute with fractions, and be able to read a tape measure accurately.

**Books**

Electrical Wiring Residential 18th Ed	- ISBN: 9781285170954	(Suggested)
Lockout Tagout	- ISBN:	(Included)
National Electrical Code 2017	- ISBN: 0877659141	(Included)

**Required Supplies/Materials**

- #2 Phillips screwdriver
- Side cutting pliers
- 8" Needle nose pliers
- Voltage tester
- 16' tape measure (1" blade)
- Lineman pliers
- Straight blade screwdriver
- Calculator (TI-36X solar)
- Claw Hammer
- Wire Strippers
- Utility Knife or other approved per instructor
- Safety glasses supplied by MNTC
- Gloves supplied by MNTC

**Learning Objectives**

1. Demonstrate knowledge of safety and proper shop operation in accordance with NFPA70E guidelines.
2. Use Ohms law and demonstrate proficiency in series circuits, parallel circuits and series parallel circuits.
3. Apply the basic laws of electricity and magnetism to solve simple problems concerning the motion and distribution of charges
4. Identify meters and test equipment used in electrical trades.
5. Demonstrate the ability to perform the following calculations: conductor sizing, voltage drop, neutral sizing, ground conductor sizing.
6. Demonstrate the ability to perform measurements and the read prints by taking standard electrical measurements, understand residential electrical symbols.
7. Install electrical equipment in a residential dwelling setting.
8. Demonstrate the correct wiring methods for: single pole, three way, and four way switches.
9. Demonstrate the correct wiring methods for: switched plugs, GFCI plugs and Arc fault circuits.
10. Demonstrate proper usage of the National Electric Code book pertaining to residential construction.

## Teaching Philosophy

We believe that instructors, staff, and administrators have a shared responsibility to provide: 1) innovative course design and instruction; 2) a safe, learner-centered environment; and 3) an authentic learning experience.

## Teaching Methods

Methods include lecture, class discussion, and demonstrations.

## Evaluation Methods

Participation, tests, lab exercises

## Grading Policy

A = 90-100  
B = 80-89  
C = 70-79  
D = 60-69  
F = below 60

## Student Responsibilities

To ensure a quality and safe learning environment, students are required to follow the Post-Secondary Student Behavior policy #560. This policy can be found at [www.mntc.edu/board-policies](http://www.mntc.edu/board-policies). Printed copies are available upon request.

Students must be on time and meet the attendance policy for this class.