BASIC ELECTRICITY TEST
TEST INFORMATION PAMPHLET

WHY DO AT&T AND ITS AFFILIATES TEST?

When individuals are being considered for our available job openings, they go through a selection process to measure their knowledge, skills and abilities to determine if they can perform the jobs in a satisfactory manner. It is to the advantage of both you, as a job candidate, and the company that only those who can perform at acceptable levels be placed on the job. Research has shown that tests provide accurate measures of people's knowledge, skills and abilities and, therefore, we use tests to help identify people best suited for our jobs.

WHAT IS THE BASIC ELECTRICITY TEST?

The Basic Electricity Test is designed to measure your knowledge and ability to apply concepts, terms, and principles involved in working on or near electrical equipment. Although the test contains some factual questions, it emphasizes your understanding of the subject and your ability to apply what you know, not just your memory of facts or formulas.

Although there are no prerequisites for taking the Basic Electricity Test, if you have no prior training or work experience in basic electricity and electronics, you probably will not do well on the test.

The Basic Electricity Test consists of 60 multiple-choice questions. Each question has four possible answers to choose from. Some questions refer to figures containing circuit diagrams or other schematics. These will be provided to you. Total testing time is approximately 60 minutes. In some locations, the test is given on a PC using a mouse. A tutorial is provided before the test that provides instructions on how to select answers, move from question to question, and view figures/diagrams.

You will have to perform calculations, but you can use a calculator. You may bring a calculator that is silent, handheld, and battery operated. It cannot be solar or have alpha characters on the keypad. The calculator you bring should be able to perform the following functions: Addition, Subtraction, Multiplication, and Division. A scientific calculator can perform these functions.

You will use formulas on the test, but you don't need to have them memorized. A reference screen on the PC contains all the formulas you might need. You can refer to it anytime your memory needs jogging.

The scoring of the Basic Electricity Test is based on the number of correct answers. There is no penalty for guessing, so it is to your advantage to try as many questions as possible. If you are unsure about the answer to a question, a careful guess should be made.

The Basic Electricity Test covers four main subject areas:

- Electricity Fundamentals
  - Electrical Concepts
  - Schematic Reading
  - Circuit Measurements
  - Circuit Identification
- Alternating Current and Reactive Elements
- Safety and Protection Devices
- Multimeters

In addition, you need to know:

- Applied Math

A brief description of each subject area is provided. If you know and understand these things and can apply what you know, you should do well on the test.

ELECTRICITY FUNDAMENTALS

Electrical Concepts

- Understand basic electrical principles
- Understand the laws of attraction and repulsion
- Understand the principle of charge
- Understand the concepts of current flow, electrical pressure, resistance and energy
- Understand the relationship of conductor size and length to current flow and resistance
- Identify various electrical units such as voltage, current, resistance and power
- Understand electrical static discharge and how it is generated

Circuit Measurements

- Use Ohm's law to solve for voltage (E or V), current (I) or resistance (R)
- Use the power formula to solve for power (P), voltage (E or V) or current (I)
- Understand the relationships of efficiency, power input and power output in a circuit
- Calculate the total voltage, resistance and current in simple circuits
- Understand the process for simplifying circuits in order to determine the voltage (E or V), current (I), resistance (R) or power (P) across any circuit component
- Know how to make circuit measurements using the appropriate test Equipment

Circuit Identification

- Know the three types of basic electrical circuits – series, parallel and series-parallel
- Understand the electrical operations of the three types of circuit

Schematic Reading

- Recognize the basic elements of a circuit
- Recognize electrical components
- Identify schematic diagram symbols
- Understand the operation of an electrical circuit
- Understand the purpose, function and operation of circuit components

ALTERNATING CURRENT AND REACTIVE ELEMENTS

- Understand the concepts of capacitance, inductance and reactance
- Understand the relationship of reactance with frequency
- Recognize the symbols for reactance—capacitive and inductive
- Understand the voltage (E or V) and current (I) phase relationships in reactive (inductive or capacitive) circuits
- Understand the concept of true power (TP), apparent power (AP) and power factor (PF) in reactive circuits

MULTIMETERS

- Understand how to connect a multimeter into a circuit to make voltage, current, resistance and power measurements
- Understand the proper operation of voltmeters, ohmmeters, ammeters and watt-hour meters
- Know how to interpret the results of multimeter operation
- Know how to use a multimeter to find shorts and opens in an electrical circuit
- Know how to use voltage multipliers (high voltage probes) with a multimeter to extend its range
- Know how to use current multipliers (current shunts) with a multi-meter to extend its range

SAFETY AND PROTECTION DEVICES

- Understand the purpose and function of fuses and circuit breakers
- Recognize schematic symbols for fuses and circuit breakers
- Understand the purpose, characteristics and operation of devices that provide protection from current and voltage surges in electrical circuits
- Know personal safety practices for working around electrical apparatus

APPLIED MATH

- Add, subtract, multiply, and divide whole numbers and decimals
- Manipulate positive and negative numbers
- Manipulate powers of ten
- Understand symbols for subunits of electrical quantities and be able to convert from one subunit to another (Examples: k = kilo = 1000, μ = micro = 10^{-6})
- Solve equations given a formula such as Ohm's law
- Understand what *direct* and *inverse* relationships are

The following types of questions are on the test Basic Electricity Test.

- **Terms and Definitions** - These questions ask for the definition of a term, the name for a concept or device, or the characteristics of a component. For example:

  Q: What is an amplifier?
  A: A device that makes sounds louder and signal levels greater

  Q: What device is used to convert direct current to alternating current?
  A: Oscillator

  Q: How does a digital meter's display differ from an analog meter's display?
  A: Shows digital (numeric) readout instead of a needle pointing to a mark on a fixed scale

- **Relationships and Principles** - These questions ask how two concepts or measurements relate to each other. For example:

  Q: Holding resistance constant, how does increasing current in a circuit affect voltage?
  A: Voltage increases

  Q: How would adding a 20-Ω resistor in parallel with a 100-Ω resistor change the reading on an ammeter?
  A: Current would increase

- **Interpreting Facts** - A situation or problem will be described. You will be asked to explain what's happening or what's wrong. For example:

  Q: When measuring DC voltage across a device with a multimeter, the meter indicates 0 volts. What is one possible explanation for this reading?
  A: Switch is open

- **Calculating Circuit Values** - You'll be asked to figure out the amount or level of a measurement in a circuit, given other information about the circuit. For example:

  Q: What is the resistance of a lamp which draws 120 mA when connected to a 12.6-V battery?
  A: 105 Ω

- **How-To** - You'll be asked to how to perform a task. For example:

  Q: How should a multimeter's leads be connected when measuring resistance?
  A: Connect the test leads to the terminals on the tested device

SELF-ASSESSMENT

This section contains a practice test of 25 questions that are similar to the questions on the real test. **If you take the actual test and do not pass, you will have to wait six months or more to take the test again!** Use this practice to evaluate if you are ready to take the real Basic Electricity Test:

PRACTICE TEST INSTRUCTIONS

You will need this Study Guide, paper and pencil, and a calculator able to perform the following functions: Addition, Subtraction, Multiplication, and Division.

1. Take the practice test. Give yourself 25 minutes to complete the test; this approximates the time you will be given to complete the actual test (the actual test is 60 questions in one hour which averages one minute per question). Read each question carefully. Use the Reference Sheet on page 8 to find the figures and formulas you will need. Pick the best answer for each question and write the letter of your answer on a piece of paper.

2. Use the key on page 9 to score it.

3. Review the explanations, starting on page 9, for questions you missed or were unsure of.

4. Look up your score on page 11 to see how well you are likely to do on the real test.

PRACTICE TEST

1. Which of the following wires has the greatest cross-sectional area?
   a. 9 AWG
   b. 14 AWG
   c. 22 AWG
   d. 30 AWG

2. What is the unit of measure for electrical pressure or electromotive force?
   a. amps
   b. ohms
   c. volts
   d. watts

3. Which of the following circuit configurations has the same amount of voltage drop across each of its components?
   a. parallel
   b. series-parallel
   c. series
   d. combination

4. As temperature increases, what happens to the current-carrying ability of a wire?
   a. There is no change.
   b. The wire can carry more current.
   c. The wire can carry less current.
   d. The wire can carry no current.

5. In a series circuit consisting of 3 resistors of 45 Ω each and a 50-V source, what is the approximate amount of heat produced?
    a. 16.6 W
    b. 18.5 W
    c. 135 W
    d. 150 W

6. In a two-branch parallel circuit containing one 30-Ω resistor in each branch and powered from a 10-V source, what is the total current flowing in the circuit?
    a. .33 A
    b. .67 A
    c. 40 A
    d. 60 A

7. Which of the following determines total power in a series circuit?
    a. source voltage times the current
    b. total voltage applied to the circuit
    c. current flowing through a switch
    d. average of the wattage consumed by each resistor

8. If a resistor suddenly decreases in value (resistance decreases), what will happen to the current through the resistor?
    a. increases
    b. remains unchanged
    c. decreases
    d. fluctuates

9. What is the applied voltage on a circuit in which .5A is flowing and 10 W is generated?
    a. 2 V
    b. 5 V
    c. 20 V
    d. 50 V

10. Refer to Figure 1 on the Reference Sheet. Which drawing is the electrical symbol for a source of energy?
    a. A
    b. C
    c. I
    d. J

11. What is the classification of an AC circuit in which the capacitive reactance is 50 Ω, the inductive reactance is 30 Ω and the resistance is 100 Ω?
    a. resistive
    b. inductive
    c. capacitive
    d. resonant

12. When using a standard multimeter to measure AC voltage, what type of measurement will the multimeter indicate?
    a. peak-to-peak
    b. peak
    c. average
    d. rms

13. What happens to current flow in a capacitive circuit when the DC voltage across the capacitor is approximately equal to the source voltage?
    a. Current flow is optimized.
    b. Little current flows.
    c. Current flow is maximum at the source.
    d. Current flow is maximum at the capacitor.

14. What is the term used to describe the ability of a device to store energy in the form of an electrical charge?
    a. inductance
    b. conductance
    c. reactance
    d. capacitance

15. Refer to Figure 2. What is the total capacitance of this circuit?
    a. 15 pF
    b. 30 pF
    c. 105 pF
    d. 160 pF

16. If the distance between the plates of a capacitor decreases while all other components of the capacitor remain the same, what happens to the capacitance of the device?
    a. increases
    b. remains the same
    c. decreases
    d. varies

17. In mutual induction, what passes between conductors in order to create voltage?
    a. radiation
    b. magnetic flux
    c. current flow
    d. resistance

18. The Henry is the unit of measurement for which of the following properties?
    a. reactance
    b. capacitance
    c. resistance
    d. induction

19. Which of the following devices can be used to test the windings of an inductor for continuity?
    a. wattmeter
    b. voltmeter
    c. ohmmeter
    d. Wheatstone bridge

20. Which of the following circuit conditions does a metal oxide varistor (MOV) protect against?
    a. high voltage
    b. high current
    c. high circuit noise
    d. high cross-talk

21. How should a fuse be installed in a circuit to insure proper operation?
    a. parallel to the load
    b. series with the load
    c. in any way possible
    d. at the ground point

22. In a parallel circuit operating with a source of 30 VAC, designed to carry a total current of 6 A, what happens to the protection device (fuse) when the resistance suddenly changes to 2 Ω?
    a. closes
    b. no change
    c. shorts to ground
    d. opens

23. How many watts are in 100 microwatts?
    a. .01 milliwatts
    b. .1 milliwatts
    c. 1.0 milliwatts
    d. 10 nanowatts

24. Which of the following is an appropriate use for a voltmeter?
    a. To measure difference of potential
    b. To measure current flow
    c. To determine total resistance
    d. To determine power output

25. What should be observed when connecting a voltmeter into a DC circuit?
    a. rms
    b. resistance
    c. polarity
    d. power factor

REFERENCE SHEET

Formulas

$$E = IR \qquad P = IE$$

$$V_{avg} = V_{peak} \times .637 \qquad V_{rms} = V_{peak} \times .707$$

Figure 1.

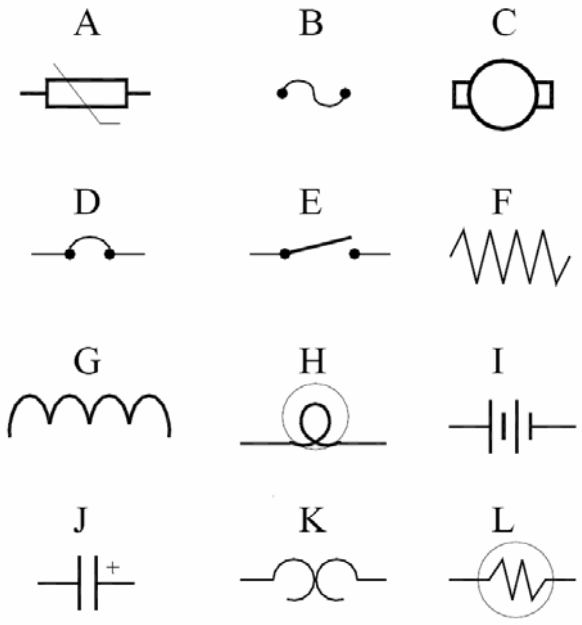
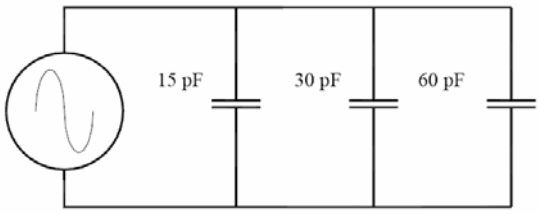


Figure 2.



SCORING THE PRACTICE TEST

1. Use the key answers given below to score your Practice Test.

1. A	11. C	21. B
2. C	12. D	22. D
3. A	13. B	23. B
4. C	14. D	24. A
5. B	15. C	25. C
6. B	16. A	
7. A	17. B	
8. A	18. D	
9. C	19. C	
10. C	20. A	

2. Count the number of questions you answered correctly. This is your total score.

3. Make a list of the questions you missed or got right but were unsure of. Review the explanation of those questions on the following pages.

EXPLANATION OF PRACTICE TEST QUESTIONS

1. **(A)** The larger the cross-sectional area of a wire, the greater the number of electrons it can carry. The American Wire Gauge (AWG) system provides guidelines on wire characteristics. The smaller the value of AWG, the greater the cross-sectional area of the wire. The **9 AWG** wire will have the greatest cross-sectional area of any of the choices.

2. **(C)** Electrical pressure is the push given to electrons that causes them to flow through circuits. The unit of measure for electrical pressure is the **volt**.

3. **(A)** In a series circuit, the current is equal at each point in the circuit and voltage is divided among the circuit components. In a **parallel** circuit, the voltage across each component is the same and the current is divided among the separate branches.

4. **(C)** Increasing temperatures cause electrons to be more active. The random nature of the increased activity causes collisions between thermally excited electrons and current carrying electrons. The collisions tend to disrupt the flow of electrons through the circuit. This disruption **reduces the net current flow.**

5. **(B)** Resistive elements in a circuit dissipate energy in the form of heat. Resistors connected in series are added to get total resistance. The power formula P = IE is used to determine the power used. First, use Ohm's law to find the current (I).
   - I = E/R = 50/135 = .37 amps

   The power dissipated in heat can then be found using the power formula:
   - P = IE = .37 * 50 = **18.5 watts**

6. **(B)** Because the voltage drop across each component of a parallel circuit is the same, Ohm's law can be used to find the current in each branch. The total current is then found by adding the current in each branch. Since in this case, the branches have equal resistance, simply find the current in one branch and multiply by the number of branches.
   - Current in one branch: I = E/R = 10/30 = .333 amps per branch
   - Total current of the parallel circuit: .333 amps * 2 branches = .67 amps

7. **(A)** The total power consumed in any circuit is a function of the power formula:
   - Power = current (I) times voltage (E) or P = IE

8. **(A)** According to Ohm's law, I = E/R, current has an inverse relationship with resistance. As resistance (R) decreases, current (I) increases.

9. **(C)** Use the power formula, P = IE, to find this answer. Solving for E:
   - E = P/I = 10/.5 = 20W.

10. **(C)** The symbol for an energy source, in this case a battery, is symbol I.

11. **(C)** In a reactive circuit, the higher value of reactance will determine whether the circuit is capacitive or inductive. Here, the capacitive reactance is higher than the inductive reactance. Therefore, the circuit is capacitive.

12. **(D)** Electricity delivered to a wall outlet is stated in terms of rms voltage. A standard multimeter provides a reading of AC voltage in terms of rms.

13. **(B)** When a DC voltage is applied across a capacitor, there will be an initial flow of current. As the voltage across the capacitor charges up to the value of the source voltage, current flow will slowly decline. At the point where the voltage is approximately equal, all current in this circuit will stop flowing because there is no difference of potential.

14. **(D)** A capacitor is a device that stores electrical energy.

15. **(C)** Capacitors in parallel are measured like resistors in series. Add the three capacitors to get the total capacitance of the circuit.
   - 15 pF + 30 pF + 60 pF = 105 pF

16. **(A)** The value of a capacitor (capacitance) can be increased by increasing the surface area of the plates, increasing the value of the dielectric constant, or decreasing the distance between the plates.

17. **(B)** Magnetic flux is created as alternating current changes direction and causes lines of flux to vary in the magnetic field. As the lines of flux vary, they cause current to flow in nearby conductors.

18. **(D)** The Henry is a unit of measure for **induction**.

19. **(C) Ohmmeters** are used for testing continuity. Inductor windings are usually coils of wire and if not broken, can be tested with an ohmmeter for continuity.

20. **(A)** MOVs react very quickly to **over-voltage conditions**. When the voltage threshold of a MOV is exceeded, it instantly acts as a conductor, shorting the transient spike to ground. MOVs are commonly used to protect equipment that is attached to a transmission line.

21. **(B)** A fuse responds to an over-current condition by opening. This separates the source from the circuit in the event of an overload. Therefore it should be connected so that it is between the source of energy and the circuit**—in series with the load**.

22. **(D)** A circuit designed to work with 30 volts at 6 amps has a load resistance of 5 Ω (Ohm's law). If the load resistance drops to 2 Ω, the circuit current will increase to 15 amps (Ohm's law) if there is no way to stop it. If the protection device (see question 21) works properly, it will **open** a circuit if current goes beyond its designed current carrying ability.

23. **(B)** 100 microwatts = 100 * 10^{-6} watts = .0001 watts = **0.1 milliwatts**.

24. **(A)** Voltmeters measure **difference of potential** in electrical circuits.

25. **(C) Polarity** is of major importance in direct current circuits. Voltmeters are sensitive to polarity when making measurements in DC circuits. Correct placement of leads is very important when making these kinds of measurements.

HOW DID I DO?

The Practice Test questions are very similar to—but not the same as—the questions you'll see on the real test. Your Practice Test score will give you a good idea of how well you could expect to do on the real test but, of course, only your score on the real test counts.

Find your score level below to get a good idea of how well prepared for the test you are right now.

If your Practice Test score was…

20 – 25 Congratulations! You are ready to take the real test and should have an excellent chance of qualifying. ***Get ready for the test*** with the help of the hints in the next section.

15 – 19 You did pretty well but are probably a little rusty in some areas. If you took the real test now, you would have a fair chance of qualifying. You can improve the odds if you ***review your weak areas*** first. See the next section.

10 – 14 Although you know some of the material, your score indicates that there are some subjects that you've never studied or haven't worked with in quite a while. Use the next section to ***plan a study strategy***.

0 – 9 You do not know the material well enough to prepare on your own. If you're still interested in taking the test, ***take a course***. Find out what to look for in the next section.

WHAT CAN I DO TO PREPARE FOR THE TEST?

EVALUATING YOUR NEEDS

Studying on your own
If you did well on the practice test (15 or higher), but you still want to brush up on your skills, try studying the material on your own.

- Identify your weak areas
- Find a textbook or manual (there is a list on page 14)
- Study
- Check your progress and evaluate if you need more help.

Correspondence Courses
If you scored in the mid-teens on the practice test and feel that you need guidance with studying, then a correspondence course can be a flexible and efficient way to further your education. There are several options:

- Paper-based courses
- Computer or web-based courses

Classroom Training
If you scored in the low teens or lower on the practice test, you would be well-served to take a course that offers professional instruction and testing. Sources are found for eligible regular full-time or regular part-time employees for candidates who are not eligible employees.

Math Skills
Don't forget the math and calculator skills because you'll need them right away. If you don't know how to solve simple equations or work confidently with negative numbers and decimals, get these skills first. You can either:

- Find a math review book and brush up on your own, perhaps with the help of a friend; or
- take an applied math course; or
- choose an electricity course that includes a math module at the beginning.

If you know the math basics, you can probably start right in with a basic electricity course.

TRAINING OPTIONS FOR ELIGIBLE EMPLOYEES

What is an eligible employee?
All regular full-time and regular part-time employees with at least six months of seniority are eligible to participate in services offered through the Employment Security PARTNERSHIP. In many cases, these services are offered to eligible employees at no cost.

What are my options?
Based on your individual skills and needs, you can select from any of the following options:

- Correspondence courses;
- A computer-based course; or
- Classes from your local school or community college.

Keep in Mind:
Participation in these classes should enhance the learning of skills and knowledge required for specific jobs. However**, taking a course does not always guarantee that the candidate will qualify** for the job title they are seeking.

CORRESPONDENCE COURSES FOR ELIGIBLE EMPLOYEES

Introduction
The Correspondence Course Program is administered through the Employment Security PARTNERSHIP. Although this method allows more flexibility than traditional school attendance, the courses still require a fair amount of time and motivation. Systematic study, conscientious application and a high degree of self-discipline are basic requirements of each course.

There are two courses that might apply:

- CT100: Basic Mathematics Review
- CT208: Basic Electricity

CT100: Basic Mathematics Review
A course designed to provide a review of basic arithmetic skills to continue on to a beginning algebra program or to meet the requirements of a technical program. The course covers: whole numbers, fractions, decimals, ratios, proportions and percents, measurements, signed numbers, algebraic expression and equations. A REFRESHER COURSE IN MATHEMATICS. Note: Basic arithmetic and algebra skills will be required to successfully complete any Basic Electricity training.

CT208: Basic Electricity
The text is written for students beginning their study of electricity. No previous formal training in the subject is required. Arithmetic and basic algebra are used in explaining and solving electrical problems. The course covers basic concepts, electrical quantities and units, basic circuits, laws and measurements, circuit components, multiple-load circuits, magnetism and electromagnetism, voltage, capacitance, inductance, transformers, R, C and L circuits and instruments and measurements.

How do I register for a Correspondence Course?
If you have decided you have the self-discipline and you like the flexibility of the correspondence courses, then contact the PARTNERSHIP program to get more information or to register for a course. You may visit the intranet site at http://ebiz.sbc.com/hronestop/index.cfm?fuseaction=Display&type=PJBPartnershipHome or call **HROneStop** at **888-722-1STP (888-722-1787)** and speak **"PARTNERSHIP Program"**.

COMPUTER-BASED INSTRUCTION FOR ELIGIBLE EMPLOYEES

Introduction
The computer-based course is available on floppy disks or as an on-line course.

Basic Electricity - NG423P Communications Electronics (Basic Electricity)
This course covers the forces and elements that govern the operation of electronic circuits. The basic components that comprise communication circuits are presented individually and are used in the construction of electrical circuits. Lessons covered in the course include: DC Current and Voltage, Conductor Basics, DC Circuits, Series and Parallel Circuits, Capacitance, Inductance, AC Circuits, and Introduction to Transmission.

How do I register?
Contact the PARTNERSHIP program to get more information or to register for a course. You may visit the intranet site at http://ebiz.sbc.com/hronestop/index.cfm?fuseaction=Display&type=PJBPartnershipHome or call **HROneStop** at **888-722-1STP (888-722-1787)** and speak **"PARTNERSHIP Program"**.

VOCATIONAL CLASSES FOR ELIGIBLE EMPLOYEES

Introduction
A classroom-based course offered by a technical school, two-year or four-year college and taught by an experienced instructor is one good choice for training, particularly if you are new to electricity. Compare the list of required knowledge and skills on pages 2 – 3 to the course curriculum. If you're unsure whether a certain course covers what you need, ask someone at the institution offering the course, preferably the instructor. You may wish to share the checklist with a knowledgeable person at the institution.

How do I register?
Contact your local school and ask them for their registration requirements.

AT&T Southeast has an Educational Assistance program that pays for furthering your education. There are certain requirements for participating in the program.

Contact the PARTNERSHIP program to get more information or to register for a course. You may visit the intranet site at http://ebiz.sbc.com/hronestop/index.cfm?fuseaction=Display&type=PJBPartnershipHome or call **HROneStop** at **888-722-1STP (888-722-1787)** and speak **"PARTNERSHIP Program"**.

TRAINING OPTIONS FOR OTHER TECHNICIAN CANDIDATES

What if I am not an eligible employee?
If you are a candidate for a technician job, but you are **not** an eligible regular full-time or regular part-time employee of AT&T, there are still many training options available to you. **You will be responsible for paying the cost of any of these courses.**

What are my options?
Based on your individual skills and needs, you can select from any of the following options:

- Self-study using textbooks recommended on page 14
- Paper-based correspondence courses
- Correspondence courses via the Internet
- Classes from your local technical school or community college

Keep in Mind:
Participation in these classes should enhance the learning of skills and knowledge required for specific jobs. However**, taking a course does not always guarantee that the candidate will qualify** for the job title they are seeking.

REFERENCE BOOKS FOR SELF-STUDY

Where do I find these books?
The following books can be purchased at your local bookstore or on the Internet. You may also be able to check out these books from your local public library. The cost of the reference books ranges from $20 to $50. The following listings are by title, author, publisher and date.

Mathematics:

- Basic Mathematics for Electricity and Electronics
  Bertrand B. Singer
  Macmillan McGraw Hill
  1994

Basic Electricity:

- Electricity: Principles and Applications, 4th Edition
  Richard J. Fowler
  Glencoe McGraw Hill
  1994

- Basic Electricity: A Self Teaching Guide
  Charles W. Ryan
  John Wiley & Sons
  1986

- Basic Electricity
  Nooger Van Valkenburgh
  PROMPT
  1993

- Teach Yourself Electricity & Electronics
  Stan Gibilisco
  1997

- Basic Electricity
  Milton Gussow
  McGraw Hill
  1987

TRADITIONAL CORRESPONDENCE COURSES

Paper-based self-study classes
Basic Electricity Correspondence Courses are available from these vendors. These “paper-based” courses are self-study classes with reference books.

- Heathkit Electronics Educational Systems
  455 Riverview Dr.
  Benton Harbor, MI 49022
  (800) 253-0570
  Fax # (269) 925-2898
  www.heathkit.com

- Cleveland Institute of Electronics
  1776 E. 17th St.
  Cleveland, Oh 44114-3679
  (800) 243-6446
  Fax # (216) 781-0331
  http://www.cie-wc.edu/

COMPUTER-BASED INSTRUCTION

The following vendors offer Basic Electricity correspondence courses via the Internet.

- Heathkit Electronics Educational Systems
  455 Riverview Dr.
  Benton Harbor, MI 49022
  (800) 253-0570
  Fax # (269) 925-2898
  www.heathkit.com

- Cleveland Institute of Electronics
  1776 E. 17th St.
  Cleveland, Oh 44114-3679
  (800) 243-6446
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Financial Aid
In some cases, you may qualify for financial aid. Be sure to speak to the school's Financial Aid Office if you need assistance.

When you are scheduled for the Basic Electricity Test, you will be given a specific time to report to the testing location. Try to arrive at the location at least 15 minutes before your scheduled test time to give yourself time to relax before the test begins. Review this Test Information Pamphlet and be prepared for the test by bringing your glasses, etc. Ask questions before the test begins, and be sure you understand the format of the Basic Electricity Test.

FOR EMPLOYEES ONLY: You may contact the AT&T Self Development Resource Center located on HROneStop at http://hronestop.att.com >> Your Career >> Self Development >> Test Preparation to inquire about study guides, textbooks, and/or general course information that may help you prepare for the test.

RETEST INTERVALS

If it should happen that you do not qualify on the Basic Electricity Test, your first retest opportunity is at six months. Subsequent retests are at one-year intervals. Test standards are periodically updated to reflect current abilities and skills required for our jobs. Therefore, it may be necessary to meet new test standards should they be introduced prior to your placement on the job.

SUMMARY

Successful completion of the Basic Electricity Test qualifies you for possible placement into jobs requiring the test. Additional testing may be required for certain positions. See job briefs in your area for additional testing requirements for titles you are interested in.

AT&T and its affiliates support and comply with the provisions of the Americans with Disabilities Act (ADA) and other Federal and State laws that specifically assist individuals with disabilities. If you have a limiting disability and need special testing arrangements, please ask your local Employment Office or Placement Bureau personnel for information about the testing accommodation process.