Standards that are assessed in this course:

1. Demonstrate proficiency in laboratory practices--The student will be able to:
   1. Apply proper Occupational Safety Health Administration (OSHA) safety standards.
   2. Make proper electrical wire connections.
   3. Identify and use electrical/electronic hand tools properly.
   4. Identify and use power tools associated with electrical/electronic industry properly.
   5. Explain the theoretical concepts of soldering.
   6. Identify proper solder connections.
   7. Demonstrate acceptable soldering techniques.
   8. Demonstrate acceptable desoldering techniques.
   9. Demonstrate solder rework and repair techniques.
   10. Demonstrate electrostatic discharge (ESD) safety procedures.
   11. Describe the construction of printed circuit boards (PCBs).
   12. Demonstrate proficiency in the use of an operating system.
   13. Demonstrate proficiency in the use of a high level computer language.
   14. Demonstrate proficiency in the use of microcomputer application programs.
   15. Demonstrate the use of microcomputer circuit simulation programs.
   16. Load operating system and application software.
   17. Read and interpret data sheet specifications for electronic components.
   18. Demonstrate proficiency in the use of multimeters.
   19. Demonstrate proficiency in the use of oscilloscopes.
   20. Demonstrate proficiency in the use of function generators.
   21. Demonstrate proficiency in the use of power supplies.
   22. Identify basic limitations of multimeters, oscilloscopes, function generators, and power supplies.
2. Demonstrate proficiency in direct current (DC) circuits--The student will be able to:
   1. Solve problems in electronic units utilizing metric prefixes.
   2. Identify sources of electricity.
   3. Define voltage, current, resistance, power and energy.
   4. Apply Ohm's law and power formulas to electrical/electronic circuits.
   5. Read & interpret color codes and symbols to identify electrical components and values.
   6. Measure properties of a circuit using Digital Multimeter (DMM) and oscilloscopes.
   7. Apply Ohm's law and Kirchoff s voltage and current laws to series circuits.
   8. Construct and verify operation of series circuits.
   9. Analyze and troubleshoot series circuits.
   10. Apply Ohm's law and Kirchoff s voltage and current laws to parallel circuits.
   11. Construct and verify the operation of parallel circuits.
   12. Analyze and troubleshoot parallel circuits.
3. Demonstrate proficiency in alternating current (AC) circuits--The student will be able to:
   1. Identify properties of an AC signal.
   2. Identify AC sources.
   3. Analyze and measure AC signals utilizing VOM, DVM, oscilloscope, frequency counter and function generator.
4. Demonstrate proficiency in digital circuits--The student will be able to:
   1. Demonstrate proficiency in the use of logic probes for digital circuits.
   2. Demonstrate proficiency in the use of power supplies for digital circuits.
   3. Identify types of logic gates and their truth tables.
   4. Construct combinational logic circuits using integrated circuits.
   5. Troubleshoot logic circuits.
5. Demonstrate proficiency in technical recording and reporting--The student will be able to:
   1. Demonstrate proficiency in the use of microcomputer application programs.
   2. Demonstrate the use of microcomputer circuit capture and simulation programs.
   3. Demonstrate the use of microcomputer analytical software.
   4. Record data including the use of curves and graphs.
   5. Write reports and make oral presentations.
   6. Maintain test logs.
   7. Make equipment failure reports.
6. Demonstrate proficiency in programming, design and analysis of microprocessor based systems--The student will be able to:
   1. Program and interface input devices.
   2. Program and interface output devices.
   3. Program and interface a serial data link using a microprocessor.
   4. Write programs using control loops and integer arithmetic operations on arrays of numbers.
7. Understand, install, configure and troubleshoot issues relating to computer hardware and software–The student will be able to:
   1. Use an operating system for activities such as data and file management.
   2. Identify various coding schemes (ASCII, etc.).
   3. Identify the major hardware platforms.
   4. Describe and demonstrate the primary features and functions of the major categories of applications software (word processing, database, spreadsheet, presentation, email, browsers, etc.) (CGS 1000).
   5. Describe the functions of major components of a computer system (CGS 1000).
   6. Discuss various computer applications in society (CGS 1000).
   7. Describe the categories of computers (CGS 1000).
   8. Recognize the value of computer literacy within an individual’s personal and career environments (CGS 1000).