

# COMPETENCY PROFILE

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## DIRECT CURRENT I (DC 1)

**BTC: ELTR 100 (75 clock hours/4 credits)**

Course focuses on the basics of current, voltage and resistance. The application of Ohm's law and the construction of circuits to verify electronic theory, provide the knowledge necessary to build the foundation for a thorough understanding of basic electronics. Students learn how to make good solder connections, recognize and repair bad solder connections as well as to select and clean soldering tools.



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Upon completion of high school equivalent courses, the student will be able to:

- Apply Ohm's Law to the calculation of voltage, current, resistance, and power in simple DC circuits.
- Explain the conditions leading to electric shock, the bodily effects of electric shock, safe practices to avoid being shocked, and explain the type(s) of medical attention needed by electric shock victims.
- Determine the ideal resistance value of a resistor in ohms and its allowable resistance range, given its color bands.
- Determine which component has failed in a simple DC circuit, given a schematic diagram and descriptions of abnormal circuit behavior.
- Calculate voltages, currents, resistances, and power dissipations in series and parallel circuits.
- Demonstrate the use of multimeters to measure voltage, current, and resistance in DC circuits.
- Demonstrate proficiency with industry standard notations through the use of proper units of measurement, metric prefixes, and schematic diagram creation.
- Demonstrate proper soldering technique on wire splices and printed circuit boards.
- Logically troubleshoot a simple, malfunctioning circuit using appropriate test equipment.

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### College Textbooks:

- 📖 Electronics Technology Fundamentals (conventional flow version), by Paynter and Boydell.
- 📖 Textbook (supplement) -- Lessons in Electric Circuits, Volume 1 (DC), by Tony R. Kuphaldt.  
Or access online: <<http://ibiblio.org/obp/electricCircuits/DC>>