



## A Comprehensive, Self-Contained System that Familiarizes Students with Electricity & Electronics and its Applications

TII's instructor-developed curriculum features more than 25 hours of instruction in electricity and electronic terminology, circuit design and development, basic electronic components, and the theory and mathematics relating to electricity and electronics. TII offers both a comprehensive textbook format and a 10-activity modular format. Both formats allow for self-paced, individualized instruction and training.

Each module includes background information on each topic and an experiment or experiments that require students or trainees to construct and operate a simple circuit, followed by questions that reinforce the concepts and measure competence. Hands-on applications allow students or trainees to gain a better understanding of the changes in technology going on around them.

The entire system is enclosed in a portable and lockable impact-resistant polyethylene case. It consists of an experiment station, a component kit, a visual aids chart and courseware. All necessary hardware and components are included.

The Principles of Electricity/Electronics is one of the building blocks in the TII Fundamentals of Technology system. Other systems include the principles of pneumatics, mechanisms, hydraulics, robotics, sensors, programmable controllers, computer interfacing and systems integration. All systems feature:

- Hands-on applications to allow for faster learning, higher knowledge retention, and application to real-world situations.
- Competency- and mastery-based training with computer-based pre- and post-testing.
- Easy-to-read curriculum that allows for self-paced or group instruction.
- Instructor guide with module and presentation suggestions.
- Clearly labeled storage panel for component identification and inventory.
- Removable panels for mounting the system on a table or work surface to meet space requirements.

## **SPECIFICATIONS**

### Experiment Station

The bottom panel is the experiment workstation. Electrical components are hard-mounted and connected using patch cords and banana jacks to create electrical circuits. The panel is reinforced with a steel box which also protects the components. The station is protected with an internal fuse and circuit breaker, and maximum voltage is limited to 12 VAC and 12 VDC.

### Component Kit

The top panel is labeled and silhouetted for loose components identification and inventory. Loose components are supplied to allow students and trainees additional versatility in building circuits. A multimeter and magnets are included. For advanced applications, a breadboard is included. Both panels can easily be removed from the case for table-top use.

## **CURRICULUM**

The Principles of Electricity & Electronics curriculum was designed and reviewed by a panel of experienced secondary and post-secondary educators. In addition, the curriculum received input from industry experts and has been reviewed and tested in industry. The courseware includes an instructor's guide and computer based pre-and post-testing.

Introduction to Electrical Components	Introduction to System Introduction to Electricity Magnetism Electro-magnetism Electrical Power Supplies Electrical Instrumentation-Using a Multimeter Output Devices-Lamps, LEOs, Motors, Speakers Control Devices-Switches, Relays, Potentiometers Circuit Protection-Circuit Breakers, Fuses Electrical Conditioners-Resistors, Capacitors, Diodes Electronic Conditioners-Transistors, Op-amps, Audio-transformers
Application Laboratories	Series Circuits Parallel Circuits Output Intensity Control Sequence of Output Operations Conditioning Electrical Outputs Logic Gates Advanced Applications Electrical/ Electronic Graphic Symbols
Physical Properties	Ohm's Law Induction Reactance Capacitance Force, Work and Power

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