

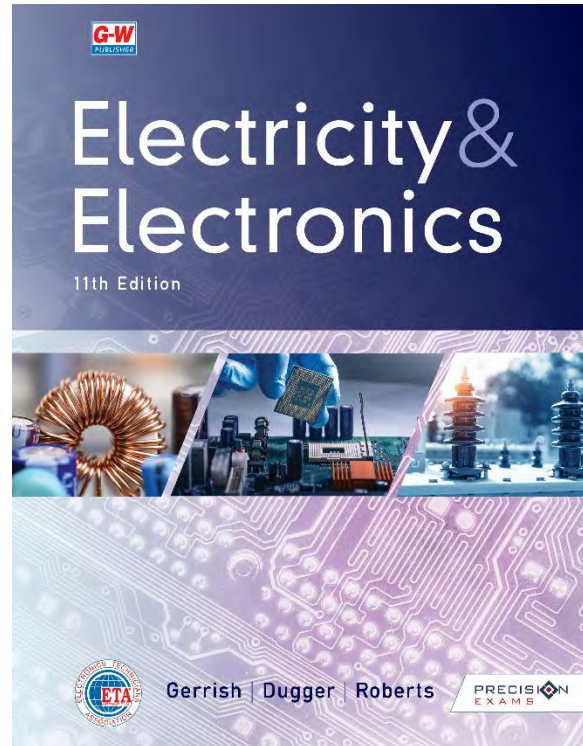


**Correlation of
Electricity & Electronics, Gerrish, Dugger, and Roberts
(Goodheart-Willcox Publisher ©2021)
to
Precision Exams Electronics I (651)**

Goodheart-Willcox is pleased to partner with Precision Exams by correlating *Electricity & Electronics* to their Electronics I standards. Precision Exams standards and Career Skills Exams were created in concert with industry and subject matter experts to match real-world job skills and marketplace demands. Students who pass the exam and performance portion of the exam can earn a Career Skills Certification.

The correlation chart below lists the Standards and Objectives for Electronics I, and the corresponding content from *Electricity & Electronics*.

For more information on Precision Exams, including a complete listing of their 150+ Career Skills Exams and Certificates, please visit www.precisionexams.com.



Standards and Objectives	G-W Content
Standard 1: Students will follow safety practices.	
Objective 1: Identify potential safety hazards and follow general laboratory safety practices..	
1. Assess workplace conditions with regard to safety and health.	Textbook: pgs. 4, 16–18
2. Identify potential safety issues and align with relevant safety standards to ensure a safe workplace/jobsite.	Textbook: pgs. 4, 16–18
3. Describe typical electric shock hazards in industry.	Textbook: pgs. 3–16
4. Describe the effects of electricity on the human body.	Textbook: pgs. 3–4
5. Locate and understand the use of shop safety equipment.	Textbook: pgs. 13–15

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Standards and Objectives	G-W Content
6. Select appropriate personal protective equipment.	Textbook: pgs. 6–7
Objective 2: Use safe work practices.	
1. Use personal protective equipment according to manufacturer rules and regulations.	Textbook: pgs. 3–16
2. Follow correct procedures when using any hand or power tools.	Textbook: pgs. 8–10
Objective 3: Complete a basic safety test without errors (100%) before using any tools or shop equipment.	Textbook: pgs. 3–16
Standard 2: Students will understand the proper use of test equipment.	
Objective 1: Understand the proper configuration, handling, and storage of a(n):	
1. Voltmeter	Textbook: pgs. 54–56
2. Ammeter	Textbook: pgs. 51–53
3. Ohm meter	Textbook: pgs. 57–58
4. Bench power supply	Textbook: pgs. 322–328
Standard 3: Students will be able to understand and demonstrate how to use, test, and select electronic components.	
Objective 1: Identify the following components and draw their schematic symbols.	
1. Resistor.	Textbook: pg. 88
2. Potentiometer	Textbook: pg. 90
3. Capacitor	Textbook: pgs. 275, 278–279
4. Variable Capacitor.	Textbook: pg. 279
5. Relay Switch	Textbook: pgs. 169–170
6. Transformer	Textbook: pgs. 220–232
7. Diode	Textbook: pg. 317
8. Antennae	Textbook: pgs. 415–419, 539–541
9. Transistor	Textbook: pg. 337
10. Microphone	Textbook: pg. 422
11. Speaker	Textbook: pg. 443
12. Battery	Textbook: pg. 106
13. AC power supply	Textbook: pgs. 42, 322–323
14. Terminal Post	Textbook: pg. 83
15. Normally-open switch	Textbook: pg. 172

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Standards and Objectives	G-W Content
16. Normally-closed switch	Textbook: pg. 172
17. Incandescent light bulb	Textbook: pg. 85
18. Induction coil	Textbook: pg. 253
19. Light emitting diode	Textbook: pgs. 87, 318–319
20. Earth ground	Textbook: pg. 3–4
21. Chassis ground	Textbook: pg. 77
22. Single-pole single-throw switch	Textbook: pg. 82
23. Single-pole double-throw switch	Textbook: pg. 82
24. Ammeter	Textbook: pgs. 51–53
25. Volt meter	Textbook: pgs. 54–56
26. Ohm meter	Textbook: pgs. 57–58
Objective 2: Determine the values for electronic components from their markings and physical characteristics.	Textbook: pgs. 45–46, 91–92
Objective 3: Describe the operation of and procedures for testing resistors and capacitors in both a series and in a parallel circuit.	Textbook: pgs. 57–58, 88–92, 282, 287–288
Standard 4: Students will be able to understand and demonstrate basic electronic theory.	
Objective 1: Describe basic principles of electrical theory.	
1. Describe the atomic structure of matter.	Textbook: pgs. 33–35
2. Describe the units of electrical charge, voltage, current, resistance, capacitance, and power.	Textbook: pgs. 40–43
3. Describe the factors that affect the movement of electrical charges.	Textbook: pgs. 40–44
4. Clearly distinguish between direct (DC) and alternating (AC) current.	Textbook: pg. 42
Objective 2: Verify Ohms Law.	
1. State Ohms Law and graph the relationships between current, resistance, and voltage in circuits.	Textbook: pgs. 45–46
2. Describe the effect on current when changing voltage or resistance.	Textbook: pgs. 45–46
3. Use formulas and basic mathematics to solve Ohms Law problems.	Textbook: pgs. 45–46, 97–98
Objective 3: Verify Watts Law.	

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Standards and Objectives	G-W Content
1. State Watt's Law and graph the relationships between voltage, current, and power in circuits.	Textbook: pgs. 96–98
2. Describe the effect on power if voltage, current or resistance is changed.	Textbook: pg. 96
3. Use formulas and basic mathematics to solve Watts Law problems.	Textbook: pgs. 96–98
Objective 4: Construct, measure and analyze simple series resistive circuits.	
1. Describe the principles of a series circuit.	Textbook: pgs. 127–128
2. State and use Kirchoff's voltage law and the voltage divider formula to solve a series circuit problem.	Textbook: pgs. 127–128
3. Calculate the theoretical values of voltage, current, resistance and power in all parts of a series circuit.	Textbook: pgs. 127–128
4. Use a VIRP table to predict the voltage, current, resistance, and power in all parts of a series circuit from a schematic diagram.	Textbook: pgs. 45–46, 88–90, 96–98
Objective 5: Construct measure and analyze simple parallel resistive circuits.	
1. Describe the principles of a parallel circuit.	Textbook: pgs. 136–140
2. State and use Kirchoff's current law and the current divider formula to solve parallel circuit problems.	Textbook: pg. 127
3. Calculate the theoretical values of voltage, current, resistance and power in all parts of a parallel circuit.	Textbook: pgs. 40–44, 136–140
4. Use a VIRP table to predict the voltage, current, resistance, and power in all parts of a parallel circuit from a schematic diagram.	Textbook: pgs. 45–46, 88–90, 96–98
Standard 5: Students will demonstrate the ability to successfully solder components and desolder components from a printed circuit board.	
Objective 1: Describe principles of magnetism and electromagnetism.	Textbook: pgs. 161–165, 178–179, 220–221
Objective 2: Describe the precautions to prevent electrostatic discharge (ESD) during soldering.	Textbook: pgs. 78–81
Objective 3: Show appropriate use of heat sinks on solid state components.	Textbook: pg. 80
Objective 4: Solder and desolder wires and discrete components on a printed circuit board.	Textbook: pgs. 78–81