

# Electricity I (8533/36 weeks)

## Electricity I (8533/36 weeks) ELEC1

### A Demonstrating Personal Qualities and Abilities ELEC1.1

- 1 Demonstrate creativity and innovation. ELEC1.1.1
  - 2 Demonstrate critical thinking and problem solving. ELEC1.1.2
  - 3 Demonstrate initiative and self-direction. ELEC1.1.3
  - 4 Demonstrate integrity. ELEC1.1.4
  - 5 Demonstrate work ethic. ELEC1.1.5
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### B Demonstrating Interpersonal Skills ELEC1.2

- 6 Demonstrate conflict-resolution skills. ELEC1.2.6
  - 7 Demonstrate listening and speaking skills. ELEC1.2.7
  - 8 Demonstrate respect for diversity. ELEC1.2.8
  - 9 Demonstrate customer service skills. ELEC1.2.9
  - 10 Collaborate with team members. ELEC1.2.10
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### C Demonstrating Professional Competencies ELEC1.3

- 11 Demonstrate big-picture thinking. ELEC1.3.11
- 12 Demonstrate career- and life-management skills. ELEC1.3.12
- 13 Demonstrate continuous learning and adaptability. ELEC1.3.13
- 14 Manage time and resources. ELEC1.3.14
- 15 Demonstrate information-literacy skills. ELEC1.3.15
- 16 Demonstrate an understanding of information security. ELEC1.3.16
- 17 Maintain working knowledge of current information-technology (IT) systems. ELEC1.3.17
- 18 Demonstrate proficiency with technologies, tools, and machines common to a specific occupation. ELEC1.3.18
- 19 Apply mathematical skills to job-specific tasks. ELEC1.3.19
- 20 Demonstrate professionalism. ELEC1.3.20
- 21 Demonstrate reading and writing skills. ELEC1.3.21
- 22 Demonstrate workplace safety. ELEC1.3.22

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**D Examining All Aspects of an Industry** ELEC1.4

- 23 Examine aspects of planning within an industry/organization. ELEC1.4.23
- 24 Examine aspects of management within an industry/organization. ELEC1.4.24
- 25 Examine aspects of financial responsibility within an industry/organization. ELEC1.4.25
- 26 Examine technical and production skills required of workers within an industry/organization. ELEC1.4.26
- 27 Examine principles of technology that underlie an industry/organization. ELEC1.4.27
- 28 Examine labor issues related to an industry/organization. ELEC1.4.28
- 29 Examine community issues related to an industry/organization. ELEC1.4.29
- 30 Examine health, safety, and environmental issues related to an industry/organization. ELEC1.4.30

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**E Addressing Elements of Student Life** ELEC1.5

- 31 Identify the purposes and goals of the student organization. ELEC1.5.31
- 32 Explain the benefits and responsibilities of membership in the student organization as a student and in professional/civic organizations as an adult. ELEC1.5.32
- 33 Demonstrate leadership skills through participation in student organization activities, such as meetings, programs, and projects. ELEC1.5.33
- 34 Identify Internet safety issues and procedures for complying with acceptable use standards. ELEC1.5.34

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**F Exploring Work-Based Learning** ELEC1.6

- 35 Identify the types of work-based learning (WBL) opportunities. ELEC1.6.35
- 36 Reflect on lessons learned during the WBL experience. ELEC1.6.36
- 37 Explore career opportunities related to the WBL experience. ELEC1.6.37
- 38 Participate in a WBL experience, when appropriate. ELEC1.6.38

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## **G Applying Basic Construction Safety Standards (Core Safety)** ELEC1.7

- 39 Comply with federal, state, and local safety legal requirements. ELEC1.7.39
- 40 Maintain a safe working environment. ELEC1.7.40
- 41 Explain safe working practices around electrical hazards. ELEC1.7.41
- 42 Identify emergency first aid procedures. ELEC1.7.42
- 43 Identify the types of fires and the methods used to extinguish them. ELEC1.7.43
- 44 Identify personal protective equipment (PPE) requirements. ELEC1.7.44
- 45 Inspect course-specific hand and power tools to visually identify defects. ELEC1.7.45
- 46 Demonstrate lifting and carrying techniques. ELEC1.7.46
- 47 Demonstrate laddering techniques. ELEC1.7.47
- 48 Demonstrate scaffolding techniques. ELEC1.7.48
- 49 Demonstrate lockout/tagout procedures. ELEC1.7.49
- 50 Report injuries. ELEC1.7.50
- 51 Report personal, environmental, and equipment safety violations to the appropriate authority. ELEC1.7.51
- 52 Earn the OSHA 10 card. ELEC1.7.52
- 53 Pass safety exam. ELEC1.7.53

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## **H Focusing on the Electrician's Profession** ELEC1.8

- 54 Explain electrician-specific safety issues. ELEC1.8.54
- 55 Discuss current topics in the industry. ELEC1.8.55
- 56 Explore the various occupations available in electricity and related fields. ELEC1.8.56
- 57 Investigate career opportunities in the electrical industry. ELEC1.8.57
- 58 Investigate postsecondary training and licensing in the electricity field. ELEC1.8.58
- 59 Describe the employee's role in ensuring the success of the electrical business. ELEC1.8.59
- 60 Identify national and local trade organizations. ELEC1.8.60

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## **I Using Tools and Materials** ELEC1.9

- 61 Use the various types of hand tools used by electricians. ELEC1.9.61
- 62 Use the various types of power tools used by electricians. ELEC1.9.62
- 63 Identify commonly used materials by name and by regional variance of terminology. ELEC1.9.63
- 64 Prepare a material inventory. ELEC1.9.64

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**J Applying Basic Electrical Theory** ELEC1.10

- 65 Explain basic electrical theory. ELEC1.10.65
- 66 Explain the relationship of electron theory to circuit design, using Ohm's Law. ELEC1.10.66
- 67 Use a variety of meters to take readings. ELEC1.10.67
- 68 Calculate series circuits. ELEC1.10.68
- 69 Wire a series circuit. ELEC1.10.69
- 70 Calculate parallel circuits. ELEC1.10.70
- 71 Wire parallel circuits. ELEC1.10.71

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**K Solving Mathematical Problems Related to the Electrical Field** ELEC1.11

- 72 Solve word problems involving whole numbers, fractions, and decimals. ELEC1.11.72
- 73 Solve algebraic formulas pertaining to electrical applications. ELEC1.11.73
- 74 Solve problems involving percentage, ratio, and proportion. ELEC1.11.74
- 75 Measure distances using scales and measuring devices. ELEC1.11.75

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**L Interpreting Prints and Specifications** ELEC1.12

- 76 Draw electrical circuits. ELEC1.12.76
- 77 Read electrical construction drawings and specifications. ELEC1.12.77

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**M Navigating the NEC Book** ELEC1.13

- 78 Explain the intent of the NEC. ELEC1.13.78
- 79 Interpret NEC requirements for electrical installation. ELEC1.13.79

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**N Selecting and Installing Conductors** ELEC1.14

- 80 Identify various types of conductors and their associated applications. ELEC1.14.80
- 81 Install conductors. ELEC1.14.81
- 82 Terminate conductors with lugs, connectors, or terminals. ELEC1.14.82

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**O Identifying Panelboards and Switchboards** ELEC1.15

- 83 Identify the purpose and location of overcurrent protective devices (OCPDs) and service entrance equipment. ELEC1.15.83
- 84 Explain principles of generating electricity. ELEC1.15.84
- 85 Explain principles of magnetism and electromagnetism. ELEC1.15.85
- 86 Identify the components of a typical stand-alone generator. ELEC1.15.86

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**P Exploring Environmentally Friendly Choices** ELEC1.16

87 Identify energy-efficient equipment and methods. ELEC1.16.87

88 Explore the environmental effects of land use and site location for a proposed building project. ELEC1.16.88