

Electricity 2 (8534/36 weeks)

Electricity 2 (8534/36 weeks) ELEC2

A Demonstrating Personal Qualities and Abilities ELEC2.1

- 1 Demonstrate creativity and innovation. ELEC2.1.1
 - 2 Demonstrate critical thinking and problem solving. ELEC2.1.2
 - 3 Demonstrate initiative and self-direction. ELEC2.1.3
 - 4 Demonstrate integrity. ELEC2.1.4
 - 5 Demonstrate work ethic. ELEC2.1.5
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B Demonstrating Interpersonal Skills ELEC2.2

- 6 Demonstrate conflict-resolution skills. ELEC2.2.6
 - 7 Demonstrate listening and speaking skills. ELEC2.2.7
 - 8 Demonstrate respect for diversity. ELEC2.2.8
 - 9 Demonstrate customer service skills. ELEC2.2.9
 - 10 Collaborate with team members. ELEC2.2.10
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C Demonstrating Professional Competencies ELEC2.3

- 11 Demonstrate big-picture thinking. ELEC2.3.11
- 12 Demonstrate career- and life-management skills. ELEC2.3.12
- 13 Demonstrate continuous learning and adaptability. ELEC2.3.13
- 14 Manage time and resources. ELEC2.3.14
- 15 Demonstrate information-literacy skills. ELEC2.3.15
- 16 Demonstrate an understanding of information security. ELEC2.3.16
- 17 Maintain working knowledge of current information-technology (IT) systems. ELEC2.3.17
- 18 Demonstrate proficiency with technologies, tools, and machines common to a specific occupation. ELEC2.3.18
- 19 Apply mathematical skills to job-specific tasks. ELEC2.3.19
- 20 Demonstrate professionalism. ELEC2.3.20
- 21 Demonstrate reading and writing skills. ELEC2.3.21
- 22 Demonstrate workplace safety. ELEC2.3.22

D Examining All Aspects of an Industry ELEC2.4

- 23 Examine aspects of planning within an industry/organization. ELEC2.4.23
- 24 Examine aspects of management within an industry/organization. ELEC2.4.24
- 25 Examine aspects of financial responsibility within an industry/organization. ELEC2.4.25
- 26 Examine technical and production skills required of workers within an industry/organization. ELEC2.4.26
- 27 Examine principles of technology that underlie an industry/organization. ELEC2.4.27
- 28 Examine labor issues related to an industry/organization. ELEC2.4.28
- 29 Examine community issues related to an industry/organization. ELEC2.4.29
- 30 Examine health, safety, and environmental issues related to an industry/organization. ELEC2.4.30

E Addressing Elements of Student Life ELEC2.5

- 31 Identify the purposes and goals of the student organization. ELEC2.5.31
- 32 Explain the benefits and responsibilities of membership in the student organization as a student and in professional/civic organizations as an adult. ELEC2.5.32
- 33 Demonstrate leadership skills through participation in student organization activities, such as meetings, programs, and projects. ELEC2.5.33
- 34 Identify Internet safety issues and procedures for complying with acceptable use standards. ELEC2.5.34

F Exploring Work-Based Learning ELEC2.6

- 35 Identify the types of work-based learning (WBL) opportunities. ELEC2.6.35
- 36 Reflect on lessons learned during the WBL experience. ELEC2.6.36
- 37 Explore career opportunities related to the WBL experience. ELEC2.6.37
- 38 Participate in a WBL experience, when appropriate. ELEC2.6.38

G Applying Basic Construction Safety Standards (Core Safety) ELEC2.7

- 39 Comply with federal, state, and local safety legal requirements. ELEC2.7.39
- 40 Maintain a safe working environment. ELEC2.7.40
- 41 Explain safe working practices around electrical hazards. ELEC2.7.41
- 42 Identify emergency first aid procedures. ELEC2.7.42
- 43 Identify the types of fires and the methods used to extinguish them. ELEC2.7.43
- 44 Identify personal protective equipment (PPE) requirements. ELEC2.7.44
- 45 Inspect course-specific hand and power tools to visually identify defects. ELEC2.7.45
- 46 Demonstrate lifting and carrying techniques. ELEC2.7.46
- 47 Demonstrate laddering techniques. ELEC2.7.47
- 48 Demonstrate scaffolding techniques. ELEC2.7.48
- 49 Demonstrate lockout/tagout procedures. ELEC2.7.49
- 50 Report injuries. ELEC2.7.50
- 51 Report personal, environmental, and equipment safety violations to the appropriate authority. ELEC2.7.51
- 52 Earn the OSHA 10 card. ELEC2.7.52
- 53 Pass safety exam. ELEC2.7.53

H Solving Mathematical Problems Related to the Electrical Field ELEC2.8

- 54 Solve problems using direct and inverse relationships. ELEC2.8.54
- 55 Solve electrical problems using calculators. ELEC2.8.55
- 56 Convert metric prefixes to their numerical equivalents and vice-versa. ELEC2.8.56

I Applying Basic Electrical Theory ELEC2.9

- 57 Troubleshoot series circuits. ELEC2.9.57
- 58 Troubleshoot parallel circuits. ELEC2.9.58
- 59 Wire series-parallel (i.e., combination) circuits. ELEC2.9.59
- 60 Calculate series-parallel (i.e., combination) circuits. ELEC2.9.60
- 61 Troubleshoot series-parallel (i.e., combination) circuits. ELEC2.9.61
- 62 Explain nameplate specifications related to motors, generators, and transformers. ELEC2.9.62

J Applying the National Electrical Code (NEC) Book ELEC2.10

- 63 Interpret the NEC requirements for electrical installation. ELEC2.10.63
- 64 Apply the NEC requirements for electrical installation. ELEC2.10.64

K Identifying and Installing Conduits and Raceways ELEC2.11

- 65 Identify various conduits and raceways. ELEC2.11.65
 - 66 Select material and wiring support systems. ELEC2.11.66
 - 67 Install conduits. ELEC2.11.67
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L Examining Lighting Systems ELEC2.12

- 68 Install luminaires (i.e., light fixtures). ELEC2.12.68
 - 69 Explain the functions, operation, and characteristics of single-phase power systems. ELEC2.12.69
 - 70 Install power devices. ELEC2.12.70
 - 71 Create a circuit using single-pole, three-way, and four-way switching systems. ELEC2.12.71
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M Exploring Panelboards and Switchboards ELEC2.13

- 72 Identify basic components of service entrance equipment. ELEC2.13.72
 - 73 Select OCPDs. ELEC2.13.73
 - 74 Install OCPDs. ELEC2.13.74
 - 75 Install various ground fault circuit interrupter (GFCI) and arc fault circuit interrupter (AFCI) devices. ELEC2.13.75
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N Identifying and Installing Grounding Systems and Transformers ELEC2.14

- 76 Identify characteristics of grounding systems. ELEC2.14.76
 - 77 Illustrate sizing, layout, and installation of grounding systems. ELEC2.14.77
 - 78 Install transformers. ELEC2.14.78
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O Investigating Environmentally Friendly Choices ELEC2.15

- 79 Explore design choices that reflect conservation and efficient use of materials for a proposed building project. ELEC2.15.79
- 80 Explore design choices that reflect conservation and efficient use of energy for a proposed building project. ELEC2.15.80
- 81 Explore design choices that reflect conservation and efficient use of water for a proposed building project. ELEC2.15.81
- 82 Explore design choices that can affect indoor air quality (IAQ) for a proposed building project. ELEC2.15.82