Virginia CTE

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

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

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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:xamining 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

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

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

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

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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

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

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

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

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

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'2 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

L Interpreting Prints and Specifications ELEC1.12

76 Draw electrical circuits. ELEC1.12.76

77 Read electrical construction drawings and specifications. ELEC1.12.77

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

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

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

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