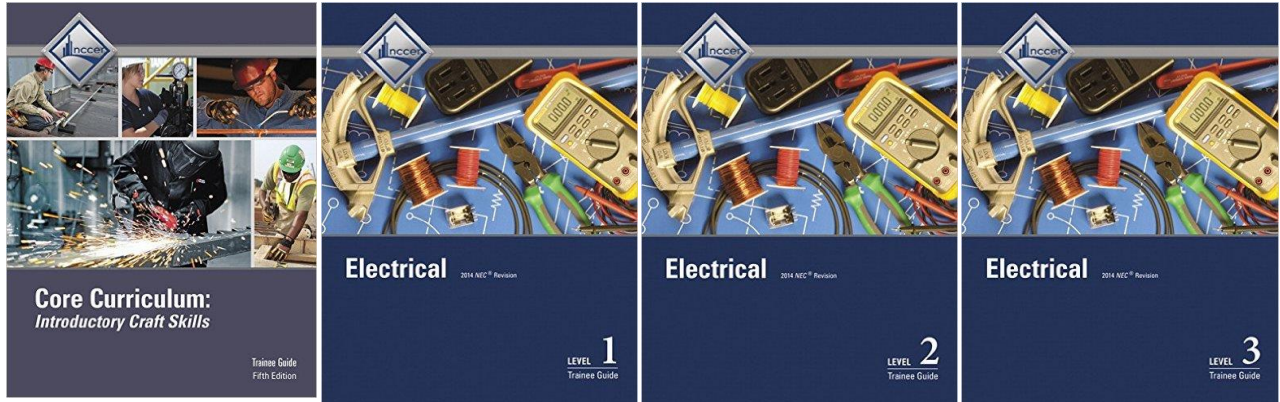


A Correlation of



Core Curriculum

Electrical 1

Electrical 2

Electrical 3

To the

Utah Building Trades

Electrician 2

Course Standards and Objectives

**A Correlation of Core Curriculum 5e, ©2016, Electrical Level 1 8e, ©2014,
Electrical Level 2 8e, ©2014, and Electrical Level 3 8e, ©2014
to the Utah Building Trades Course Standards for Electrician 2**

Resource Title: *Core Curriculum: Introductory Craft Skills, Fifth Edition*

Publisher: Pearson Education, Inc.

ISBN (10 or 13 digit unique identifier is required): Student Edition/Etext 978-0-13-428567-2

Media (text, software, internet, multimedia): text

Author: NCCER

Copyright: 2015

Review Date: 03/07/2016

Core Subject Area: Construction Trades

Resource Title: *Electrical Level 1, Eighth Edition*

Publisher: Pearson Education, Inc.

ISBN (10 or 13 digit unique identifier is required): Student Edition/Etext 978-0-13-439124-3

Media (text, software, internet, multimedia): text

Author: NCCER

Copyright: 2014

Review Date: 03/07/2016

Core Subject Area: Electrician

Resource Title: *Electrical Level 2, Eighth Edition*

Publisher: Pearson Education, Inc.

ISBN (10 or 13 digit unique identifier is required): Student Edition/Etext 978-0-13-439123-6

Media (text, software, internet, multimedia): text

Author: NCCER

Copyright: 2014

Review Date: 03/07/2016

Core Subject Area: Electrician

Resource Title: *Electrical Level 3, Eighth Edition*

Publisher: Pearson Education, Inc.

ISBN (10 or 13 digit unique identifier is required): Student Edition/Etext 978-0-13-427463-8

Media (text, software, internet, multimedia): text

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Core Subject Area: Electrician

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Utah Building Trades Electrician 2	Core Curriculum 5e, ©2017 Electrical Level 1 8e, ©2014 Electrical Level 2 8e, ©2014 Electrical Level 3 8e, ©2014
CORE STANDARDS, OBJECTIVES, AND INDICATORS	
STANDARD 1	
Students will be able to understand electrical safety.	
Objective 1: Demonstrate safe working procedures in a construction environment.	Core Curriculum SE: M1.1-86 Electrical Level 1 SE: 2.1-36 Electrical Level 2 SE: 6.11, 6.15, 10.20 Electrical Level 3 SE: 4.8, 8.2
Objective 2: Explain the purpose of OSHA and how it promotes safety on the job.	Core Curriculum SE: M1.3, M1.94-96 Electrical Level 1 SE: 1.12-13, 2.10 Electrical Level 2 SE: 9.8, 10.10-11
Objective 3: Identify electrical hazards and how to avoid or minimize them in the workplace.	Core Curriculum SE: M1.50-54 Electrical Level 1 SE: 2.1-10, 2.11-16 Electrical Level 2 SE: 3.23, 3.32, 10.8 Electrical Level 3 SE: 4.8, 6.23
Objective 4: Explain safety issues concerning lockout/tagout procedures, personal protection using assured grounding and isolation programs, confirm space entry and fall protection systems.	Core Curriculum SE: M1.51-52, M1.54-57, M1.59-63, M1.84-86 Electrical Level 1 SE: 2.4-10, 2.14-17, 2.26-27, 2.31-36 Electrical Level 2 SE: 3.37, 3.39, 9.16, 10.20 Electrical Level 3 SE: 5.30, 8.2
STANDARD 2	
Students will be able to understand hand bending.	
Objective 1: Identify the methods of hand bending conduit.	Electrical Level 1 SE: 7.1-3 Electrical Level 2 SE: 4.10
Objective 2: Identify the various methods used to install conduit.	Electrical Level 1 SE: 7.12-17 Electrical Level 2 SE: 4.10
Objective 3: Use math formulas to determine conduit bends.	Electrical Level 1 SE: 7.2-11 Electrical Level 2 SE: 4.5-10
Objective 4: Mark 90° bends, back-to-back bends, offsets, kicks, and saddle bends using a hand bender.	Electrical Level 1 SE: 7.4-12 Electrical Level 2 SE: 4.3-4

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STANDARD 3	
Students will be able to understand fasteners and anchors.	
Objective 1: Identify and explain the use of anchors	Electrical Level 1 SE: 8.22-28 Electrical Level 2 SE: 11.26
Objective 2: Demonstrate the correct applications for fasteners and anchors	Electrical Level 1 SE: 8.24-26, 8.28 Electrical Level 2 SE: 3.38
STANDARD 4	
Students will be able to understand electrical theory II.	
Objective 1: Explain the basic characteristics of a series circuit.	Electrical Level 1 SE: 3.13 Electrical Level 2 SE: 1.24, 1.26, 1.27
Objective 2: Explain the basic characteristics of a parallel circuit.	Electrical Level 1 SE: 3.13-15 Electrical Level 2 SE: 1.25, 1.26-27, 1.28-1.29
Objective 3: Explain the basic characteristics of a series-parallel circuit.	Electrical Level 1 SE: 3.15
Objective 4: Calculate, using Kirchoff's Current Law, the total current in parallel and series circuits.	Electrical Level 1 SE: 4.9
Objective 5: Find the total amount of resistance in a series circuit.	Electrical Level 1 SE: 3.14, 4.12
Objective 6: Find the total amount of resistance in a parallel circuit.	Electrical Level 1 SE: 3.14-15, 4.12
Objective 7: Find the total amount of resistance in a series-parallel circuit.	Electrical Level 1 SE: 3.15, 4.12
STANDARD 5	
Students will be able to understand electrical test equipment.	
Objective 1: Explain the operation of and describe the following pieces of test equipment:	
a. Ammeter	Electrical Level 1 SE: 3.15-16, 12.5
b. Volt meter	Electrical Level 1 SE: 3.16, 12.2
c. Ohm meter	Electrical Level 1 SE: 3.16-17, 12.3-5 Electrical Level 2 SE: 9.25
d. Volt-ohm meter (VOM)	Electrical Level 1 SE: 12.5-6

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Utah Building Trades Electrician 2	Core Curriculum 5e, ©2017 Electrical Level 1 8e, ©2014 Electrical Level 2 8e, ©2014 Electrical Level 3 8e, ©2014
e. Continuity tester	Electrical Level 1 SE: 3.17, 12.4
f. Voltage tester	Electrical Level 1 SE: 3.17, 3.19, 12.2-3
Objective 2: Explain the importance of proper meter polarity	Electrical Level 1 SE: 3.19, 4.11
Objective 3: Explain the difference between digital and analog meters.	Electrical Level 1 SE: 12.2, 12.6
STANDARD 6	
Students will be able to understand Introduction to the National Electrical Code.	
Objective 1: Explain the purpose and history of the National Electrical Code (NEC).	Electrical Level 1 SE: 5.1-3
Objective 2: Describe the layout of the NEC.	Electrical Level 1 SE: 5.3-6
Objective 3: Explain how to navigate the NEC.	Electrical Level 1 SE: 5.6-11 Electrical Level 3 SE: 8.8
Objective 4: Describe the purpose of the National Electrical Manufacturers' Association (NEMA) and the National Fire Protection Association (NFPA).	Electrical Level 1 SE: 5.2-3, 5.11-13 Electrical Level 2 SE: 2.48, 5.2 Electrical Level 3 SE: 6.7, 11.14, 11.55
Objective 5: Explain the role of testing laboratories.	Electrical Level 1 SE: 5.11 Electrical Level 2 SE: 9.8, 10.6 Electrical Level 3 SE: 5.36, 7.5, 9.18, 11.55
STANDARD 7	
Students will be able to understand raceways, boxes and fittings.	
Objective 1: Identify and select various types of sizes and raceways.	Electrical Level 1 SE: 8.1-8 Electrical Level 2 SE: 5.4-5
Objective 2: Identify and select various types of raceway fittings.	Electrical Level 1 SE: 8.8-12, 8.13 Electrical Level 2 SE: 5.10-14
Objective 3: Identify various methods used to install raceways.	Electrical Level 1 SE: 8.12-28, 8.29-30, 8.31-40, 8.40-43 Electrical Level 2 SE: 6.1-2, 6.6
Objective 4: Demonstrate knowledge of NEC raceway requirements.	Electrical Level 1 SE: 8.1-9, 8.13, 8.29-31 Electrical Level 2 SE: 7.15

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Utah Building Trades Electrician 2	Core Curriculum 5e, ©2017 Electrical Level 1 8e, ©2014 Electrical Level 2 8e, ©2014 Electrical Level 3 8e, ©2014
Objective 5: Describe procedures for installing raceways and boxes in a wood frame environment.	Electrical Level 1 SE: 8.16-17, 8.19
Objective 6: Describe procedures for installing raceways and boxes on drywall surfaces.	Electrical Level 1 SE: 8.19, 8.26-27
Objective 7: Recognize safety precautions that must be followed when working with boxes and raceways.	Electrical Level 1 SE: 8.1, 8.13, 8.43-44 Electrical Level 2 SE: 6.11, 6.15
STANDARD 8	
Students will be able to understand conductors.	
Objective 1: Explain the various sizes and gauges of wire in accordance with American Wire Gauge standards.	Electrical Level 1 SE: 9.1-2 Electrical Level 3 SE: 2.1
Objective 2: Identify insulation and jacket types according to conditions and applications.	Electrical Level 1 SE: 9.3-4 Electrical Level 2 SE: 8.10
Objective 3: Describe voltage ratings of conductors and cables.	Electrical Level 1 SE: 9.5-6
Objective 4: Read and identify markings on conductors and cables.	Electrical Level 1 SE: 9.4-6, 9.7-10
Objective 5: Use the tables in the NEC to determine the ampacity of a conductor.	Electrical Level 1 SE: 9.2-3 Electrical Level 2 SE: 7.20, 9.9
Objective 6: State the purpose of stranded wire.	Electrical Level 1 SE: 9.2, 9.11 Electrical Level 3 SE: 2.1
Objective 7: Describe the different materials from which conductors are made.	Electrical Level 1 SE: 9.3
Objective 8: Describe the different types of conductor insulation.	Electrical Level 1 SE: 9.3-4
Objective 9: Describe the color coding of insulation.	Electrical Level 1 SE: 9.5-6 Electrical Level 2 SE: 8.11-12 Electrical Level 3 SE: 2.11, 2.22
Objective 10: Describe the procedure for pulling wire through conduit.	Electrical Level 1 SE: 9.16-18 Electrical Level 2 SE: 6.5-17
Objective 11: Install conductors in conduit.	Electrical Level 1 SE: 9.14-19 Electrical Level 2 SE: 6.6-9

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Utah Building Trades Electrician 2	Core Curriculum 5e, ©2017 Electrical Level 1 8e, ©2014 Electrical Level 2 8e, ©2014 Electrical Level 3 8e, ©2014
Objective 12: Pull conductors in a conduit system.	Electrical Level 1 SE: 9.16-18 Electrical Level 2 SE: 6.5-17
STANDARD 9	
Students will be able to understand boxes and fittings.	
Objective 1: Describe the different types of nonmetallic and metallic boxes.	Electrical Level 1 SE: 6.1-12 Electrical Level 2 SE: 3.28, 5.1-15
Objective 2: Properly locate, install, and support boxes of all types.	Electrical Level 1 SE: 6.2-10 Electrical Level 2 SE: 3.28, 5.1-15
Objective 3: Understand the NEC requirements for boxes supporting lighting fixtures.	Electrical Level 1 SE: 6.2-4 Electrical Level 2 SE: 3.28-32
Objective 4: Install the different types of fittings used in conjunction with boxes.	Electrical Level 1 SE: 8.8-13 Electrical Level 2 SE: 5.10-15
Objective 5: Explain how boxes and fittings are selected and installed.	Electrical Level 1 SE: 6.1-11, 8.8-13 Electrical Level 2 SE: 3.28-32, 5.10-15
Objective 6: Describe the various types of box supports.	Electrical Level 1 SE: 6.12 Electrical Level 2 SE: 3.28-32, 5.1-15
STANDARD 10	
Students will enhance their understanding of being an Electrician as a profession and will develop professional skills for the workplace.	
Objective 1: As a participating member of the SkillsUSA student organization, complete the SkillsUSA Level 2 Professional Development Program.	
a. Measure/modify short-term goals.	This SkillsUSA objective falls outside of the program curricula.
b. Identify stress sources.	Core Curriculum SE: M1.7
c. Select characteristics of a positive image.	Core Curriculum SE: M8.8, M8.16-17 Electrical Level 1 SE: 1.10-12
d. Demonstrate Government awareness.	Core Curriculum SE: M1.94, M8.10, M8.24 Electrical Level 1 SE: 2.10, 5.1-3, 11.72 Electrical Level 2 SE: 9.8, 10.10-11
e. Demonstrate awareness of professional organizations.	Core Curriculum SE: M3.47, M8.10, Electrical Level 1 SE: 2.17-18, 5.1-3
f. Apply team skills to a group project.	

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Utah Building Trades Electrician 2	Core Curriculum 5e, ©2017 Electrical Level 1 8e, ©2014 Electrical Level 2 8e, ©2014 Electrical Level 3 8e, ©2014
g. Observe and critique team skills at a local professional meeting.	
h. Demonstrate business meeting skills.	Core Curriculum SE: M7.2-10, Electrical Level 1 SE: 1.10-12
i. Explore workplace ethics: codes of conduct.	Core Curriculum SE: M8.8, M8.16-17 Electrical Level 1 SE: 1.10-12
j. Demonstrate social etiquette.	Core Curriculum SE: M8.16-17 Electrical Level 1 SE: 1.10-12
k. Complete survey for employment opportunities.	
l. Review a professional journal and develop a three- to five-minute speech.	
m. Complete a job application.	
n. Assemble an employment portfolio.	
o. Explore supervisory and management roles in an organization.	Core Curriculum SE: M8.1-6, M8.25-28 Electrical Level 1 SE: 1.12
p. Conduct a worker interview.	
q. Perform a self-evaluation of proficiency in program competencies.	
Objective 2: Serve in the school's SkillsUSA chapter as a committee member.	This SkillsUSA objective falls outside of the program curricula.
Objective 3: Display a professional attitude toward the instructor and peers.	This SkillsUSA objective falls outside of the program curricula.
Objective 4: As a participating member of the SkillsUSA student organization, complete the SkillsUSA Level 3 Professional Development Program.	These SkillsUSA objectives fall outside of the program curricula.
a. Evaluate your career and training goals.	
b. Market your career choice.	
c. Develop personal financial skills	
d. Serve as a volunteer in the community.	
e. Plan and develop a business.	
f. Conduct a worker interview.	
g. Develop a résumé and write a cover letter.	Core Curriculum SE: M8.3-4
h. Demonstrate interviewing skills.	
i. Understand the cost of customer service.	

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Utah Building Trades Electrician 2	Core Curriculum 5e, ©2017 Electrical Level 1 8e, ©2014 Electrical Level 2 8e, ©2014 Electrical Level 3 8e, ©2014
j. Identify and apply conflict resolution skills.	Core Curriculum SE: M8.18-22 Electrical Level 1 SE: 1.10-12
k. Demonstrate evaluation skills.	Core Curriculum SE: M8.8-13
l. Examine workplace ethics: the role of values in making decisions.	Core Curriculum SE: M8.8, M8.16-17 Electrical Level 1 SE: 1.10-12
m. Perform a skill demonstration.	Electrical Level 1 SE: 8.iii, 9.iii
n. Learn what is contained in Material Safety Data Sheets (MSDS).	Core Curriculum SE: M1.12-15 Electrical Level 1 SE: 2.27-28 Electrical Level 2 SE: 4.33, 6.14
o. Perform a self-evaluation of proficiency in program competencies.	
Objective 5: Serve as an officer in the school's chapter of SkillsUSA	This SkillsUSA objective falls outside of the program curricula.
Objective 6: Participate in an authorized SkillsUSA electrician competition.	This SkillsUSA objective falls outside of the program curricula.
Objective 7: Display a professional attitude toward the instructor and peers.	This SkillsUSA objective falls outside of the program curricula.
*SkillsUSA PDP requirements - recommended	

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