

Electrical Trade Specialty | One Year Program: Scope & Sequence

Semester 1

ELE101-Electrical Trade Specialty I

(90 days)

District Pre-Assessment

Unit 1 (45 Days: 52.5 Hrs. Classroom/60 Hrs. Lab)

Introduction & Safety:

- Orientation
- Tools, Fasteners and Knots
- Intro to Safety and Mike Holt
- Certifications: OSHA 10 Construction
- ADE Technical Standards: 1.1-1.17, 3.1-3.4

Electrical Math:

- Intro to Electrical Charges and Basic Math
- Applied Math and Circuit Theory
- Ohm's Law & Electrical Symbols
- Conduit Bending Math
- ADE Technical Standards: 2.0-2.10

Direct Current (DC) Fundamentals:

- Dwelling Circuit Requirements
- Outlet Locations
- Lighting Loads
- Conductor Types, Ampacity & Common Voltage Systems
- Voltage Drop, Cable, Conduit, and Tubing
- Technical Standards: 2.0-2.10, 3.1-3.4, 4.1-4.9, 5.1-5.10

CTSO Integration (Leadership Skills): SkillsUSA Officer Training, Officer Elections, Chapter Meetings, SkillsUSA Fall Leadership Conference

ADE Professional Skills: 1.A-D, 2.A-C, 4.A-F, 7.A-C

ADE Academic Standards: ELA.11-12.W.4, ELA.11-12.W.5, ELA.11-12.SL.4, ELA.11-12.L.4, 5.NF.B.3, 5.NF.B.6, 5.NF.B.7

Work-Based Learning: Industry Guest Speaker, Simulated Lab Experience, Career Exploration

Mike Holt Curriculum:

- Electrical Theory Unit 1- 9
- OSHA Construction Safety Handbook
- ATP Digital Multimeter Principles: Chapter 1,2,3,4,5

Unit 2 (45 Days: 50 Hrs. Classroom/62.5 Hrs. Lab)

Terminology:

- Conductor Terminology
- Switches & Receptacle Terminology
- ADE Technical Standard: 1.1-1.17, 2.1-2.10

Special Receptacles:

- GFCI protective devices
- AFCI protective devices
- Special Purpose Receptacles
- ADE Technical Standard: 5.1-5.10, 6.1-6.6

Luminaries:

- Luminaries, Ballasts and Lamps
- ADE Technical Standard: 6.1-6.6

Series Circuit Construction:

- Box Fill & Sizing
- Intro to Series Circuits
- Lighting and Small Appliance Branch Circuits
- ADE Technical Standard: 2.1-2.10, 3.1-3.4, 5.1-5.10, 6.1-6.6

CTSO Integration (Leadership Skills): SkillsUSA Chapter Meetings, Fundraiser, Fall Leadership Conference, Regionals Prep

ADE Professional Skills: 3.A-E, 4.A-F, 2.A-C, 4.A-F

ADE Academic Standards: ELA.11-12.W.4, ELA.11-12.SL.4, ELA.11-12.L.4

Work-Based Learning: Industry Guest Speaker, Simulated Lab Experience, Career Exploration

Mike Holt Curriculum:

- Electrical Theory: Unit 11-24

Benchmark Semester Exam

Semester 2

ELE102-Electrical Trade Specialty II
(90 days)

Unit 3 (45 Days: 47.5 Hrs. Classroom/65 Hrs. Lab)

Parallel Circuits:

- Intro to Parallel Circuits
- Track Lighting & Dimmers
- Laundry & Bathroom Receptacles
- Garage & Garage Door Circuits
- Underground Installations
- Parallel Circuit Calculations
- ADE Technical Standard: 1.14-17, 2.1, 2.5-2.10, 5.1-5.10, 6.0-6.

Appliance & Special Purpose Outlets:

- Branch Circuit Installation
- NEC Requirements

Kitchen Appliances/Grounding:

- Ranges, Ovens, and other Kitchen Appliances & NEC requirements

Wet Circuits:

- Bathrooms, Exhaust Fans, Hydro-massage Tubs and NEC Requirements

Heating and Air Conditioning:

- HVAC Electrical Installations
- NEC Requirements

CTSO Integration (Leadership Skills): SkillsUSA Regional Conference

ADE Professional Skills: 1.A-D, 5.A-E, 6.A-C, 8.A-I

ADE Academic Standards: ELA.11-12.L.4, ELA.11-12.SL.5, 5.NF.B.7, 7.EE.B.3

Work-Based Learning: Industry Guest Speaker, Simulated Lab Experience, Resume and Cover Letter

Mike Holt Curriculum:

- Electrical Theory Unit 25-29
- NEC- Article 90, 110

Unit 4 (45 Days: 45 Hrs. Classroom/67.5 Hrs. Lab)

Specialty Electrical Circuitry:

- Limited energy System
- Low-Voltage
- Fire Alarms
- Multiwire Branch Circuits
- Combination Circuits, Grounding and Bonding
- Service Entrance Calculations
- Swimming Pools & Spas
- Home Automation
- Photovoltaic Systems
- ADE Technical Standard: 2.1, 2.4-2.5, 2.9, 5.2, 6.1-6.6

CTSO Integration (Leadership Skills): SkillsUSA State Conference

ADE Professional Skills: 2.A-C, 3.A-E, 4.A-F

ADE Academic Standards: ELA.11-12.W.4, ELA.11-12.L.4 5.A-E ELA.11-12.SL.4, 7.EE.A.2

Work-Based Learning: Industry Guest Speaker, Job Application, Mock Interview, School-Based Enterprise

Mike Holt Curriculum:

- NEC Fundamentals 210, 250, 300, 312, 314, 320, 330, 334, 336, 340

District Post Assessment

Arizona Department of Education (ADE)
National Electrical Code (NEC)