

# Electrical Trade Specialty | One Year Program: Scope & Sequence

## Semester 1

ELE101-Electrical Trade Specialty I  
(90 days)

### District Pre-Assessment

#### Unit 1 (45 Days)

#### Introduction & Safety:

- Orientation and IEC Principles
- Tools, Fasteners and Knots
- Intro to Safety and NEC

#### Electrical Math:

- Intro to Electrical Charges and Basic Math
- Applied Math and Circuit Theory
- Ohm's Law & Electrical Symbols
- Conduit Bending Math

#### Direct Current (DC) Fundamentals:

- Dwelling Circuit Requirements
- Outlet Locations
- Lighting Loads
- Conductor Types, Ampacity & Common Voltage Systems
- Voltage Drop, Cable, Conduit, and Tubing

CTSO Integration (Leadership Skills): SkillsUSA Officer

Training, Officer Elections, Chapter Meetings, SkillsUSA Fall Leadership Conference

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

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, Mock Interview, Job Application

Technical Standards: 1.1-1.17, 2.0-2.10, 3.1-3.5, 5.1, 4.1-4.9, 5.1-5.10, 8.0

**Certifications:** OSHA 10, AHA CPR|AED| First Aid

#### Unit 2 (45 Days)

#### Terminology:

- Conductor Terminology
- Switches & Receptacle Terminology

#### Special Receptacles:

- GFCI protective devices
- AFCI protective devices
- Special Purpose Receptacles

#### Luminaries:

- Luminaries, Ballasts and Lamps

#### Series Circuit Construction:

- Box Fill & Sizing
- Intro to Series Circuits
- Lighting and Small Appliance Branch Circuits

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

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

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

Work-based Learning: Industry Guest Speaker

Technical Standard: 2.1-2.10, 4.1-4.5, 5.1-5.2, 5.4, 5.6, 6.1-6.6

### Semester Exam

## Semester 2

ELE102-Electrical Trade Specialty II  
(90 days)

#### Unit 3 (45 Days)

#### Parallel Circuits:

- Intro to Parallel Circuits
- Track Lighting & Dimmers
- Laundry & Bathroom Receptacles
- Garage & Garage Door Circuits
- Underground Installations
- Parallel Circuit Calculations

#### 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

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

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, Job Application

Technical Standard: 1.16, 2.1, 2.5-2.9, 5.2, 6.4,  
Unit 4 (45 Days)

**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

CTSO Integration (Leadership Skills): SkillsUSA State Conference

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

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, Resume and Cover Letter, Mock Interview, School-Based Enterprise

Technical Standard: 2.1, 2.4-2.5, 2.9, 5.2, 6.1-6.6

**Certifications:** IEC Year One Apprenticeship

**ADE Technical Assessment  
District Post Assessment**

Arizona Department of Education (ADE)

Independent Electrical Contractors (IEC)

National Center for Construction Education and Research (NCCER)

National Electrical Code (NEC)