

Energy & Engineering Technology: Scope & Sequence

Year 1, Semester 1

EIT101 Energy & Engineering Technology I
(90 days)

District Pre-Assessment

Unit 1 (45 Days)

NCCER Core Curriculum:

- Basic Safety
- Construction Math
- Hand and Power Tools
- Construction Drawings
- Basic Rigging
- Basic Communication and Employability
- Materials Handling

CTSO Integration (Leadership Skills): SkillsUSA Officer Elections and Training

Professional Skills: 1.A-D, 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: 101.01-.06, 102.01-.04, 102.11-.12, 102.21-.24, 102.31-.34, 103.01-.10, 104.01-.07, 105.01-.05, 106.01-.06, 107.01-.02, 108.01-.03, 109.01-.03

Unit 2 (45 Days)

NCCER Introduction to the Power Industry:

- Fossil Fuel Power Plants
- Renewable Energy
- Environmental Controls
- Electrical transmission and Distribution
- Careers in the Power Industry
- Future of the Power Industry

NCCER Alternative Energy:

- Introduction to Alternative Energy
- Biomass/Biofuels
- Nuclear Power
- Solar and Wind Power

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

Professional Skills: 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 Standards: 49101.01-08, 74101.01-03, 74102.01-.04, 74103.01-.04, 74104.01-.04, 74105.01-.04

Certifications: OSHA 10, NCCER Core Curriculum, NCCER Alternative Energy

Year 1, Semester 2

EIT102 Energy & Engineering Technology II
(90 days)

Unit 3 (45 Days)

NCCER Industrial Maintenance Level 1A:

- Orientation to the Trade
- Tools of the Trade
- Fasteners and Anchors
- Oxyfuel Cutting
- Gaskets and Packing
- Craft Related Mathematics
- Construction Drawings

CTSO Integration (Leadership Skills): SkillsUSA Chapter Meetings, Regional and State Competition

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

Academic Standards: ELA.11-12.W.4, ELA.11-12.W.5, ELA.11-12.SL.4, ELA.11-12.L.4, 7.RP.A.3, 6.EE.A.2

Work-based Learning: Industry Guest Speaker, Resume and Cover Letter, Mock Interview, School-Based Enterprise

Technical Standards: 32101.01-03, 32102.01-.02, 32103.01-.05, 32104.01-.09, 32105.01-.06, 32106.01-.06, 32107.01-.05

Unit 4 (45 Days)

NCCER Industrial Maintenance Level 1B:

- Pumps and Drivers
- Valves
- Test Instruments
- Material Handling
- Mobile and Support Equipment
- Lubrication

CTSO Integration (Leadership Skills): Chapter Meetings, Fundraiser, SkillsUSA Nationals

Professional Skills: 2.A-C, 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, Field Trip

Technical Standards: - 32108.01-.07, 32109.01-.06, 32110.01-.03, 32111.01-.05, 32112.01-.06, 32113.01-.12

Certifications: NCCER Industrial Maintenance Mechanic Level 1, NCCER Industrial Maintenance E&I Technician Level

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District Post Assessment

Year 2, Semester 1

EIT201 Energy & Engineering Technology III
(90 days)

Unit 1 (45 Days)

NCCER Industrial Maintenance Mechanic Level 2A:

- Basic Layout
- Piping Systems
- Valves
- Hydrostatic and Pneumatic Testing
- Bearings
- LP Steam Systems

CTSO Integration (Leadership Skills): SkillsUSA Officer Elections and Training

Professional Skills: 5.A-E, 6.A-C

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

Work-Based Learning: Industry Guest Speaker, Job Application

Technical Standard: 32201.01-.12, 32202.01-.03, 32203.01-.08, 32204.01-.06, 32205.01-.06, 32206.01-.06, 32207.01-.03, 32208.01-.06

Unit 2 (45 Days)

NCCER Industrial Maintenance Mechanic Level 2B:

- HP Steam systems
- Distillation Towers and Vessels
- Heat Exchangers
- Tube Work

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

Professional Skills: 1.A-D, 5.A-E, 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

Technical Standards: 32209.01-.03, 32210.01-.10, 32211.01-.07, 32212.01-.02

Certification: NCCER Industrial Maintenance Mechanic Level

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Year 2, Semester 2

EIT202 Energy & Engineering Technology IV
(90 days)

Unit 3 (45 Days)

NCCER Industrial Maintenance E&I Technician Level 2A:

- E&I Tech Safety
- National Electrical Code
- Electrical Theory
- Alternating Current
- E&I Test Equipment
- Instrumentation

CTSO Integration (Leadership Skills): SkillsUSA Chapter Meetings, Fundraiser, Regional and State Competition

Professional Skills: 5.A-E 7.A-C

Academic Standards: ELA.11-12.L.4, 7.RP.A.3, 7.G.B.4

Work-Based Learning: Resume and Cover Letter, Mock

Interview, Career Fair, School-Based Enterprise

Technical Standards: 40201.01-.05, 40202.01-.04, 40203.01-.07, 40204.01-10, 40205.01-.04, 40206.01-.04

Unit 4 (45 Days)

NCCER Industrial Maintenance E&I Technician Level 2B:

- Process Mathematics
- Hand Bending
- Tubing
- Tubing/Piping Systems
- Instrument Drawings
- Conductors and Cables
- Conductor Terminations and Splices

CTSO Integration (Leadership Skills): SkillsUSA Chapter Meetings, Nationals

Professional Skills: 8.A-I, 9.A-C

Academic Standards: ELA.11-12.W.4, ELA.11-12.W.5,

ELA.11-12.SL.4, ELA.11-12.L.4, 8.G.B.7

Work-Based Learning: Industry Guest Speaker, Field Trip

Technical Standards: 40207.01-.04, 40208.01-.03, 40209.01-.07, 40210.01-.06, 40211.01-.05, 40212.01-.03, 40213.01-.05

Certification: NCCER Industrial Maintenance E&I Technician Level 2

Common AZCCR Math Standards (CAMS)

English Language Art Standards (ELAS)

The National Center for Construction Education & Research (NCCER)