Environmental Sustainability: One Year Program: Scope & Sequence

Semester 1
ENS101- Environmental Sustainability I
(90 days)

District Pre-Assessment

Unit 1 (5 Days)

Orientation:
- West-MEC Handbook
- Course Introduction
CTSO Integration (Leadership Skills): SkillsUSA Officer Elections and Training
Academic Standards: ELA.11-12.RI.10, ELA.11.12.SL.4
Work-based Learning: Career Exploration Activities

Unit 2 (10 Days)

Safety / Technical Skills:
- OSHA 1910.26
- Treatment Plant Safety
- Hand and Power Tools
CTSO Integration (Leadership Skills): SkillsUSA Chapter Meetings, leadership lessons, Regionals Prep
Work-based Learning: Industry Guest Speaker
Technical Standard: W-WWT-20.0 - 20.1

Unit 3 (30 Days)

Water / Engineering Science I:
- Microbiology
- Math I
- Operator Math
- Pneumatics
- Chemistry
CTSO Integration (Leadership Skills): SkillsUSA Chapter Meetings, Fundraiser, Fall Leadership Conference, Regionals Prep
Work-based Learning: Resume and Cover Letter

Unit 4 (22 Days)

Water / Engineering Science II:
- Math II
- Regulatory Overview
- Physics
- Water Sources and Treatment Options
- Hydraulics
CTSO Integration (Leadership Skills): SkillsUSA Chapter Meetings, Community Service, Regionals Prep
Work-based Learning: Mock Interview

Unit 5 (23 Days)

Water / Engineering Science III:
- Groundwater Quality and Wells
- Piping and Instrument Diagrams
- Surface Water Source Treatment
- Materials
- Treatment Plant Pretreatment
- Thermodynamics
CTSO Integration (Leadership Skills): SkillsUSA Chapter Meetings, Fundraiser, Fall Leadership Conference, Regionals Prep
Work-based Learning: Resume and Cover Letter Development, Student-Based Enterprise Student Models

Certification: OSHA 10
Semester 2
ENS102- Environmental Sustainability II
(90 days)

Unit 6 (22 Days)
Water / Engineering Science IV:
● Coagulation and Flocculation
● Precision Measurement
● Sedimentation and Clarifiers
● Filtration Fundamentals
● Disinfection
CTSO Integration (Leadership Skills): SkillsUSA Chapter Meetings, Leadership lessons, Regionals prep and State Competition
Professional Skills: 5.A-E, 6.A-C
Work-Based Learning: Industry Guest Speaker, Resume and Cover Letter

Unit 7 (22 Days)
Water / Engineering Science V:
● Introduction to Fe and Mg Treatment
● Fluoridation
● Water Quality Testing
● Instrumentation
● Corrosion Control
CTSO Integration (Leadership Skills): SkillsUSA Chapter Meetings, Leadership Lessons, Regionals Competition, Fundraiser
Work-Based Learning: Job Application

Unit 8 (22 Days)
Water / Engineering Science VI:
● Lime Softening Basics
● Introduction to Specialized Treatment Processes
● Administration, Records and Reporting
● Introduction to Electrical Systems
● DC and AC Circuits
CTSO Integration (Leadership Skills): SkillsUSA Chapter Meetings, State Conference, State Competition prep, Community Service
Academic Standards: ELA.11-12.L.4, 5.NF.B.3 - 7

Work-Based Learning: Field Trip, Mock Interview

Unit 9 (23 Days)
Water Science / Engineering Science VII:
● Pumps
● Mechanical Components
● ADEQ Class 1 Water Treatment Operator Exam Preparation
CTSO Integration (Leadership Skills): SkillsUSA Chapter Meetings, Fundraiser, State Competition, Nationals competition prep
Work-Based Learning: Career Fair

Certification: ADEQ Water Treatment Operator Level 1
District Post Assessment
Arizona Department of Environmental Quality (ADEQ)
Common AZCCR Math Standards (CAMS)
English Language Art Standards (ELAS)
National Coalition of Certification Centers (NC3) Occupational Safety and Health Administration (OSHA)
The National Center for Construction Education & Research (NCCER)