

SYLLABUS

LAST REVIEW	Fall 2022
COURSE TITLE	Irrigation
COURSE NUMBER	BEMT 0265
DIVISION	Career and Technical Education
DEPARTMENT	BEMT
CIP CODE	46.0401
CREDIT HOURS	2
CONTACT HOURS/WEEK	Class: 1 Lab: 2
PREREQUISITES	None

COURSE DESCRIPTION

This is a basic course that will require the student to complete the design and install, of residential irrigation systems. Students will design, install, and service, irrigation piping, irrigation spray heads, backflow assemblies, control valves, and master service valves. Students will calculate the water volume needed per zone, design the zones within the supply volume, design the system of operation, and install per local code, and water purveyor compliance.

PROGRAM LEARNING OUTCOMES

Students will demonstrate an adherence to safety standards and proficiency in the installation or repair of residential electrical, plumbing, HVAC, exterior building materials, roofing, irrigation systems, landscape/hardscape, concrete placement and finish, masonry install and repair.

TEXTBOOKS

<http://kckccbookstore.com/>

METHOD OF INSTRUCTION

A variety of instructional methods may be used depending on content area. These include but are not limited to lecture, multimedia, cooperative/collaborative learning, labs and demonstrations, projects and presentations, speeches, debates, panels, conferencing, performances, and learning experiences outside the classroom. Methodology will be selected to best meet student needs.

COURSE OUTLINE

- I. Introduction
- II. Regulations and Standards
 - A. EPA Safe Water Act

- B. Identify Meter Type
- C. Local Code Compliance
- D. Water Connection Standards
- III. Systems and Components
 - A. Types of irrigation systems
 - B. Irrigation heads
 - C. Drip systems
 - D. Valves (Control and Master Valves)
 - E. Pipes and Fittings
 - F. Electrical Wiring
 - G. Irrigation Timer Controls
 - H. Backflow Prevention
- IV. Landscape Irrigation Design
 - A. Water Conservation through Design
 - B. Design Systems
 - C. Preparing Irrigation Plans
 - D. Head Layouts
 - E. Head Performance GPM
 - F. Water Sources
 - G. Water Hammer
 - H. Pressure Loss Prevention
 - I. Pipe Sizing
 - J. Zoning the System
 - K. Wire Sizing and Power
- V. Installation Techniques
 - A. Locate Utilities prior to excavation
 - B. Drawing and Blueprint Reading
 - C. Solvent Welding
 - D. Material Estimate
 - E. Trenching and Boring
 - F. Valve Installation
 - G. Sprinkler Head Placement and spacing
 - H. Flushing the system before using
 - I. Power Supply
 - J. Backfilling
 - A. Life cycle analysis.
 - B. Recycled material.
 - C. Low VOC emissions.
 - D. New “green” materials.
 - E. New “green” methods and practices.
 - F. “Low impact” designs.

COURSE LEARNING OUTCOMES

Upon successful completion of this course, the student will:

- A. Identify install and design compliance.
- B. Calculate the design volume requirement.
- C. Layout irrigation piping and valves.
- D. Layout irrigation heads and zones.
- E. Install master control valve and irrigation timer.
- F. Install backflow assemblies as required.
- G. Replace soil displacement and install methods to prior conditions.
- H. Test, repair, and maintenance the system as required.

ASSESSMENT OF COURSE LEARNING OUTCOMES AND COMPETENCIES

Student progress is evaluated through both formative and summative assessment methods. Specific details may be found in the instructor's course information document.

COLLEGE POLICIES AND PROCEDURES

Student Handbook

<https://www.kckcc.edu/files/docs/student-resources/student-handbook-and-code-of-conduct.pdf>

College Catalog

<https://www.kckcc.edu/academics/catalog/index.html>

College Policies and Statements

<https://www.kckcc.edu/about/policies-statements/index.html>

Accessibility and Accommodations

<https://www.kckcc.edu/academics/resources/student-accessibility-support-services/index.html>.