

# HORT 54C: LANDSCAPE CONSTRUCTION: IRRIGATION PRACTICES

## Foothill College Course Outline of Record

Heading	Value
Effective Term:	Summer 2021
Units:	3
Hours:	2.5 lecture, 1.5 laboratory per week (48 total per quarter)
Degree & Credit Status:	Degree-Applicable Credit Course
Foothill GE:	Non-GE
Transferable:	CSU
Grade Type:	Letter Grade (Request for Pass/No Pass)
Repeatability:	Not Repeatable

## Student Learning Outcomes

- identify the parts of an irrigation system (pipes and fittings, sprinkler heads, valves, backflow preventers, drip systems, and controllers).
- program an irrigation time clock (controller) correctly.

## Description

Methods and materials used in the irrigation of ornamental landscapes. Selection of materials and operational theory of irrigation equipment. Installation techniques for sprinkler and drip irrigation systems. Water conservation features and maintenance of irrigation systems.

## Course Objectives

The student will be able to:

- Describe irrigation systems used in various settings.
- Analyze a site for irrigation needs.
- Choose correct irrigation equipment for spray and drip irrigation systems.
- Install an irrigation system.
- Maintain an irrigation system.
- Describe irrigation central control systems.
- Identify jobs in the irrigation industry.
- Exhibit an understanding of different irrigation practices around the world.

## Course Content

- Overview of landscape irrigation systems as they relate to the installation or renovation of residential, commercial, or park landscapes
- Site analysis techniques:
  - Data collection
  - GPMs and PSI
  - Location of existing irrigation components (assessment of viability)
- Choosing correct pipes and fittings, sprinkler heads, drip systems, valves, backflow preventers, and controllers to assemble a suitable irrigation system
- Installation techniques used in residential, commercial and park irrigation systems
- Maintaining, troubleshooting, and renovating an irrigation system

- Overview of central control systems
- Career opportunities in the irrigation industry
- International irrigation system practices

## Lab Content

- Copper and solvent welding lab: Hands-on instruction in welding of copper pipe and fittings, solvent welding of plastic pipe, and making pipe and irrigation component connections for threaded fittings.
- Spray head and rotor lab: Field installation and adjustment of a variety of sprinkler products.
- Controller programming lab: Individual instruction on the programming of irrigation controllers. Lab instruction covers standard solid-state controllers, ET based controllers, and central control systems.
- Drip irrigation lab: Installation of drip systems including standard PE flexible lines, drip heads, and in-line drip emitter systems.
- Valve troubleshooting lab: Modular lab covers all the common problems that irrigation professionals may encounter when valves malfunction in the landscape.
- Irrigation system installation lab: One or more labs whereby students install an irrigation system.

## Special Facilities and/or Equipment

- Design lab, horticultural facilities and equipment.
- Students provide appropriate work boots and clothing for fieldwork, leather gloves, tape measure, screwdrivers, mechanics pliers, utility knife, face mask, ear plugs, eye protection, and small calculator.

## Method(s) of Evaluation

Methods of Evaluation may include but are not limited to the following:

- Midterm
- Laboratory skills tests
- Final examination

## Method(s) of Instruction

Methods of Instruction may include but are not limited to the following:

- Lecture
- Discussion
- Laboratory
- Demonstration
- Field trips
- Speakers

## Representative Text(s) and Other Materials

Keesen, Larry E.. [The Complete Irrigation Workbook: Design, Installation, Maintenance, and Water Management, 2nd ed.](#). 2013.

While this text is older than the "5 years or newer" standard, it is a seminal text and contains necessary information.

## **Types and/or Examples of Required Reading, Writing, and Outside of Class Assignments**

A. Reading assignments will include reading approximately 35 pages per week from the assigned texts with supplemental reading from a course reader. Out of class reading/assignments is approximately five hours.

## **Discipline(s)**

Ornamental Horticulture