HORT 181 Course Outline as of Fall 2019

CATALOG INFORMATION

Dept and Nbr: HORT 181 Title: WATER EFFIC LANDSCAPER Full Title: Qualified Water Efficient Landscaper Training Last Reviewed: 3/9/2015

Units		Course Hours per Week		Nbr of Weeks	Course Hours Total	
Maximum	1.00	Lecture Scheduled	1.00	17.5	Lecture Scheduled	17.50
Minimum	1.00	Lab Scheduled	0	7	Lab Scheduled	
		Contact DHR	0		Contact DHR	0
		Contact Total	1.00		Contact Total	17.50
		Non-contact DHR	0		Non-contact DHR	0

Total Out of Class Hours: 35.00

Total Student Learning Hours: 52.50

Title 5 Category:	AA Degree Applicable
Grading:	Grade or P/NP
Repeatability:	00 - Two Repeats if Grade was D, F, NC, or NP
Also Listed As:	
Formerly:	

Catalog Description:

This course prepares irrigation auditors and other landscape professionals to audit irrigation systems with water efficiency being a fundamental component. Students who complete the course with a grade of "C" or better will be recognized as having completed an EPA (Environmental Protection Agency) approved WaterSense Training Program.

Prerequisites/Corequisites:

Recommended Preparation: Eligibility for ENGL 100 or ESL 100

Limits on Enrollment:

Schedule of Classes Information:

Description: This course prepares irrigation auditors and other landscape professionals to audit irrigation systems with water efficiency being a fundamental component. Students who complete the course with a grade of "C" or better will be recognized as having completed an EPA (Environmental Protection Agency) approved WaterSense Training Program. (Grade or P/NP) Prerequisites/Corequisites:

ARTICULATION, MAJOR, and CERTIFICATION INFORMATION:

AS Degree: CSU GE:	Area Transfer Area	Effective: Effective:	Inactive: Inactive:
IGETC:	Transfer Area	Effective:	Inactive:
CSU Transfer	: Effective:	Inactive:	
UC Transfer:	Effective:	Inactive:	

CID:

Certificate/Major Applicable:

Both Certificate and Major Applicable

COURSE CONTENT

Outcomes and Objectives:

Upon successful completion of this course, the student will be able to:

- 1. Discuss issues related to the local water supply.
- 2. Apply basic principles of efficient irrigation to determine watering strategies.
- 3. Describe irrigation system components and their functions.
- 4. Inspect and maintain an irrigation system to promote efficiency.
- 5. Utilize formulas and calculations to determine irrigation rates, distribution and uniformity.
- 6. Troubleshoot irrigation components.
- 7. Determine soil characteristics.
- 8. Describe amendments and practices to improve physical soil properties and drainage.
- 9. Determine the water needs of plants.
- 10. Describe the steps to implement an IPM (Integrated Pest Management) program.
- 11. Discuss sources for and use of new irrigation technologies.

12. Efficiently manage irrigation water using irrigation controllers, water budgets, and scheduling.

13. Plan a water conserving landscape for a landscape site.

Topics and Scope:

- 1. Overview and water supply
 - a. Public water supplies
 - b. How water is collected for use
 - c. Programs for water conservation
 - d. Reading water meters
 - e. Basic leak detection
- 2. Irrigation systems
 - a. Pre-season inspection and maintenance checkup
 - b. Winterizing an irrigation system

- c. Elevation changes on an irrigation system
- d. Irrigation system design
- e. Irrigation system components and functions
- f. Sensors, application devices, and application rates
- 3. Efficient irrigation
 - a. Evapotranspiration
 - b. CIMIS weather stations and their information
 - c. Plant types and their evapotranspiration
 - d. Plants and their water use classification
 - e. Soils and their importane in efficient irrigaiton
 - f. Distribution uniformity and precipitation rate
- 4. Soils
 - a. Soil properties
 - b. Water interaction with various soil types
 - c. Monitoring soil moisture
 - d. Using mulches and soil amendment in irrigation, drainage, and erosion
- 5. Plant maintenance
 - a. Water needs of plants in the landscape
 - b. Hydrozones
 - c. Integrated pest management (IPM)
- 6. Water management
 - a. Precipitation rates
 - b. Distribution uniformity
 - c. Interpreting a catch can test
 - d. Irrigation runtime formula
- 7. Water budgets
- 8. Irrigation schedules
- 9. Irrigation controller programming
 - a. Controller works and functions
 - b. Porgramming a controller
- 10. Irrigation trouble shooting
 - a. How an irrigation valve works
 - b. Identifying and troubleshooting irrigation valve problems
 - c. using a Volt/Ohm meter
- 11. New technology
 - a. Emission devices and "smart" controllers
 - b. How rain and flow sensors work
- 12. Putting it all together
 - a. Importance of water budget and audit as water conservation tools
 - b. Explaining to a customer the limited nature of water resources
 - c. Using an efficient irrigation system to save the customer money
 - d. Model contracts that reward people for saving water
 - e. Knowing how to determine when to make improvements

Assignment:

- 1. Reading: 10 20 pages per week
- 2. Problem Solving:
 - a. Homework problems: irrigation related calculations
 - b. Soil and water in a jar test
 - c. Hands-on programming of different controller types
 - d. Irrigation schedule for an existing sample landscape site

3. Objective exams: 3-5 quizzes; midterm; final certification examination

Methods of Evaluation/Basis of Grade:

Writing: Assessment tools that demonstrate writing skills and/or require students to select, organize and explain ideas in writing.

None, This is a degree applicable course but assessment tools based on writing are not included because problem solving assessments are more appropriate for this course.

Problem Solving: Assessment tools, other than exams, that demonstrate competence in computational or non-computational problem solving skills.

See problem solving assignments

Skill Demonstrations: All skill-based and physical demonstrations used for assessment purposes including skill performance exams.

Programming controller soil jar test

Exams: All forms of formal testing, other than skill performance exams.

Multiple choice, true/false, matching items, completion

Other: Includes any assessment tools that do not logically fit into the above categories.

Attendance and participation

Representative Textbooks and Materials: Instructor prepared materials

Writing 0 - 0%	

Problem solving 20 - 30%

Skill Demonstrations 5 - 10%

> Exams 60 - 70%

Other Category 0 - 10%