

Course Outline of Record

1. Course Code: AGEH-046
2.
 - a. Long Course Title: Landscape Irrigation Systems
 - b. Short Course Title: LANDSCAPE IRRIGTN SYS
3.
 - a. Catalog Course Description:
 This course provides the students with information necessary to design, install, and maintain landscape irrigation systems. Plan reading, design, materials, equipment, installation, trouble-shooting, and cost estimating are addressed.
 - b. Class Schedule Course Description:
 This course provides the students with information necessary to design, install, and maintain landscape irrigation systems.
 - c. Semester Cycle (if applicable): N/A
 - d. Name of Approved Program(s):
 - ENVIRONMENTAL HORTICULTURE AS Degree for Employment Preparation
 - ENVIRONMENTAL HORTICULTURE Certificate of Achievement
 - TURFGRASS MANAGEMENT AS Degree for Employment Preparation
 - TURFGRASS MANAGEMENT Certificate of Achievement
4. Total Units: 2.00 Total Semester Hrs: 36.00
 Lecture Units: 2 Semester Lecture Hrs: 36.00
 Lab Units: 0 Semester Lab Hrs: 0
 Class Size Maximum: 26 Allow Audit: No
 Repeatability No Repeats Allowed
 Justification 0
5. Prerequisite or Corequisite Courses or Advisories:
Course with requisite(s) and/or advisory is required to complete Content Review Matrix (CCForm I-A)
 Advisory: MATH 060
6. Textbooks, Required Reading or Software: (List in APA or MLA format.)
 - a. Shepersky, K. (1998). Landscape Irrigation Design Manual Azusa, CA Rainbird Company. ISBN: -
 College Level: Yes
 Flesch-Kincaid reading level: 12
 - b. Nick Christians, Michael L. Agnew. The Mathematics Of Turfgrass Maintenance. wiley , 10-28-2016.
7. Entrance Skills: *Before entering the course students must be able:*
 - a.
 Apply the basic operations appropriately to solve application problems that involve their use
 - MATH 060 - Compute using the four basic operations of addition, subtraction, multiplication, and division on the rational numbers in both fraction and decimal form.
 - MATH 060 - Apply methods of conversion between percents, decimals, and fractions.
 - MATH 060 - Recognize and convert between units of measurements in the American and metric systems.
 - MATH 060 - Use unit measure appropriately in applications.
8. Course Content and Scope:

AGEH 046-Landscape Irrigation Systems

Lecture:

1. Geometry Applied to Cylinders
2. Application of Algebraic Formulae
3. Pythorean Theorem
4. Principles of Hydraulics
5. Pressure
6. Volume
7. Velocity
8. Irrigation Equipment
 1. Pipe, heads, fittings, valves, backflow prevention, pressure regulation, solvents
 2. Tools, power equipment, clocks and programmable timers
9. Water Source
10. Mains
11. House Service
12. Distribution of Heads
13. Sectioning the System
14. Placement of Pipe and Valves
15. Sizing Pipe
16. Sizing Valves
17. The Bid
18. Finishing the Job
19. Service
20. Trouble-Shooting

Lab: (if the "Lab Hours" is greater than zero this is required)

9. Course Student Learning Outcomes:

1.
Discuss the fundamentals of hydraulics used in developing a proper landscape irrigation system.
2.
Measure an assigned area and develop a base sheet to be used for irrigation design.
3.
Design multiple landscape irrigation systems using current industry acceptable products and design principles.

10. Course Objectives: *Upon completion of this course, students will be able to:*

- a. Read and interpret blueprints.
- b. Apply general hydraulic and electrical principles to specific situations.
- c. Use problem solving methods for trouble-shooting and design.
- d. Demonstrate an understanding of current technology and equipment including computer controllers.
- e. Analyze existing systems for efficiency.
- f. Compose bids that are competitive in the current market.

11. Methods of Instruction: *(Integration: Elements should validate parallel course outline elements)*

- a. Demonstration, Repetition/Practice
- b. Discussion
- c. Lecture
- d. Participation

Other Methods:

Use of audio-visual for presentation

12. Assignments: *(List samples of specific activities/assignments students are expected to complete both in and outside of class.)*

In Class Hours: 36.00

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Outside Class Hours: 72.00

a. In-class Assignments

- a. Execute single component of the design process, i.e., evaluate property ad landscape, choose the equipment, place heads and emitters, section system, distribute pipe, size pipe, place and size valves, connect and program clock, prepare drawings and bids.
- b. Classroom participation is expected and required

b. Out-of-class Assignments

- a. Reading assignments from required text

13. Methods of Evaluating Student Progress: *The student will demonstrate proficiency by:*

- Written homework
- Critiques
- True/false/multiple choice examinations
- Mid-term and final evaluations
- Student participation/contribution
- Student preparation
- Other

Required Notebook

14. Methods of Evaluating: Additional Assessment Information:

15. Need/Purpose/Rationale -- *All courses must meet one or more CCC missions.*

PO - Career and Technical Education

Fulfill the requirements for an entry- level position in their field.

Apply critical thinking skills to execute daily duties in their area of employment.

Apply critical thinking skills to research, evaluate, analyze, and synthesize information.

IO - Personal and Professional Development

Self-evaluate knowledge, skills, and abilities.

IO - Scientific Inquiry

Analyze quantitative and qualitative information to make decisions, judgments, and pose questions.

IO - Critical Thinking and Communication

Apply principles of logic to problem solve and reason with a fair and open mind.

16. Comparable Transfer Course

University System

Campus

Course Number

Course Title

Catalog Year

17. Special Materials and/or Equipment Required of Students:

18. Materials Fees: Required Material?

Material or Item

Cost Per Unit

Total Cost

19. Provide Reasons for the Substantial Modifications or New Course:

Remove English 70

20. a. Cross-Listed Course (*Enter Course Code*): *N/A*

b. Replacement Course (*Enter original Course Code*): *N/A*

21. Grading Method (*choose one*): Letter Grade Only

22. MIS Course Data Elements

AGEH 046-Landscape Irrigation Systems

- a. Course Control Number [CB00]: CCC000106386
- b. T.O.P. Code [CB03]: 10900.00 - Horticulture
- c. Credit Status [CB04]: D - Credit - Degree Applicable
- d. Course Transfer Status [CB05]: B = Transfer CSU
- e. Basic Skills Status [CB08]: 2N = Not basic skills course
- f. Vocational Status [CB09]: Clearly Occupational
- g. Course Classification [CB11]: Y - Credit Course
- h. Special Class Status [CB13]: N - Not Special
- i. Course CAN Code [CB14]: N/A
- j. Course Prior to College Level [CB21]: Y = Not Applicable
- k. Course Noncredit Category [CB22]: Y - Not Applicable
- l. Funding Agency Category [CB23]: Y = Not Applicable
- m. Program Status [CB24]: 1 = Program Applicable

Name of Approved Program (if program-applicable): ENVIRONMENTAL HORTICULTURE, ENVIRONMENTAL HORTICULTURE, TURFGRASS MANAGEMENT, TURFGRASS MANAGEMENT

Attach listings of Degree and/or Certificate Programs showing this course as a required or a restricted elective.)

23. Enrollment - Estimate Enrollment

First Year: 26

Third Year: 26

24. Resources - Faculty - Discipline and Other Qualifications:

a. Sufficient Faculty Resources: Yes

b. If No, list number of FTE needed to offer this course: N/A

25. Additional Equipment and/or Supplies Needed and Source of Funding.

N/A

26. Additional Construction or Modification of Existing Classroom Space Needed. (Explain:)

N/A

27. FOR NEW OR SUBSTANTIALLY MODIFIED COURSES

Library and/or Learning Resources Present in the Collection are Sufficient to Meet the Need of the Students Enrolled in the Course: Yes

28. Originator Eddie Vaca Origination Date 10/27/17