BUTTE COLLEGE
COURSE OUTLINE

I. **CATALOG DESCRIPTION**

EH 30 - Irrigation Practices and Materials **3 Unit(s)**

Prerequisite(s): NONE
Recommended Prep: Reading Level IV; English Level III; Math Level II
Transfer Status: CSU
34 hours Lecture
51 hours Lab

This course is an introduction to the materials, equipment, installation procedures, operation and maintenance of landscape irrigation systems and their components.

II. **OBJECTIVES**

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

A. Identify and describe irrigation materials including PVC fittings, pipe grades and schedules, controllers and sprinklers.
B. Program many types of irrigation controllers.
C. Select and use the correct sprinkler for a given application by installing, nozzling, setting arc and employing at correct grade.
D. Recognize the need for backflow prevention and identify the types of mechanisms and their applications.
E. Identify and troubleshoot irrigation problems with sprinklers, valves and controllers, and make the necessary repairs or replacements.
F. Compare and analyze products from various irrigation component manufacturers for quality and reliability.
G. Read and interpret basic irrigation designs.

III. **COURSE CONTENT**

A. **Unit Titles/Suggested Time Schedule**

Lecture

Topics	Hours
1. Introduction to the Course and Scope of the Irrigation Industry	2.00
2. Irrigation Pipe, Fittings, Cements and Primers	2.00
3. Spray Head and Rotor Sprinklers – Pop-Up and Static	2.00
4. Drip, Micro-spray and Mist Systems	2.00
5. Backflow Prevention Device Types and Cross Contamination Codes	2.00
6. Backflow Prevention Device Installations and Protective Enclosures	2.00
7. Valve Manifold Construction, Wiring and Boxing	4.00
8. Main and Lateral Line Plumbing Installation	2.00
9. Sprinkler Choices and Installation Techniques	4.00
10. Controller Types, Applications and Programming Principles	2.00
11. Controller Installation, Electrical Wiring and Programming	2.00
12. Troubleshooting and Repairing Valves	4.00
13. Troubleshooting Controllers	4.00
Total Hours	34.00

Lab

Topics	Hours
1. Introduction to the Course and Scope of the Irrigation Industry	3.00
2. Irrigation Pipe, Fittings, Cements and Primers	3.00
3. Spray Head and Rotor Sprinklers – Pop-Up and Static	3.00
4. Drip, Micro-spray and Mist Systems	3.00
5. Backflow Prevention Device Types and Cross Contamination Codes	3.00
6. Backflow Prevention Device Installations and Protective Enclosures	3.00
7. Valve Manifold Construction, Wiring and Boxing	6.00
8. Main and Lateral Line Plumbing Installation	3.00
9. Sprinkler Choices and Installation Techniques	6.00
10. Controller Types, Applications and Programming Principles	3.00
11. Controller Installation, Electrical Wiring and Programming	3.00
12. Troubleshooting and Repairing Valves	6.00
13. Troubleshooting Controllers	6.00
Total Hours	51.00

IV. METHODS OF INSTRUCTION

A. Lecture
B. Guest Speakers
C. Collaborative Group Work
D. Class Activities
E. Field Trips
F. Homework: Students are required to complete two hours of outside-of-class homework for each hour of lecture
G. Discussion
H. Demonstrations
I. Problem-Solving Sessions
J. Multimedia Presentations

V. METHODS OF EVALUATION

A. Exams/Tests
B. Quizzes
C. Oral Presentation
D. Demonstration
E. Homework
F. Journal
G. Class participation
H. Lab Projects
I. Essays and research papers

VI. EXAMPLES OF ASSIGNMENTS

A. Reading Assignments
   1. Read, study and become familiar with the specification pages on Rainbird 1800 series spray heads. Be ready for an in-class quiz.
   2. Read the Hunter catalog pages on I 20 rotors and be prepared for class discussion.

B. Writing Assignments
    1. Write a 2 page narrative report on the comparative analysis of Hunter PGP VS. Rainbird 5000 rotors.
    2. Write a two page report on the history of water lubricated gear drive rotors.

C. Out-of-Class Assignments
    1. Using the internet, find an article on efficient irrigation components or practices to share in group discussion.
    2. Visit a local irrigation distributor, designer or installer and prepare to talk to the class about what you learned.

VII. RECOMMENDED MATERIALS OF INSTRUCTION

Textbooks:

A. Stephen W. Smith. Landscape Irrigation Design and Management. 2nd Edition. Harcourt Press, 2011.

Materials Other Than Textbooks:

A. Manuals and catalogs from various manufacturers.

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