HORT A288: SPRINKLER IRRIGATION SYSTEMS DESIGN

Item	Value
Curriculum Committee Approval Date	12/02/2020
Top Code	010910 - Landscape Design and Maintenance
Units	2 Total Units
Hours	36 Total Hours (Lecture Hours 36)
Total Outside of Class Hours	0
Course Credit Status	Credit: Degree Applicable (D)
Material Fee	No
Basic Skills	Not Basic Skills (N)
Repeatable	No
Grading Policy	Standard Letter (S), • Pass/No Pass (B)

Course Description

How to design irrigation sprinkler systems for small areas, such as residential properties and small industrial sites. Transfer Credit: CSU.

Course Level Student Learning Outcome(s)

1. Use the knowledge of irrigation equipment, basic hydraulic principles, and different site considerations to design a small irrigation system.
2. Successfully identify various irrigation materials and their various applications and use that knowledge to produce a l materials list for an irrigation design.

Course Objectives

- 1. Identify and understand the applications of various pieces of equipment and materials available for small irrigation systems.
- 2. Describe the basic hydraulic principles in the design of small sprinkler irrigation systems.
- 3. Identify and differentiate the data that must be collected from the field and existing plans in order to design a system.
- 4. Discuss the sequence of steps that has to be taken to design a system.
- 5. Describe a plan of a designed system.
- 6. Explain, itemize and produce a materials schedule.

Lecture Content

Irrigation equipment and materials: Descriptions, names and applications of the many kinds of irrigation materials such as pipe, valves, backflow devices, sprinkler heads, nozzles, fittings etc. Basic hydraulic Principles: Understanding the weight of water. Static and dynamic pressure calculations. Pipe theory: Pressure (PSI), flow (GPM), and velocity (FPS) considerations and how they affect water movement in pipes. Familiarization with the various flow charts and their applications. Site evaluation and data collection: accessing relevant information for system design, municipal codes, site plans, climate conditions soil types, building and obstacle locations, planting plans. System layout: Sprinkler selection and location, zoning criteria, valve grouping, head spacing. Systems design: Pipe theory; sizing and routing for efficiency. Friction loss checks. Drawing a plan: Irrigation graphics; symbols, and notations and their proper applications. Equipment and materials list: Making an irrigation schedule with quantities, types, manufacturers and sizes for irrigation plans.

Method(s) of Instruction

- Lecture (02)

Instructional Techniques

Lectures and demonstrations by instructor

Out-of-class Assignments

Quizzes and exams with essay questions. Written assignments.

Demonstration of Critical Thinking

Sprinkler drafted plan, essay, quiz, final.

Required Writing, Problem Solving, Skills Demonstration

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Other Resources

1. Handouts to be provided and distributed by the instructor.