



Western Technical College

## 10001118 Irrigation Maintenance

### Course Outcome Summary

#### Course Information

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| <b>Description</b>         | This course is designed for students new to the irrigation industry. In this introductory course students will learn the basics of irrigation installation. Topics that will be covered include: introduction to irrigation, product identification and terminology, basics of an irrigation system, basic design considerations and reading. Hands on segments include techniques in installation, system programming, head repairs, valve repairs, low voltage wiring problem solving, and repairs to water lines. |
| <b>Career Cluster</b>      | Agriculture, Food and Natural Resources  |
| <b>Instructional Level</b> | Associate Degree Courses   |
| <b>Total Credits</b>       | 2  |
| <b>Total Hours</b>         | 54   |

#### Textbooks

*Landscape Irrigation System Installation and Maintenance*. 2nd Edition. Copyright 2013. Irrigation Association. Publisher: Irrigation Association. **ISBN-13:** 978-1-935324-21-8. Required.

#### Course Competencies

##### 1. Investigate components of an irrigation system.

###### Assessment Strategies

1.1. Skill Demonstration

###### Criteria

*You will know you are successful when*

- 1.1. you set a controller.
- 1.2. you set a rain sensor.
- 1.3. you set a moisture sensor.

- 1.4. you disassemble and reassemble a back flow pie venter.
- 1.5. you disassemble and reassemble valves.
- 1.6. you disassemble and reassemble heads.

#### **Learning Objectives**

- 1.a. Explore various irrigation technologies.
- 1.b. Investigate the role of electricity to irrigation systems.
- 1.c. Examine controllers, rain sensors, and moisture sensors.
- 1.d. Examine back flow pie ventors, valves, and heads.
- 1.e. Explore how components of the irrigation system interrelate.

### **2. Examine considerations of an irrigation system design.**

#### **Assessment Strategies**

- 2.1. Written Product

#### **Criteria**

*You will know you are successful when*

- 2.1. you explain the meaning of design terms.
- 2.2. you explain the interrelation of design terms.

#### **Learning Objectives**

- 2.a. Explore irrigation system design terminology.
- 2.b. Examine the effect of water pressure on irrigation system design.
- 2.c. Investigate the interrelation of pipe size and valve selection to irrigation system design.

### **3. Interpret irrigation system design drawings.**

#### **Assessment Strategies**

- 3.1. Presentation

#### **Criteria**

*You will know you are successful when*

- 3.1. you explain how you measured the design to the site.
- 3.2. you explain how you interpreted the symbols of the drawing.
- 3.3. you explain how you will install the irrigation system.

#### **Learning Objectives**

- 3.a. Practice scaling drawings.
- 3.b. Calculate takeoffs.
- 3.c. Interpret symbols.

### **4. Layout design on site.**

#### **Assessment Strategies**

- 4.1. Skill Demonstration

#### **Criteria**

*You will know you are successful when*

- 4.1. you scale the design to the site.
- 4.2. you indicate placement by utilizing flags.

#### **Learning Objectives**

- 4.a. Examine how to use architectural scales.
- 4.b. Examine how to use engineering scales.
- 4.c. Measure drawings to site.
- 4.d. Practice placing valves and heads to site.

### **5. Install irrigation system.**

#### **Assessment Strategies**

- 5.1. Skill Demonstration

#### **Criteria**

*You will know you are successful when*

- 5.1. you operate a trencher.
- 5.2. you install one line of pipe with valves and heads.
- 5.3. you install electrical lines to controller.
- 5.4. you install rain sensor to controller.
- 5.5. you install moisture sensor to controller.

#### **Learning Objectives**

- 5.a. Examine how to safely operate a trencher.
- 5.b. Practice operating a trencher.
- 5.c. Assemble joints of irrigation lines and valves.
- 5.d. Connect low voltage electrical lines to valves.
- 5.e. Examine how to connect rain sensors and moisture sensors to controllers.

### **6. Test irrigation system.**

#### **Assessment Strategies**

- 6.1. Skill Demonstration

#### **Criteria**

*You will know you are successful when*

- 6.1. you test installed system.
- 6.2. you troubleshoot and/or repair (if needed).

#### **Learning Objectives**

- 6.a. Investigate how to troubleshoot/problem solve potential issues.
- 6.b. Examine the operation of each valve.
- 6.c. Examine the operation of each head.

### **7. Program irrigation system.**

#### **Assessment Strategies**

- 7.1. Skill Demonstration

#### **Criteria**

- 7.1. you set the controller.
- 7.2. you set the rain sensor.
- 7.3. you set the moisture sensor.

#### **Learning Objectives**

- 7.a. Examine how to set a controller.
- 7.b. Practice setting controller.
- 7.c. Examine how to set a rain sensor.
- 7.d. Practice setting a rain sensor.
- 7.e. Examine how to set a moisture sensor.
- 7.f. Practice setting a moisture sensor.

### **8. Troubleshoot and repair irrigation system.**

#### **Assessment Strategies**

- 8.1. Skill Demonstration

#### **Criteria**

*You will know you are successful when*

- 8.1. you troubleshoot issues of the irrigation system.
- 8.2. you repair the irrigation system.

#### **Learning Objectives**

- 8.a. Examine how to troubleshoot issues with the controller.
- 8.b. Examine how to troubleshoot issues with the electrical system.
- 8.c. Examine how to troubleshoot issues with valves.
- 8.d. Examine how to troubleshoot issues with heads.
- 8.e. Practice making repairs.

