

Laborers Landscape & Irrigation Fitter
Landscape 2: Construction Math, Low Voltage Lighting & Irrigation
Systems Syllabus

Time: 40 hours

Maximum Class Size: 12

Prerequisites: None

Course Description: The first portion of the course covers basic Construction Math including fractions, decimals, area, volume, conversions, and squaring principals. Also covered are basic survey procedures, and the use of lasers and field levels. Water Delivery Systems are presented: Point of Connection, Back Flow Prevention and types, valves, liquid fertilizer delivery systems, and the applicable Codes. Irrigation varieties such as sprinklers, drip irrigation, bubblers, streamers, micro-heads and flood irrigation are introduced. Irrigation system components such as timers, auto back flow valves, low voltage valve wiring, among others are presented. Sprinkler Lay-out is introduced. Apprentices are given ample hands-on practice in the Installation of an Irrigation System. In addition, students will install low voltage landscape lighting and timers and will wire the system to the timer.

Goals/Objectives/Student Learning Outcomes:

- Demonstrate basic math skills (feet & inches/tenths & hundredths).
- Calculate area and volume.
- Describe how to convert engineers' rule to standard rule.
- Demonstrate basic squaring principles.
- Demonstrate basic survey skills using Laser and/or Field Level.
- Describe basic building code regulations for landscape irrigations systems.
- Describe six different types of backflow prevention systems.
- Demonstrate sprinkler layout.
- Demonstrate and interpret actual sprinkler layout for installation purposes.
- Demonstrate low voltage valve and timer wiring
- Demonstrate flushing sprinkler systems before installing nozzles.
- Demonstrate correct PVC glue/welding procedure.
- Demonstrate trouble shooting wiring problems.
- Install low voltage lighting in designated areas.

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Standards

- OSHA 29 CFR Part 1926.54-Lasers/Non-ionizing Radiation
- OSHA 29 CFR Part 1910.147-Isolation Procedures/Lock-Out Tag-Out
- OSHA 29 CFR Part 1910.252-Welding, Cutting & Brazing
- OSHA 29 CFR Part 1910.106-Flammable & Combustible Liquids
- OSHA 29 CFR Part 1910.352-Fire Watch
- OSHA 29 CFR Part 1910.353-Fire Prevention
- OSHA 29 CFR Part 1926.1117-Vinyl Chloride
- OSHA 29 CFR Part 1910.1200 (g)-SDS
- OSHA 29 CFR Part 1910.1200 (h)-Employee Information and Training

Classroom Rules and Procedures

- All classes begin at 6:30 am and end at 3:00 pm
- Upon entering classroom, all participants must sign in and be seated by 6:30 am
- Class will consist of a combination of lecture, video, demonstration, coached group exercises, individual exercises and assessment.
- Students are required to report to class ready to work and maintain the provided PPE

Textbooks/Readings/Materials

- *LIUNA: Basic Construction Math IG/PG*
- DVD: *Take Control: Lock Out Tag Out*
- Handouts: Ruler, Grade Rod, Grade Rods, Permitted Practices in California, California Department of Public Health Regulations, 6 Types of Backflow Preventer Explained, Bavco, Model 500, Types of Pipe, Spears PVC White Schedule 40 Fittings, Pop Up Sprinkler Diagrams, Low Voltage lighting, exterior landscape lighting

Tools/Equipment/Other Materials

- Back Flow Preventers
- P.V.C. Pipe & Fittings
- Glue & Primer
- Sprinkler Heads
- Nozzles

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- Drip materials
- Pressure reducing valves
- Wye Strainers
- Timers
- Auto In-line Vales
- Timer & Valve Wire
- Low Voltage Landscape Lighting
- 2 sets Blueprints

Personal Protective Equipment

- 12 pairs of gloves
- 12 pairs of Safety Glasses
- 20 pairs of Ear plugs
- 12 hard hats

Course Requirements

To receive credit for the course, participants must:

- Be present for full forty hours
- Participate in all classroom exercises
- Pass a written exam
- Pass a hands-on exam

Course Policies

- Participants must be on-time and ready to work.
- Participants must return from breaks on-time.
- Participants must participate in each exercise and assignment
- Participants who are on “light duty” are not allowed to take this course due to the physically demanding requirements.

Assessment and Grading

Participants will be assessed on the following:

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- All written exams must be passed with a score of 80% or above.
- All hands-on exercises are graded on performance and participation. They are pass/fail and must be passed with a score of 80% or above.

Safety

Failure to maintain and use PPE may result in dismissal from the course.