Training Course on Subsurface Drip Irrigation (SDI) Applications

Professional Development Training Course Outline

Category	Agriculture	**Duration**	10 Days
Base Fee	$3,000 USD	**Delivery Mode**	Online / On-site Hybrid

Course Introduction

Subsurface Drip Irrigation (SDI) is revolutionizing modern agriculture by delivering water and nutrients directly to plant roots, maximizing efficiency and minimizing waste. With climate change, water scarcity, and sustainability becoming global agricultural challenges, the demand for precision irrigation systems such as SDI is on the rise. This advanced irrigation method is especially suitable for arid and semi-arid regions, ensuring high crop yields with minimal environmental impact. Our expertly designed training course on Subsurface Drip Irrigation (SDI) Applications equips participants with comprehensive technical knowledge, practical field applications, and strategic insights into implementing and managing SDI systems effectively.

Training Course on Subsurface Drip Irrigation (SDI) Applications addresses critical areas such as water resource optimization, system design, irrigation scheduling, crop-specific applications, and maintenance strategies. Participants will learn to apply cutting-edge irrigation technologies, improve soil health, increase water productivity, and reduce operational costs. Designed for agribusiness professionals, farm managers, agricultural engineers, extension workers, and policymakers, this course integrates real-life case studies and success stories to enrich learning and boost implementation impact.

Programme Curriculum

Training Course on Subsurface Drip Irrigation (SDI) Applications

Introduction

Subsurface Drip Irrigation (SDI) is revolutionizing modern agriculture by delivering water and nutrients directly to plant roots, maximizing efficiency and minimizing waste. With climate change, water scarcity, and sustainability becoming global agricultural challenges, the demand for precision irrigation systems such as SDI is on the rise. This advanced irrigation method is especially suitable for arid and semi-arid regions, ensuring high crop yields with minimal environmental impact. Our expertly designed training course on Subsurface Drip Irrigation (SDI) Applications equips

participants with comprehensive technical knowledge, practical field applications, and strategic insights into implementing and managing SDI systems effectively.

Training Course on Subsurface Drip Irrigation (SDI) Applications addresses critical areas such as water resource optimization, system design, irrigation scheduling, crop-specific applications, and maintenance strategies. Participants will learn to apply cutting-edge irrigation technologies, improve soil health, increase water productivity, and reduce operational costs. Designed for agribusiness professionals, farm managers, agricultural engineers, extension workers, and policymakers, this course integrates real-life case studies and success stories to enrich learning and boost implementation impact.

Course Objectives

By the end of this course, participants will be able to:

1. Understand the fundamentals of Subsurface Drip Irrigation technology.
2. Design and layout SDI systems for various soil types and topographies.
3. Evaluate water use efficiency and its impact on crop productivity.
4. Identify and manage SDI system components effectively.
5. Apply precision irrigation techniques in real-time scenarios.
6. Conduct cost-benefit analysis for SDI investment.
7. Implement climate-smart irrigation practices.
8. Monitor soil moisture and nutrient levels under SDI.
9. Troubleshoot common SDI system failures.
10. Optimize fertigation strategies through SDI.
11. Analyze the role of SDI in sustainable agriculture and food security.
12. Utilize remote sensing and IoT for SDI monitoring.
13. Integrate SDI systems with conservation agriculture practices.

Target Audience

1. Agribusiness Managers
2. Irrigation Engineers
3. Farm Owners & Operators
4. Agricultural Extension Officers
5. Researchers in Soil & Water Management
6. Policymakers in Agriculture & Environment
7. Sustainable Development Consultants
8. Environmental NGOs and Climate Resilience Planners

Course Duration: 10 days

Course Modules

Module 1: Introduction to SDI Systems

- Evolution of irrigation techniques
- Definition and overview of SDI
- Benefits vs. surface drip systems
- Key components of SDI systems
- Challenges and mitigation strategies
- *Case Study:* SDI implementation in semi-arid Kenya

Module 2: Designing SDI Layouts

- Field assessment and site suitability

- Pipe sizing and spacing
- Pressure and flow considerations
- Software tools for design
- Integration with other farm systems
- *Case Study:* SDI design for sloped terrain in Israel

Module 3: Crop Suitability for SDI

- Ideal crops for SDI adoption
- Root structure and water needs
- Planting density and drip line alignment
- Comparative yields with other methods
- Seasonal considerations
- *Case Study:* Tomato production under SDI in California

Module 4: SDI Installation Techniques

- Pre-installation site preparation
- Equipment and materials
- Trenching and tubing methods
- Connection and testing
- Safety standards in installation
- *Case Study:* Large-scale maize farm installation in Ethiopia

Module 5: Irrigation Scheduling

- Water requirements by crop stage
- ET-based scheduling
- Manual vs. automated scheduling
- Soil moisture sensing integration
- Impacts on yield and quality
- *Case Study:* Scheduling optimization in grape vineyards

Module 6: SDI Maintenance & Troubleshooting

- Regular system inspection steps
- Flushing and filtration maintenance
- Blockage prevention techniques
- Detecting leaks and pressure loss
- Training farm staff
- *Case Study:* SDI repair program in Rwanda

Module 7: Fertigation Management

- Principles of fertigation
- Nutrient delivery timing
- Compatible fertilizers
- Monitoring nutrient uptake
- Environmental benefits
- *Case Study:* Fertigation with organic inputs in India

Module 8: Water Use Efficiency (WUE)

- Metrics for evaluating WUE
- Reducing evaporation and runoff
- Impacts on aquifer sustainability

- Comparison with flood irrigation
- Reporting tools for WUE
- *Case Study:* Improving WUE in rice production

Module 9: Soil Health and SDI

- Soil structure preservation
- Microbial activity under SDI
- Salinity and compaction effects
- Organic matter dynamics
- Soil testing protocols
- *Case Study:* Soil rejuvenation using SDI in Uganda

Module 10: SDI for Climate Resilience

- Reducing vulnerability to drought
- Role in carbon footprint reduction
- Integrating SDI with agroforestry
- Supporting climate-smart agriculture
- Policy frameworks supporting SDI
- *Case Study:* Climate-resilient farming in Morocco

Module 11: Cost-Benefit Analysis

- Initial capital vs. long-term gains
- ROI metrics for irrigation investments
- Accessing financing for SDI
- Subsidy programs and government support
- Farmer decision-making models
- *Case Study:* Cost-saving in sugarcane farming

Module 12: Digital Tools and IoT in SDI

- Sensor-based monitoring
- Wireless SDI control systems
- Mobile apps and platforms
- Data interpretation and analytics
- Future tech trends
- *Case Study:* IoT-enabled SDI farm in South Africa

Module 13: Integration with Conservation Practices

- Combining SDI with mulching and cover crops
- Biodiversity promotion
- Weed control benefits
- Reduced runoff and erosion
- Promoting regenerative agriculture
- *Case Study:* SDI and conservation agriculture in Zambia

Module 14: Scaling SDI for Smallholders

- Low-cost SDI models
- Community-managed systems
- Cooperative farming models
- Extension service roles
- Mobile-based training tools

- *Case Study:* SDI rollout in smallholder banana farms

Module 15: Policy, Regulation, and SDI

- Legal frameworks and land rights
- Standards and quality control
- Role of institutions and governance
- Incentives and subsidies
- SDI in national water strategies
- *Case Study:* Government-backed SDI adoption in India

Training Methodology

- Interactive expert-led lectures
- Hands-on technical demonstrations
- Group discussions and team problem-solving
- Real-life case study reviews
- Field visits and virtual tours
- Continuous evaluation through quizzes and feedback

Register as a group from 3 participants for a Discount

Send us an email: info@fineskilltrainingcenter.org or call *+254769199797*

Certification

Upon successful completion of this training, participants will be issued with a globally- recognized certificate.

Tailor-Made Course

We also offer tailor-made courses based on your needs.

Key Notes

a. The participant must be conversant with English.

b. Upon completion of training the participant will be issued with an Authorized Training Certificate

c. Course duration is flexible and the contents can be modified to fit any number of days.

d. The course fee includes facilitation training materials, 2 coffee breaks, buffet lunch and A Certificate upon successful completion of Training.

e. One-year post-training support Consultation and Coaching provided after the course.

f. Payment should be done at least a week before commence of the training, to Fineskill Training Center account, as indicated in the invoice so as to enable us prepare better for you.

Upcoming Scheduled Sessions

Start Date	End Date	Location	Price
23 Nov 2026	04 Dec 2026	Online	$2,000

Start Date	End Date	Location	Price
23 Nov 2026	04 Dec 2026	Physical	$3,000
23 Nov 2026	04 Dec 2026	Physical	$6,000
23 Nov 2026	04 Dec 2026	Physical	$6,000
23 Nov 2026	04 Dec 2026	Physical	$12,000
23 Nov 2026	04 Dec 2026	Physical	$9,000
23 Nov 2026	04 Dec 2026	Physical	$12,000
23 Nov 2026	04 Dec 2026	Physical	$12,000

Ready to enroll or request a customized program? Book online or contact us:

Register Online Now

Email: info@fineskilltrainingcenter.com | Website: www.fineskilltrainingcenter.com