Training Course on Soil Health Management and Bioremediation Techniques

Professional Development Training Course Outline

Category	Agriculture	**Duration**	5 Days
Base Fee	$1,500 USD	**Delivery Mode**	Online / On-site Hybrid

Course Introduction

Soil health is the cornerstone of sustainable agriculture, ecosystem resilience, and environmental restoration. Training Course on Soil Health Management and Bioremediation Techniques is designed to equip professionals, researchers, and environmental stewards with in-depth knowledge and hands-on expertise in improving soil quality, restoring contaminated lands, and applying nature-based solutions. With rising global concerns around land degradation, climate change, and food insecurity, this training integrates current trends, scientific methods, and practical skills to build soil regeneration capacity.

This course highlights trending solutions such as microbial bioremediation, phytoremediation, and organic amendments, with an emphasis on climate-smart agriculture, carbon sequestration, and regenerative farming. Participants will explore innovative tools and real-world case studies to develop strategic action plans for restoring soil vitality, enhancing biodiversity, and mitigating pollution impacts.

Programme Curriculum

Training Course on Soil Health Management and Bioremediation Techniques

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Course Objectives

1. Understand core principles of soil health management and regenerative agriculture.
2. Analyze key soil fertility indicators and diagnostic techniques.
3. Learn practical bioremediation methods including microbial and phytoremediation.
4. Apply organic soil amendments and biochar technologies.
5. Evaluate soil contamination sources and pollution pathways.
6. Develop soil quality monitoring frameworks and assessment tools.
7. Integrate climate-resilient soil practices in agricultural systems.
8. Use GIS and remote sensing in mapping degraded lands.
9. Design community-based remediation plans and policy frameworks.
10. Implement carbon sequestration strategies through healthy soils.
11. Promote biodiversity enhancement through soil restoration.
12. Understand sustainable land management (SLM) principles.
13. Analyze global case studies of successful soil bioremediation.

Target Audiences

1. Agricultural Extension Officers
2. Environmental Scientists
3. Soil and Water Conservationists
4. Farm Managers and Agribusiness Professionals
5. NGOs and Community Development Workers
6. Land Use Planners and Policy Makers
7. Researchers and Academics in Agriculture/Environmental Sciences
8. Graduate Students in Natural Resource Management

Course Duration: 5 days

Course Modules

Module 1: Introduction to Soil Health and Its Indicators

- Soil physical, chemical, and biological properties
- Assessing soil structure and water holding capacity
- Role of organic matter in soil health
- Tools for soil health diagnosis
- Integrating soil biodiversity in assessment
- **Case Study: USDA Soil Health Initiative – USA**

Module 2: Soil Contamination and Pollution Sources

- Types and sources of soil pollutants
- Industrial, agricultural, and urban contamination
- Soil contamination effects on food and water
- Heavy metals and pesticide residues
- Soil pollution impact on microbial life
- **Case Study: Industrial Waste Impact – Nigeria**

Module 3: Microbial Bioremediation Techniques

- Principles of microbial remediation

- Types of soil microbes and their roles
- Bioaugmentation and biostimulation
- Managing microbial communities for soil recovery
- Advantages and limitations
- **Case Study: Oil Spill Bioremediation – Ecuador**

Module 4: Phytoremediation and Plant-Based Restoration

- Mechanisms of phytoremediation
- Selection of hyperaccumulator species
- Field applications and monitoring
- Integrating plants with microbial remediation
- Agroforestry and green cover solutions
- **Case Study: Arsenic Cleanup Using Ferns – Bangladesh**

Module 5: Organic Amendments and Soil Enrichment

- Composting and manure applications
- Biochar for carbon retention
- Green manure and cover crops
- Soil organic carbon monitoring
- Effects on microbial diversity and yield
- **Case Study: Biochar Use in Degraded Soils – Kenya**

Module 6: Climate-Smart Soil Management Practices

- Conservation agriculture
- Mulching and minimum tillage
- Soil moisture management
- Drought-resilient cropping systems
- Soil health under climate change
- **Case Study: FAO's Climate-Smart Soil Projects – Ethiopia**

Module 7: GIS and Digital Soil Mapping

- Remote sensing tools for soil health
- Soil sampling techniques
- Digital mapping platforms
- Data visualization and interpretation
- Linking maps to remediation planning
- **Case Study: Land Degradation Mapping – India**

Module 8: Developing Community-Based Soil Restoration Plans

- Stakeholder engagement and participatory planning
- Policy integration and advocacy
- Scaling sustainable land management (SLM)
- Funding opportunities and project design
- Monitoring and evaluation frameworks
- **Case Study: Farmer-Led Soil Restoration – Malawi**

Training Methodology

- Interactive lectures with visuals and demonstrations
- Group-based hands-on fieldwork and soil testing
- Guided lab simulations for bioremediation

- Use of GIS software and remote sensing tools
- Role plays and stakeholder engagement simulations
- Presentation of local and international case studies

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	27 Nov 2026	Online	$1,000
23 Nov 2026	27 Nov 2026	Physical	$1,500
23 Nov 2026	27 Nov 2026	Physical	$3,000
23 Nov 2026	27 Nov 2026	Physical	$3,000
23 Nov 2026	27 Nov 2026	Physical	$6,000
23 Nov 2026	27 Nov 2026	Physical	$4,500
23 Nov 2026	27 Nov 2026	Physical	$6,000

Start Date	End Date	Location	Price
23 Nov 2026	27 Nov 2026	Physical	$6,000

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

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