MERCURY

Environmental Soil and Water Chemistry Course

23 – 27 May 2027
Dubai (UAE)



Dubai - UAE: +971 4 450 5697
Istanbul - Türkiye: +90 539 599 1206
Amman - Jordan: +962 79 712 3347

Environmental Soil and Water Chemistry Course

Ref: 6081_301319 **Date:** 23 – 27 May 2027 **Location:** Dubai (UAE) **Fees:** 4900 Euro

Introduction

In this comprehensive environmental soil and water chemistry course, participants will thoroughly understand how soils are formed and the intricate interplay between soil chemistry and crop fertility. In this soil and water chemistry fundamentals course, we will cover both principles of soil chemistry and environmental water chemistry.

This environmental soil and water chemistry fundamentals course emphasizes the significance of soil and water chemistry in agricultural productivity, environmental management, and safeguarding human health.

Through in-depth discussions and practical applications, participants of this environmental soil and water chemistry course will be well-equipped with the knowledge to integrate environmental soil chemistry principles and the chemistry of water in their professional endeavors.

Targeted Groups

- Petrochemical Engineers.
- Chemical Engineers.
- Plant Engineers.
- Process Control Engineers.

Course Objectives

By the conclusion of this environmental soil and water chemistry fundamentals course, participants will:

- Acquire knowledge about chemical reactions in soil and environmental soil chemistry.
- Discover various soil testing methods and classifications, adhering to principles of soil chemistry.
- Learn strategies for enhancing soil fertility for optimal crop production.
- Gain insights into the influence of the hydrological cycles on human health and agriculture.

Targeted Competencies

At the end of this environmental soil and water chemistry fundamentals course, the target competencies will be able to:

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- Grasp the fundamentals of introductory soil chemistry, including atoms, elements, compounds, and chemical reactions.
- Develop methods to remediate soils.
- Distinguish between soil fractions based on nature, size, and chemical activity.
- Understand the components of the water cycle and the principles of potable water chemistry.

Course Content

Unit 1: Principles of Soil Chemistry

- Review chemistry fundamentals, including chemical terms, elements, compounds, and bonds.
- Soil redox reactions.
- Review on biogeochemistry and soil structure.
- Examination of biogeochemical cycles.
- Mineralization.
- Immobilization processes.
- Ammonium fixation dynamics.
- Exploring the urea cycle.
- Soil adsorption/desorption mechanisms.

Unit 2: Soil Chemical Processes

- Detailed examination of soil formation factors.
- Weathering processes in soil formation.
- Descriptions of soil profiles.
- Soil classification and description.
- Classification of British soils.
- Soil types and plant growth.
- Properties of soils.
- Physical and chemical properties of soil.
- Soil characteristics and their relationship to plant growth.

Unit 3: Soil-Chemical Testing

- Overview of standard soil tests.
- Exploration of other soil cations.
- Understanding the CEC in soils.

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Unit 4: Soil Chemistry - Applications in Agriculture

- Components of soil fertility.
- Explore components of soil fertility.
- Factors affecting crop growth in various farming environments.
- Strategies to enhance soil fertility in agricultural practices.

Unit 5: Soil Chemistry - Applications in Environmental Management

- Identification of soil pollutants.
- Techniques for soil remediation.
- Assessing the impact of inorganic and organic soil pollutants.
- The effects on health and the environment.

Unit 6: Environmental Water Chemistry

- Investigating the chemical and physical properties of water.
- Analysis of the hydrological cycle.
- Evaluation of water resources and their environmental impact.
- Water footprint.
- Study of drought and its consequences.

Unit 7: Chemistry of Water Sources and Drinking Water

- Chemical composition of various water sources.
- Detailed Chemistry of seawater, groundwater, and surface water.
- Principles and applications of potable water chemistry.

Unit 8: Water - Chemical Testing

- Testing and interpreting water PH levels.
- Measurement of electrical conductivity.
- Determining total alkalinity and total hardness.