

**GOVERNMENT GENERAL DEGREE COLLEGE, KALIGANJ**  
**DEBAGRAM, NADIA, 741137**

**Value Added Course on**  
**Soil Testing and Its Management**  
**Details Course Structure**

(From 01.06.2025 to 30.06.2025)

**Objectives of the Course:**

- To understand the basic knowledge and properties of soil.
- To introduce them with macro and micro nutrients for soil.
- To develop basic understanding regarding soil testing methods and instruments in the students.
- To enhance their skills about Soil analysis.
- To preserve and improve soil health by making immediate soil management decisions.

**Course outcome:**

1. To understand the principle of soil formation and importance of soil for plant growth.
2. To enable for analyse the soil quality.
3. To developed the skill of using fertilizer for cultivation.

**Instructional Design: -**

This course is of three-month duration which includes theory classes, field Visit, Assignment and Field Project.

**Course Structure: -**

Course No.	Course Name	Theory Classes	Practical Classes	Project Report
SOILVAC-1	Soil Analysis	12 Hours	24 Hours	6 Hours

**Content of the Course: -**

**Theory Section:**

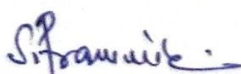
**Unit – I: Introduction:** Definition of Soil, Concept of Lithosphere, Soil as a natural body, Soil Components: Air, Water, inorganic and organic solids, Formation of Soil, Types of Soils & Basic Concepts.

**Unit – II: Properties of Soil:** Introduction to properties of Soil;

**A) Physical Properties:** Soil Separates, Texture, Aggregation and Structure, Temperature, Colour, Properties of Soil Mixture, Pore Space, Bulk Density, Particle Density, Aeration and Drainage, Compaction, Surface area, Soil water relationships.

**B) Chemical Properties:** Morphology of Colloids, Chemistry of Clays, Ionic Exchange, Acidity, Alkalinity, pH, Salinity, Reactions in Liming and Acidification.

**C) Biological Properties:** Soil Organic Matter, C: N Relationships, N-Transformation, Soil Organisms, Sulphur Transformation.

  
**IQAC**  
**Co-ordinator**  
**GGDC, Kaliganj**

*Anikul Islam*

**Unit – III: Fertility Status of Soils:** Fertility status of soils, soil deficiency with respect to macro and micro nutrient components, brief study of micronutrient & macronutrient sources & Importance, remedial measures to overcome deficiency.

**Unit – IV: Soil Profile & Classification:** Soil profile, Soil forming factors, soil survey methods, soil survey reports, soil distribution, classification system.

**Unit – V: Conservation and Management:** Drainage, Soil erosion, types of Irrigation, Land use Classification, Plant & Animal waste, Municipal & Industrial by products & their impact, nutrient loading, tillage system, wetlands.

**Practical Section:**

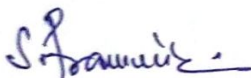
**Unit – I: Importance of Soil Testing and Analysis**

**Unit – II: Sample Collection and Processing** Purpose of Soil testing and analysis, selection of field, Method of Soil Sample collection, Methods of soil sample processing, precautions during soil collection & processing, Preservation labelling and Storage of soil samples, various types of tools used for collection.

**Unit – III: Study of Instruments:** Brief study of instruments: PH Meter, Conductivity meter, spectrometer, UV-Spectrophotometer, (Calibration, Instrumentation, applications only) use of soil testing kit. Kjeldahl's Assembly for determination of nitrogen.

**Unit – IV: Methods of Soil Analysis:**  $P^H$ , Conductivity, Soil texture and NPK.

**Unit – V: Soil Test Report & Fertilizer Recommendation:** Preparation of Soil analysis and test report, Fertilizer recommendation, preparation of soil test summaries and fertility maps.



Coordinator

IQAC, GGDC, Kaliganj

**IQAC**  
**Co-ordinator**  
**GGDC, Kaliganj**

Course Coordinator & Designer



Dr, Anikul Islam

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