

**SCHEME AND SYLLABUS OF CERTIFICATE COURSE**

**IN**

**SOIL TESTING AND ANALYSIS**

**(w.e.f academic session 2022-2023)**

**Department of Microbiology and Bioinformatics**

**Atal Bihari Vajpayee Vishwavidyalaya**

**Bilaspur (C.G.)**

**(A State University, Established by the Government of  
Chhattisgarh)**

## 1. About the University

Atal Bihari Vajpayee Vishwavidyalaya (ABVV), a State University, established under the Chhattisgarh Act No. 7, 2012, is in existence since June, 2012. The University has affiliation of around 180 government and private colleges covering 5 major districts of the state. The University is catering the education needs of both graduation and post graduation courses of the various streams mainly covering Science, Commerce, Law, Education, and Research Centers.

## 2. About the Course

In modern agriculture, soil testing is the most important practice to manage fertiliser application and crop production. Without soil testing, it is very difficult to ensure the right application of fertilizers for the crop and get the optimum yield. The basic objective of the soil-testing and analysis programme is to give learners and farmers a service leading to better and more economic use of fertilizers and better soil management practices for increasing agricultural production.

## 3. Outcome of the Course:

This would help students to learn to optimize crop production, to protect the environment from contamination by runoff and leaching of excess fertilizers, to aid in the diagnosis of plant culture problems, to improve the nutritional balance of the growing media and to save money and conserve energy by applying only the amount of fertilizer needed.

## 4. Eligibility Criteria

All those who have completed their Senior School Certificate Examination (Class XII) in any subject.

## 5. Fees Structure

One time registration/tuition fees of Rs. 10,000/-

## 6. Intake Capacity – 15 seats

## 7. Course Duration – 6 months/ 24 weeks.

## 8. Attendance

Minimum attendance of 75 % is required in the classes for appearing in the examination.

## 9. Examination Scheme

S. No.	Papers	Maximum Marks	Minimum Marks	Credits
1.	Paper I- Theory ( <b>SOIL TESTING AND ANALYSIS</b> )	100	40	4
2.	Paper II- Practical ( <b>SOIL TESTING AND ANALYSIS Lab</b> )	100	40	2
Total marks		200	80	6

All the theory and Practical examinations are of 3 hours duration. Internal Assessment would include field work and poster presentation. Certificate will be issued to the candidates after successful completion of the course

## **10. Syllabus**

### **Theory**

#### **Title: Soil Testing and Analysis**

Module I: Introduction: Definition of Soil, Soil Components: Air, Water, inorganic and organic solids. Formation of Soil, Types of Soils & Basic Concepts. Soil Profile & Classification Soil profile, Soil forming factors. Properties of Soil (Physical Properties, Chemical Properties and Biological Properties.

Module II: 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 deficiencies

Module III : 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 labeling and Storage of soil samples

Module IV: Preparation of Various Chemical reagents required for soil testing. Processing of Soil Sampling for analysis. Determination of pH of soil sample using PH meter and Electrical Conductivity of Soil Sample using Electrical Conductivity meter.

Module V : Determination of Organic Carbon , available Nitrogen, available phosphorus and available Potassium from soil sample.

### **Practicals**

#### **Title: Soil Testing and Analysis Lab**

(Field visit with demonstrations, Visit to Soil Testing Laboratory & Report writing)

#### **Books Recommended:**

1. Soils and soil fertility, Troch, F.R. And Thompson, L.M. Oxford Press.
2. Fundamentals of soil science, foth, H.D. Wiley Books.
3. Soil Science and Management, Plaster, Edward J., Delmar Publishers.
4. Principles of Soil Chemistry (2Wed.) Marcel Dekker Inc., New York.
5. Handbook of Agricultural Sciences, S.S.Singh, P.Gupta, A.k.Gupta, Kalyani Publication
6. Soil Sampling, Preparation and analysis, Marcell Dekker, Inc, New York.
7. Soil Sampling and methods of analysis, carter M.R. and E.G.Gregorich, 2007, 2nd Ed..
8. Methods of soil analysis, Part, American society of Agronomy Inc., Kuete, A.Et.at., 1986.
9. Introduction to soil laboratory manual -J.J.Harsett stipes.
10. Introduction to soil science laboratory manual, Palmer and troch - Iowa stat

## BUDGET PLAN FOR THE CERTIFICATE COURSE

S.No.	Income /course	Amount (in Rupees)
a)	Intake- 15 candidates with course fee 10,000 rupees	1,50,000/-
S.No.	Expenditure Detail	Amount (in Rupees)
1.	Instruments and tools (one time)	1,00,000
2.	Contingencies	5,000
3.	Stationary and printing	5,000
4.	Travelling	5,000
5.	TA and conveyance	10,000
6.	Total	1,25,000

### Year wise plan

S.No.	Expenditure Detail	Amount (in Rupees)
1.	For first year	1,25,000
2.	From second year	25,000/-