Lewa Educational Union's

Dr. Annasaheb G. D. Bendale Mahila Mahavidyalaya, Jalgaon.

Certificate Course

(Self Finance)

Certificate Course in Soil Analysis

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Course Co-ordinator

Department of Chemistry

Dr. Annasaheb G. D. Bendale Mahila Mahavidyalaya, Jalgaon.

Introduction:

Dr. Annasaheb G. D. Bendale Mahila Mahavidyalaya, Jalgaon is a well known institute for women's education in Jalgaon district which provides education in Arts, Commerce and Science stream at U.G. and P. G. level to educationally, economically, socially backward students. Since 1992 many students graduated with B.Sc. in Botany, Zoology, Chemistry, Mathematics, Physics and Computer Science.

The college has decided to introduce new certificate course in **soil analysis** from the academic year 2021-22. The duration of course is minimum 3 months with student intake capacity up to 15.

Objectives of Course

1. To understand basic concepts about soil.
2. To develop basic understanding regarding soil testing.
3. To introduce them with macro and micro nutrients present in the soil.
4. To teach the students to determine quality of soil.
5. It will help the students for instrumental handling.

Instructional Design:-

This course is of 03 month duration which includes theory classes, practicals and assignments.

Course Structure and Examination Scheme:-

Course Name: Certificate Course in Soil Analysis (CCSA)

	Theory	Practical	Evaluation
External	40	20	60
Internal	20	20	40
Total	60	40	100

Theory

Unit I: Introduction to Soil Science
Unit II: Techniques of Analysis

Practical Course: Experimentation Techniques of Soil Testing

Fee : 500/-
Eligibility for Admission : 12th passed student with any stream
Duration: : 30 hours

After successful completion of the course students will get institutions certificate.

Certificate Course in Soil Analysis (CCSA)

Theory:

Paper I: Introduction to Soil Science

Unit I – Introduction **10 Hours, 20 M**

Introduction to soil chemistry, definition of soil, types of soils & basic concepts, Saline and Alkaline soils, formation of soil, factors affecting soil formation, soil acidity, alkalinity, pH components of soil: air, water, inorganic & organic solids, soil pollutants,

Unit II – **10 Hours, 20 M**

Soil Development and Chemical Composition – Formation of clay minerals, soil forming process, composition of earth's crust, minerals in soil, contents of chemical elements of soil, physical chemistry of soil, solid wastes, Sources of soil pollution, sedimentation in some major rivers of India, Detrimental effects of soil pollution, effects of pesticides and sediments, Agriculture pollution, Agricultural chemicals.

References:

1. Soil sampling preparation and analysis, Marcell Dekker, Inc, New York.
2. Soil sampling and methods of analysis, carter M. R. and E. G. Gregorich, 2007, 2nd Edition.
3. Methods of soil analysis, Part, American society of Agronomy Inc., Kuete, A. Et. at., 1986.
4. Instrumental methods of analysis By Dr. B. K. Sharma.
5. Vogel's textbook of quantitative chemical analysis, (Longman) ELBS) Edn.
6. Handbook of agricultural sciences, I. C. A. R.

Unit III – Practicals **10 Hours, 20 M**

Practicals on Soil Analysis: (Any Five)

1. Determination of pH and EC of soil sample.
2. Determination of calcium carbonate from soil sample.
3. Determination of micronutrients from soil sample.
4. Determination of salinity of given soil sample.
5. To determine nutrient content (NPK) of soil.
6. Preparation of soil test report, interpretation of results and fertilizers recommendation.

References:

1. Introduction to soil science laboratory manual, J. J. Harsett stipes.
2. Introduction to soil science laboratory manual, Palmer and troch – Lowa state.
3. A textbook of analysis, Murray Heses P. R.
4. Textbook of soil chemical analysis, J. S. Kanwar, S. L. Chopra.
5. Handbook of agricultural sciences, I. C. A. R.
6. Environmental pollution analysis, S. M. Khopkar.
7. Practical Manual for Agriculture Chemistry Vol. I & II by A.K. Gupta and M. L. Varshney.