

DEPARTMENT OF CHEMISTRY

**GOVT. DIGVIJAY PG
AUTONOMOUS COLLEGE,
RAJNANDGAON (C.G.)**



SYLLABUS

CERTIFICATE COURSE

On

Advanced Techniques for Soil and Water Analysis

2020-21

DURATION : 3 Months

CERTIFICATE COURSE : Advanced Techniques for Soil and
Water Analysis

MARKS DISTRIBUTION

THEORY PAPER :

Maximum marks = 50 marks

PRACTICAL WORK :

One Major experiment = 20 Marks

One Minor experiments = 10 Marks

Sessional = 10 Marks

Viva = 10 Marks

Total = **50 Marks**

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On
Advanced Techniques for Soil and Water Analysis

Max. Marks : 50

Soil Analysis

Introduction, Sampling, Analysis of soil moisture, PH, Total nitrogen, phosphorus, lime, manganese, sulphur and alkali salts, analysis of micro and macronutrients, effects on plant and animal health

Water Analysis

Introduction, Sources of water pollution, Sampling techniques, water quality parameters dissolved oxygen, biochemical oxygen demand, solid metal, content of chloride, sulphate, nitrate and microorganism, water quality standards. Analytical method for measuring BOD, DO, COD, residual chloride and chloride, nitrate, sulphate, fluorides, phosphates, Hardness

Atomic Absorption Spectroscopy

Physical principles, individual steps of an analytical method, techniques of atomic absorption spectrometry, detection of individual elements for Cadmium (Cd), Calcium (Ca), Magnesium (Mg), Manganese (Mn), Iron (Fe), Zinc (Zn)

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LABORATORY COURSE

Max. Marks : 50

Major experiments

Determination of metal ions e.g. Na^+ , K^+ , Ca^{2+} , Mg^{2+} , Fe^{3+} , Cu^+ , Zn^{2+} , Pb^{2+} , etc.

Determination of anions e.g. SO_4^{2-} , NO_2^- , PO_4^{3-} , Cl^- , F^- , etc.

Minor experiments

Determination of soil moisture

Determination of pH, colour, turbidity, conductivity, acidity,

alkalinity Determination of DO, COD, BOD,

Determination of Hardness of water samples