

**Part-III, SEC- III: Value Added Courses**

**Offering Department:** Department of Chemistry

(From AY 2016-17 onwards)

<b>16UCHVA03</b>	<b>Soil &amp; Water Analysis</b>	<b>40 Hrs.</b>	<b>1 Credits</b>
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- Unit.1 Water Analysis – Physical examination:** (03 Hrs.)  
pH, temperature, total dissolved solid, suspended solid, acidity, alkalinity, colour, taste, smell, turbidity, hardness of water.
- Unit.2 Water Analysis – Nonmetallic inorganic constitutes** (03 Hrs.)  
chloride, sulphate, sulphide, fluoride, phosphate, sulphur, nitrate, nitrite, carbon dioxide, ammonia, cyanide.
- Unit.3 Water Analysis – Mineral and Toxic Ions** (03 Hrs.)  
Mineral ions: calcium, magnesium, iron, sodium, silver, zinc, manganese. Toxic ions: lead, mercury, arsenic, beryllium, cadmium, chromium, copper, selenium.
- Unit.4 Soil Analysis- Physical Test:** (03 Hrs.)  
Soil Texture, Water Holding Capacity, Bulk Density, Hydraulic Conductivity
- Unit.5 Soil Analysis- Chemical Test** (03 Hrs.)  
pH, Electrical Conductivity (EC), Organic Carbon, Free Lime, macronutrients N, P, K, micronutrients Cu, Zn, Mg etc.

**List of Proposed Practical:** (25 Hrs.)

**Soil analysis-Determination of:**

1. Water holding capacity
2. Bulk density
3. Soil Reaction (pH)
4. Electrical Conductivity (EC)
5. Calcium Carbonate (CaCO<sub>3</sub>) Free Lime
6. Nitrogen, Phosphorous, Potassium

**Soil analysis-Determination of:**

1. pH
2. Electrical Conductivity (EC)
3. Carbonates & Bicarbonates
4. Calcium & Magnesium - EDTA Titrimetric Method
5. Chloride
6. Sulphate on Spectrophotometer

**Reference Books:**

1. Instrumental Analysis, H H Willard, CBS Publishing Co.
2. Handbook of Water Analysis, Third Edition, Leo M.L. Nollet, Leen S. P. De Gelder, CRC Press, ISBN 9781439889640