

**Semester: VIII**

**24. ADVANCED MAJOR COURSE- AMJ 3: PRACTICALS-VII: (ADVANCE MAJOR PRACTICAL)**

**Allotted : 72 Lectures**

**Course Objective:**

1. To familiarise students about nature, scope and significance of soil geography.
2. To make student learn about soil development, hydrology, hydrological cycle, surface and ground water and its management.

Sl.	Unit	Topics	Methodology	Assessment	Outcome
1	<b>Unit 1: 18 Lectures</b>	Stream Ordering (strahler's, Shrew, Horton, Shiedeger's,) Bifurcation ratio, Drainage Density, Drainage Texture, Thalweg, Channel Profiles, Hypsometric Curve, Area-height Diagram, Profiles, block	<ul style="list-style-type: none"> <li>• Lecture</li> <li>• Digital Classes</li> <li>• Group Discussion</li> <li>• Self-study</li> <li>• EX-situ Examples.</li> </ul>	<ul style="list-style-type: none"> <li>• Quiz on basic concepts</li> <li>• Class Test</li> <li>• Assignments</li> <li>• Presentation</li> </ul>	<ol style="list-style-type: none"> <li>1. Estimate the soil quality such as soil pH, macro nutrients, identification of soil problems and management.</li> <li>2. Understand stream ordering techniques, calculation of bifurcation ratio.</li> <li>3. Evaluate the traffic flow through diagrams, water budget, rainfall dispersion</li> </ol>
2	<b>Unit 2: 18 Lectures</b>	Study of Soil PH Value, Nitrogen Content, Phosphorous and Construction of Soil Profiles.	<ul style="list-style-type: none"> <li>• Lecture</li> <li>• Digital Classes</li> <li>• Group Discussion</li> <li>• Self-study</li> <li>• Ex-situ Examples.</li> </ul>	<ul style="list-style-type: none"> <li>• Quiz on basic concepts and Theories</li> <li>• Class Test</li> <li>• Assignments</li> <li>• Presentation</li> </ul>	<ol style="list-style-type: none"> <li>1. Estimate the soil quality such as soil pH, macro nutrients, identification of soil problems and management.</li> <li>2. Understand stream ordering techniques, calculation of bifurcation ratio.</li> <li>3. Evaluate the traffic flow through diagrams, water budget, rainfall dispersion</li> </ol>
3	<b>Unit 3: 18 Lectures</b>	Spherical Diagram, Isopleth, Volumetric or Sten de Geer's method, Traffic Flow Diagram. Regional Pattern of Urbanisation, Planning of Satellite and Garden Town	<ul style="list-style-type: none"> <li>• Lecture</li> <li>• Digital Classes</li> <li>• Group Discussion.</li> <li>• Ex-situ Examples.</li> <li>• Self-study</li> </ul>	<ul style="list-style-type: none"> <li>• Quiz on basic concepts and Theories</li> <li>• Class Test</li> <li>• Assignments</li> <li>• Presentation</li> </ul>	<ol style="list-style-type: none"> <li>1. Estimate the soil quality such as soil pH, macro nutrients, identification of soil problems and management.</li> <li>2. Understand stream ordering techniques, calculation of bifurcation ratio.</li> <li>3. Evaluate the traffic flow through diagrams, water</li> </ol>

4	<b>Unit 4:</b> <b>18 Lectures</b>	Water Budget, Rainfall Dispersion Diagram, Ergo graph, Climatograph	<ul style="list-style-type: none"> <li>• Lecture</li> <li>• Digital Classes</li> <li>• Group Discussion</li> <li>• Self-study</li> <li>• Ex-situ Examples.</li> </ul>	<ul style="list-style-type: none"> <li>• Quiz on basic concepts and Theories</li> <li>• Class Test</li> <li>• Assignments</li> <li>• Presentation</li> </ul>	budget, rainfall dispersion <ol style="list-style-type: none"> <li>1. Estimate the soil quality such as soil pH, macro nutrients, identification of soil problems and management.</li> <li>2. Understand stream ordering techniques, calculation of bifurcation ratio.</li> <li>3. Evaluate the traffic flow through diagrams, water budget, rainfall dispersion</li> </ol>
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**Suggested Readings:**

1. Andrew. D. ward, and Stanley, Trimble., (2004): Environmental Hydrology, 2nd edition, Lewis Publishers, CRC Press.
2. Fetter, C.W. (2005): Applied Hydrogeology, CBS Publishers & Distributors, New Delhi.
3. Reddy, K. Ramamohan, Venkateswara Rao, B, Sarala, C., (2014): Hydrology and Watershed Management, Allied Publishers.
4. Karanth, K.R., (1988): Ground Water: Exploration, Assessment and Development, Tata- McGraw Hill, New Delhi.