**Subject: PC/CE/45-T ENGINEERING GEOLOGY Sem: 4th**

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| **Week**  **1st** | **Theory** | | **Topic Covered Date and Remarks** | | |
| **Lecture- Day** | **Topic (Including Assignment/Test)** | **Date** | **HOD** | **Director- Principal** |
| 1 | Introduction:  Definition, object, scope and sub division of geology, geology around us. Interior of the earth |  |  |  |
| 2 | Importance of Geology in Civil Engineering projects. |  |  |  |
| 3 | Physical Geology:  The external and internal geological forces causing changes |  |  |  |
| 2nd | 4 | weathering and erosion of the surface of the Earth. Geological work of ice, water and winds. |  |  |  |
| 5 | Soil profile and its importance. Earthquakes and volcanoes. |  |  |  |
| 6 | Mineralogy and Petrology:  Definition of mineral and rocks. Classification of important rock forming minerals |  |  |  |
| 3rd | 7 | Simple description based on physical properties of minerals. Rocks of earth surface, |  |  |  |
| 8 | Classification of rocks. Mineral composition, Textures, structure and origin of Igneous |  |  |  |
| 9 | Sedimentary and Metamorphic rocks. Aims and principles of stratigraphy |  |  |  |
| 4th | 10 | Standard geological/stratigraphical time scale with its sub division |  |  |  |
| 11 | A short description based on engineering uses of formation of India |  |  |  |
| 12 | Structural Geology:  Forms and structures of rocks. Bedding plane and outcrops Dip and Strike. |  |  |  |
| 5th | 13 | Elementary ideas about fold, fault, joint and unconformity and recognition on outcrops |  |  |  |
| 14 | Importance of geological structures in Civil Engineering projects. |  |  |  |
| 15 | Applied Geology:  Hydrogeology, water table, |  |  |  |
| 6th | 16 | Artificial recharge of ground water, |  |  |  |
| 17 | Remote sensing techniques for geological and |  |  |  |
| 18 | Uses of geological maps and |  |  |  |
| 7th |  | **1st Minor Test** | | |  |
| 8th | 19 | Springs and Artesian well, aquifers, |  |  |  |
| 20 | Springs and Artesian well, aquifers, |  |  |  |
| 21 | Ground water in engineering projects. |  |  |  |
| 9th | 22 | Elementary ideas of geological investigations |  |  |  |
| 23 | Hydrological survey and investigation |  |  |  |
| 24 | Interpretation of data, geological reports |  |  |  |
| 10th | 25 | Uses of geological maps and interpretation of data, geological reports. |  |  |  |
| 26 | Uses of geological maps and interpretation of data, geological reports. |  |  |  |
| 27 | Suitability and stability of foundation sites and abutments: |  |  |  |
| 11th | 28 | Geological condition and |  |  |  |
| 29 | their influence on the selection, |  |  |  |
| 30 | location, type and design of dams |  |  |  |
| 12th | 31 | Reservoirs, tunnels, highways, bridges etc |  |  |  |
| 32 | Landslides and Hill-slope stability. |  |  |  |
| 33 | Landslides and Hill-slope stability. |  |  |  |
| 13th | 34 | Improvement of foundation rocks |  |  |  |
| 35 | Precaution and treatment against faults |  |  |  |
| 36 | Joints and ground water |  |  |  |
| 14th | **2nd Minor Test** | | | |  |
| 15th | 37 | Retaining walls and other precautions |  |  |  |
| 38 | Retaining walls and other precautions |  |  |  |
| 39 | Geology and environment of earth. |  |  |  |