

B. E. CIVIL ENGINEERING Choice Based Credit System (CBCS) and Outcome Based Education (OBE) SEMESTER - IV			
ENGINEERING GEOLOGY LABORATORY			
Course Code	18CVL47	CIE Marks	40
Teaching Hours/Week(L:T:P)	(0:2:2)	SEE Marks	60
Credits	02	Exam Hours	03
Course Learning Objectives: This course will enable students <ol style="list-style-type: none"> 1. To expose the students to identify the minerals and rocks based on their inherent properties and uses in civil engineering, 2. To educate the students in the interpretation of the geological maps related to civil engineering projects. 3. Students will learn the dip and strike, thickness of strata, Bore hole problems related to geological formation related to foundation, tunnels, reservoirs and mining. 4. Students will understand the Field knowledge by visiting the site like problems Faults, Folds, Joints, Unconformity etc. 			
Experiments			
1. Physical properties of minerals: Identification of <ol style="list-style-type: none"> i. Rock Forming minerals - Quartz group, Feldspar group, Garnet group, Mica group & Talc, Chlorite, Olivine, Asbestos, Calcite, Gypsum, etc ii. Ore forming minerals- Magnetite, Hematite, Pyrite, Pyralusite, Graphite, Chromite, etc 			
2. Engineering Properties of Rocks: Identification of <ol style="list-style-type: none"> i. Igneous rocks- Types of Granites, Dolerite, Granite Porphyry, Basalt, Pumice etc ii. Sedimentary rocks- Sandstone, Lime stone, Shale, Laterite, Breccia etc iii. Metamorphic rocks- Gneiss, Slate, Schist, Marble, Quartzite etc 			
3. Borehole problems: Determination of subsurface behavior of rocks, their attitude related to foundation, tunnels, reservoirs and mining. Triangular and Square methods. (2 methods)			
4. Dip and Strike problems. Determine Apparent dip and True dip. (2 methods)			
5. Calculation of Vertical, True thickness and width of the outcrops. (3 methods)			
6. Study of Toposheets and Interpretation, Extraction of Drainage Basin and its Morphometric Analysis. (3Toposheets)			
7. Interpretation and drawing of sections for geological maps showing tilted beds, faults, unconformities etc. (10 Maps)			
8. Interpretation of Satellite Images. (2 Satellite images)			
9. Field work– To identify Minerals, Rocks, Geomorphology and Structural features with related to the Civil Engineering projects.			
Course outcomes: During this course, students will develop expertise in; <ol style="list-style-type: none"> 1. The students able to identify the minerals, rocks and utilize them effectively in civil engineering practices. 2. The students will interpret and understand the geological conditions of the area for implementation of civil engineering projects. 3. The students will interpret subsurface information such as thickness of soil, weathered zone, depth of hard rock and saturated zone by using geophysical methods. 4. The students will learn the techniques in the interpretation of LANDSAT Imageries to find out the lineaments and other structural features for the given area. 5. The students will be able to identify the different structures in the field. 			
Reference Books:			
<ol style="list-style-type: none"> 1. MP Billings, Structural Geology, CBS Publishers and Distributors, New Delhi. 2. B.S. Satyanarayana Swamy, Engineering Geology Laboratory Manual, Dhanpat Rai Sons, New Delhi. 3. LRA Narayan, remote sensing and its applications, UniversityPress. 4. P.K.MUKERJEE, Textbook of Geology, WorldPress Pvt. Ltd., Kolkatta 5. JohnI Plattand John Challinor, Simple Geological Structures,ThomasMurthy&Co, London. 			