ENGINEERING GEOLOGY LABORATORY

III SEMESTER: CE

Course Code	Category	Hours / Week			Credits	Maximum Marks		
		L	T	P	C	CIA	SEE	Total
ACEC06	Core	0	0	2	1	30	70	100
Contact Classes: Nil	Tutorial Classes: Nil	Practical Classes: 24				Total Classes: 24		

Prerequisite: No Prerequisites required

I. COURSEOVERVIEW

Engineering Geology provides a systematic study of the structure and properties of construction materials and their occurrence. It involves in investigating subsurface features by geophysical methods. This course also addresses study and selection of site for dams, reservoirs and improvement of competence of the site and design considerations of constructing underground structures.

II. COURSE OBJECTIVES

The students will try to learn:

- **I** Engineering properties of rock and unconsolidated materials in the characterization of geologic sites for construction projects.
- **II** The statistical collection of geological data and information required for the safe development of civil constructions.
- **III** The rock engineering concepts and approaches in the design and development of sub surface and underground openings.

III. COURSE OUTCOMES:

After successful completion of the course, students should be able to:

CO 1	**Classify** rocks using basic geological systems for selective construction material.	Understand
CO 2	**Compare** past tectonic settings of an area for evaluation of current structures.	Understand
CO 3	**Interpret** graphs and models used in structural geology for demonstrating stress, strain and tectonics.	Understand
CO 4	**Identification** and study of rock properties using geological selection.	Apply
CO 5	**Apply** the concepts of how minerals form and their uses for identifying the rock forming.	Apply
CO 6	**Apply** the geologic concepts and approaches of rock for engineering projects.	Apply

IV. SYLLABUS:

Week-l: PHYSICAL PROPERTIES OF MINERALS

Study of physical properties of minerals.

Week-2: GROUP OF MINERALS

Study of different group of minerals.

Week-3: IDENTIFICATION OF SILICA GROUP MINERALS

Identification of Quartz, Amethyst, Opal

Week-4: IDENTIFICATION OF FELDSPAR GROUP MINERALS

Identification of Orthoclase, Plagioclase Feldspar

Week-5: IDENTIFICATION OF MINERALS

Identification of Jasper, Calcite, Graphite; Talc; Muscovite Mica

Week-6: IDENTIFICATION OF AMPHIBOLE GROUP MINERALS

Olivine, Hornblende, Magnetite, Hematite, Corundum, Kyanite, Garnet, Galena, Gypsum.

Week-7: IDENTIFICATION OF IGNEOUS ROCKS
Identification of Granite, Pegmatite, Dolerite and Basalt rocks

Week-8: IDENTIFICATION OF SEDIMENTARY ROCKS
Identification of Conglomerate, Sandstone, Limestone and Shale rocks

Week-9: IDENTIFICATION OF METAMORPHIC ROCKS
Identification of Marble, Slate, Gneiss and Schist rocks

Week-10: TOPOGRAPHICAL FEATURES
Study of topographical features from Geological maps.

Week-11: GEOLOGICAL PROBLEMS
Dip, Strike direction

Week-12: GEOLOGICAL MAPS
Identification of symbols in maps.

V. TEXT BOOK

1. Fred G. Bell, "Engineering Geology and Construction" Spon Press, London, 2004.
2. Robert B. Johnson, Jerome V. Degraff , "Engineering Geology: A Lab Manual", Macmillan Publishing Company, 1st Edition, 1994.

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VI. WEB REFERENCES

1. https://www.youtube.com/results?search_query=engineering+geology+lab.
2. http://www.wctmgurgaon.com/pdf/EG%20Lab%20Manual.pdf 3.
3. http://civil.gecgudlavalleru.ac.in/pdf/manuals/EngineeringGeologyLabManual.pdf.