

ENGINEERING GEOLOGY LABORATORY

III SEMESTER: CE

Course Code	Category	Hours / Week			Credits	Maximum Marks		
		L	T	P		C	CIA	SEE
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. The basics knowledge of geology that is required for constructing various Civil Engineering Structure, basic Geology, Geological Hazardous and Environmental Geology
- II. The core activities of engineering geologists – site characterization and geologic
- III. Various types of Hazards identification and mitigation.
- IV. The importance of geophysical and geological studies of sites for tunnels, dams and reservoirs.
- V. Planning and construction of major Civil Engineering projects.

III. COURSE SYLLABUS

Week-1: 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.

III. 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.

IV. 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>.