

ENGINEERING GEOLOGY LABORATORY

IV Semester: CE								
Course Code	Category	Hours / Week			Credit	Maximum Marks		
ACEB09	Core	L	T	P	C	CIA	SEE	Total
		-	-	2	1	30	70	100
Contact Classes: Nil	Tutorial Classes: Nil	Practical Classes: 24				Total Classes: 24		

I. COURSE OVERVIEW:

Engineering Geology Laboratory provides a systematic study of the structure and properties of construction materials and their occurrence in different geographical locations. This course also addresses study and selection of different species and improvement of strength competence of the site and design considerations of constructing underground structures.

II. OBJECTIVES:

The course should enable the students to:

- I. Study the physical properties of minerals and rocks.
- II. Identify rocks and mineral by megascopic and microscopic techniques.
- III. Interpret and draw profiles and sections of different geological features.
- IV. Solve simple structure geology problems.

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:

LIST OF EXPERIMENTS

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.	
Reference Books:	
<ol style="list-style-type: none"> 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 	
Web References:	
<ol style="list-style-type: none"> 1. https://www.youtube.com/results?search_query=engineering+geology+lab 2. http://www.wctmgurgaon.com/pdf/EG%20Lab%20Manual.pdf 3. http://civil.gecgudlavalalleru.ac.in/pdf/manuals/EngineeringGeologyLabManual.pdf 	