



Academic Year	2021-2022		
Batch	2020-2024		
Year/Semester/Section	2020/III/A	Dept	Civil
Subject Code-Title	18CV36-Engineering Geology		
Name of the Instructor	Dr. Vyshali		

Module 1-Introduction

1. Define Engineering Geology and explain the various branches of Earth sciences.
2. Explain the applications of engineering geology in civil engineering.
3. Give a general view of the internal structure of the earth as revealed by the seismological evidence.
4. With a neat sketch explain the internal structure and its composition.
5. Define a mineral and explain the important physical properties of minerals that are commonly studied for their identification.
6. Explain the difference giving examples:
a) Colour and Lustre b) Cleavage and fracture c) Hardness and Tenacity
d) Density and Specific gravity
7. Write an essay on Silicate Group of minerals giving an account of their composition and classification.
8. Give salient features and mention important properties of following groups: a) Feldspar group
b) Mica group c) Carbonate group
9. Explain the properties of the following minerals: a) Kaolin b) Asbestos c) Gypsum
10. Define an ore mineral and explain the properties of the following: a) Iron ores b) Bauxite
c) Chalcopyrite

Module 2- Petrology and Geomorphology

1. Define petrology and explain the classification and properties of rocks.
2. What are igneous rocks? How are they formed in nature?
3. Explain the forms of igneous rocks.
4. Explain the properties of the following rocks: a) Granite b) Dolerite c) Basalt d) Pumice
e) Granite Porphyry
5. Define Sedimentary rocks and give an account of their formation, textures and structures.
6. Explain classification of sedimentary rocks giving suitable examples.
7. What are current bedding, lamination, ripple mark and mud crack.

8. Explain the properties of the following rocks: a) Sandstone b) Limestone c) Shale
d) Laterite e) Conglomerate
9. Give a detailed account of process of Metamorphism.
10. Explain the properties of the following rocks: a) Gneiss b) Slate c) Muscovite & Biotite schist,
d) Marble e) Quartzite
11. Write an essay on weathering of rocks and its significance in engineering construction.
12. Explain the following terms: a) Saltation ii) Denudation iii) Exfoliation iv) Blowout
d) Ventifacts e) Oasis
13. With neat sketches explain the different landforms.
14. With neat sketches explain the different drainage patterns.
15. Define the following : a) Porosity b) Density c) Permeability d) Durability
16. With a neat sketch explain the profile of a soil.
17. Write a note on selection of rocks as materials for construction, as a foundation, Decorative,
Flooring, and Roofing, Concrete Aggregate, Road Metal, Railway Ballast with examples.

Module 3- Structural Geology & Rock Mechanics


1. Explain the following terms: i. Dip and strike ii) Outcrop
2. Define a fold. How folds are classified? Explain with the help of neat sketches, important types of
folds.
3. Write a note on the causes of folding.
4. Explain the following : a) Dome and Basin b) Anticline and Syncline folds c) Recumbent
folds
5. d) Conjugate folds
6. Explain the engineering considerations of folds in civil engineering.
7. Define and describe with the help of neat sketches, various parts of faults.
8. Explain with the help of neat sketches, principal types of faults.
9. Write a note on causes of faulting.
10. Explain the engineering considerations of faults in civil engineering.
11. Write a note on joints, their causes and effects on the engineering quality of rocks.
12. Explain the following : i) Thrust faults ii) Horst and Graben iii) Master joints
a. iv) Columnar jointing v) Angular unconformity
13. Write a note on unconformities.
14. Explain rock quality Determination and rock structure rating
15. Give a general account of geological characters that have to be known for location of a Dam. How
these characteristics influence the choice of the type of dam to be constructed.
16. Explain various types of reservoirs and geological conditions necessary for their proper location.
17. What are general geological characteristics of the area that must be known before a tunnel project
is decided in that area?
18. Explain the following: i) Grouting ii) Rock bolting iii) Backfilling
19. Explain the coastline features and their engineering considerations.

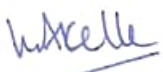
Module 4- Hydrogeology

1. With a neat diagram explain the hydrological cycle.
2. With a neat sketch explain the vertical distribution of the ground water.
3. Explain the following : i) Aquifer ii) Aquitard iii) Aquiclude iv) Aquifuge
4. Define Aquifer and explain the types of aquifers.
5. Explain the following: i) Porosity ii) Specific yield and retention iii) Permeability iv) Transmissibility v) Storage Coefficient.
6. Explain the following : i) SAR. ii) RSC iii) TH of Groundwater
7. Explain the electrical resistivity method for ground water exploration.
8. Explain the seismic method for ground water exploration.
9. Explain the different methods of artificial recharge methods of water.
10. Explain the rain water harvesting techniques.
11. Write note on saltwater intrusion and its remedial measurements.
12. Write a note on ground water pollution.
13. Explain the following: i) Floods and controls ii) Cyclone and its effects

Module 5- Seismology and Geodesy

1. Write a note on : i) Epicentre ii) Isoseismics iii) Richter iv) Seismogram iv) Seismic zones
2. Explain the civil engineering aspects of earthquakes reviewing the problem and common approach to face it.
3. Explain Tsunamis.
4. Explain the following : i) Volcanoes ii) Landslides
5. Define remote sensing and explain the process of remote sensing.
6. Define GIS and explain the components of GIS.
7. Explain the working process of GPS.
8. Explain the LANDSAT imagery and advantages.
9. Explain the following : i) Impact of Mining ii) Quarrying and Reservoirs on Environment iii) Natural Disasters and their mitigation


Course In charge


Head - Dept

Professor & Head
Dept. of Civil Engineering
K.S. Group of Institutions
K.S. School of Engineering & Management
Bangalore-560 062.