Gokaraju Rangaraju Institute of Engineering & Technology

(Autonomous)

Department of Civil Engineering

Engineering Geology

(Course Code: GR20A2010)

II B.Tech I Semester

2021-22

Y Kamala Raju

Assistant Professor

Gokaraju Rangaraju Institute of Engineering & Technology

(Autonomous)

Department of Civil Engineering

Engineering Geology

Course File Check List

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Gokaraju Rangaraju Institute of Engineering and Technology (Autonomous)

Bachupally, Kukatpally, Hyderabad – 500 090. (040) 6686 4440

II B.Tech (CE)I Semester

ENGINEERING GEOLOGY

Course Code: GR20A2010 **L/T/P/C: 2/0/0/2**

II Year I Semester

Course objectives: The objectives of this course is to make the student to

• Identify the importance of study of Engineering Geology for the construction of any Civil Engineering structure.

• Express knowledge on the structure of earth, formation of various types of rocks and minerals and their study.

• Find and analyse various geological structures like faults, folds, effect on civil engineering structures and precautions to be taken.

• Identify various surface and subsurface flows like Rivers, Canals, Lakes and Ground water studies etc.

• Recognize the failures of tunnels, dams and reservoirs due to geological reasons.

Course outcomes: At the end of the course, the student will be able to

• Recognize the importance of geology from civil engineering point of view.

• Find the physical properties of minerals and their role for common rock forming.

• Distinguish features of igneous, sedimentary and metamorphic rocks.

• Distinguish various geological structures.

• Analyse the failures of dams, reservoirs and tunnels due to geological reasons.

Unit I: **Introduction**

Branches of geology useful to civil engineering, scope of geological studies in various civil engineering projects. Mineralogy-Mineral, Origin and composition. Physical properties of minerals, Rock forming minerals, megascopic identification of common primary & secondary minerals.

Unit II: Petrology

Rock forming processes. Specific gravity of rocks. Chemical and Mineralogical Composition. Texture and its types. Various forms of rocks. Field Classification chart. Structures Classification of Igneous rocks on the basis of Chemical composition. Detailed study of Acidic Igneous rocks like Granite, Rhyolite or Tuff, Pegmatite, Hornfels. Basic Igneous rocks Like Gabbro, Dolerite, and Basalt. Engineering aspect to Basalt. Sedimentary petrology- mode of formation, Mineralogical Composition. Texture and its types, Structures. Detailed study of Conglomerate, Breccia, Sandstone, Shale and Limestone. Metamorphic petrology- structures and textures in metamorphic rocks. Important distinguishing features of rocks as Rock cleavage, Foliation. Classification .Detailed study of Gneiss, Schist, Slate.

Unit III: Physical Geology

Weathering, Erosion and Denudation. Factors affecting weathering and product of weathering. Engineering consideration. River meandering, Alluvium, Glacial deposits, Laterite (engineering aspects), Desert Landform, Loess, Residual deposits of Clay with flints, mudflows, Coastal deposits. Rock masses as construction material. Basic element and structures of rock those are relevant in civil engineering areas.

Unit IV: Strength Dip and Strike

Outcrop and width of outcrop. Fold- Types and nomenclature, Criteria for their recognition in field Faults: Classification, recognition in field. Joints & Unconformity Types. Strength of Igneous rock structures. Geology of dam and reservoir site- Required geological consideration for selecting dam and reservoir site. Failure of Reservoir.

Unit V: Types of Landslide

Pervious & impervious rocks and ground water. Lowering of water table and Subsidence. Earthquake: Magnitude and intensity of earthquake. Seismic zone in India. Rock Mechanics. Consequences of failure as land sliding, Earthquake and Subsidence.

Text/Reference Books:

1. Engineering and General Geology, Parbin Singh, 8th Edition (2010), S K Kataria & Sons.
2. Text Book of Engineering Geology, N. Chenna Kesavulu, 2nd Edition (2009), Macmillan Publishers India.
3. Geology for Geotechnical Engineers, J.C.Harvey, Cambridge University Press (1982).

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Timetable

Section: A				II Year			wef: 7th October 2021
Day/Time	**08:50-09:40**	**09:40-10:30**	**10:30-11:20**	**11:20-12:00**	**12:00-12:55**	**12:55-01:50**	**01:50-02:45**
Monday	BMCP	S&G		**Lunch Break**	CME		SM-I
Tuesday	EG LAB(A2)/SM LAB(A1)				EG	S&G	
Wednesday	BMCP		EG		ES		IFM
Thursday	EG	IFM			SM-I		CME
Friday	EG LAB(A1)/SM LAB(A2)				VEGC		CME
Saturday	BMCP	SM-I			IFM		EG

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Department of Civil Engineering

Vision

To become a pioneering centre in civil engineering.

Mission

- To produce well qualified and talented engineers by imparting quality education.
- To enhance the skills of entrepreneurship, innovativeness, management and life-long learning in young engineers.
- To inculcate professional ethics and make socially responsible engineers.

B.Tech Programme Educational Objectives (PEOs)

1. Graduates of the program will be successful in technical and professional career of varied sectors of Civil Engineering.
2. Graduates of the program will have proficiency to analyse and design real time Civil Engineering projects.
3. Graduates of the program will exhibit management and leadership qualities with good communication skills facilitating to work in a multidisciplinary team.
4. Graduates of the program will continue to engage in life-long learning with ethical and social responsibility.

B.Tech Programme Outcomes(POs)

Graduates of the Civil Engineering programme will be able to

a. Apply knowledge of mathematics, science and fundamentals of Civil Engineering.
b. Analyse problem and interpret the data.
c. Design a system component, or process to meet desired needs in Civil Engineering within realistic constraints.
d. Identify, formulate, analyse and interpret data to solve Civil Engineering problems.
e. Use modern engineering tools such as CAD and GIS for the Civil Engineering practice.
f. Understand the impact of engineering solutions in a global, economic and societal context.
g. Understand the effect of Civil Engineering solutions on environment and to demonstrate the need for sustainable development.
h. Understanding of professional and ethical responsibility.
i. Work effectively as an individual or in a team and to function on multi-disciplinary context.
j. Communicate effectively with engineering community and society.
k. Demonstrate the management principles in Civil Engineering projects.
l. Recognize the need for and an ability to engage in life-long learning.

B.TechProgram Specific Outcomes (PSOs)

1. Recognize the need for a sustainable environment and design smart infrastructure considering the global challenges..
2. Create and develop innovative designs with new era materials through research and development.

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COURSE OBJECTIVES

Academic **Y**ear : 2021-22 Year: II Semester : I

Name of the Program: B.Tech Section: A

Course/Subject: Engineering Geology Course Code: GR20A2010

Name of the Faculty: Mr Y kamala Raju Dept.: Civil Engineering

Designation: Assistant Professor

On completion of this Subject/Course the student shall be able to:

S.No	Objectives
1	To identify the importance of study of Engineering Geology for the construction of any Civil Engineering structure.
2	To express knowledge on the structure of earth, the formation of various types of rocks and minerals and their study.
3	Ability to find and analyse various geological structures like faults, folds, effect on civil engineering structures and precautions to be taken.
4	To identify various surface and subsurface flows like Rivers, Canals, Lakes and Ground water studies etc.
5	To recognize the failures of tunnels, dams and reservoirs due to geological reasons.

Signature of HOD Signature of faculty

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COURSE OUTCOMES

Academic **Y**ear : 2021-22 Year: II Semester : II

Name of the Program: B.Tech Section: A

Course/Subject: Engineering Geology Course Code: GR20A2010

Name of the Faculty: Mr Y kamala Raju Dept.: Civil Engineering

Designation: Assistant Professor

The expected outcomes of the Course/Subject are:

S.No	Outcomes
1	Ability to recognize the importance of geology from civil engineering point of view.
2	Ability to find the physical properties of minerals and their role for common rock forming.
3	Ability to distinguish features of igneous, sedimentary and metamorphic rocks.
4	Ability to distinguish various geological structures. Ability to indicate importance of ground water, earthquakes and landslides.
5	Ability to analyse the failures of dams, reservoirs and tunnels due to geological reasons. Ability to discuss about the rocks, minerals and geological structures that can be used for civil engineering point of view

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SCHEDULE OF INSTRUCTIONS
COURSE PLAN

Academic **Y**ear : 2021-22

Semester : I

Name of the Program: B.Tech Civil Engineering Year: II Section: A

Course/Subject: Engineering Geology Course Code: GR20A2010

Name of the Faculty: Y Kamala Raju Dept.: Civil Engineering

Designation: ASSISTANT PROFESSOR

Unit No.	Lesson No.	Date	No. of Periods	Topics / Sub-Topics	Objectives & Outcomes Nos.	References (Text Book, Journal…) Page Nos.: __to __
I	1.	30-12-2021	1	Importance of geology from Civil Engineering point of view	COb:1, 2 CO:1,2	N Chenna Kesavulu, pp.5-7
	2.	30-12-2021	1	Brief study of case histories of failure of some Civil Engineering constructions due to geological draw backs	COb:1, 2 CO:1,2	N Chenna Kesavulu, pp.6-7
	3.	31-12-2021	1	Importance of Physical geology, Petrology and Structural geology	COb:1,2 CO:1,2	N Chenna Kesavulu, pp.2-5
	4.	31-12-2021	1	Weathering of Rocks	COb:1,2 CO:1,2	N Chenna Kesavulu, pp.14-15
	5.	06-01-2022	1	Effect over the properties of rocks	COb:1,2 CO:1,2	N Chenna Kesavulu, pp.15-21
	6.	06-01-2022	1	Importance of weathering with reference to dams, reservoirs and tunnels	COb:1,2 CO:1,2	N Chenna Kesavulu, pp.23
	7.	07-01-2022	1	Weathering of common rock like “Granite”	COb:1,2 CO:1,2	N Chenna Kesavulu, pp.25-26

II	8.	07-01-2022	1	Definition of mineral, Importance of study of minerals	COb:2 CO:2	N Chenna Kesavulu, pp.39-40
	9.	13-01-2022	1	Different methods of study of minerals. Advantages of study of minerals by physical properties	COb:2 CO:2	N Chenna Kesavulu, pp.45-47
	10.	13-01-2022	1	Role of study of physical properties of minerals in the identification of minerals.	COb:2 CO:2	N Chenna Kesavulu, pp.48-59
	11.	20-01-2022	1	Study of physical properties of following common rock forming minerals: Feldspar, Quartz, Flint.	COb:2 CO:2	N Chenna Kesavulu , pp. 89-93
	12.	20-01-2022	1	Study of physical properties of following common rock forming minerals: Jasper, Olivine, Augite, Hornblende, Muscovite.	COb:2 CO:2	N Chenna Kesavulu , pp. 89-93
	13.	21-01-2022	1	Study of physical properties of following common rock forming minerals: Biotite, Asbestos, Chlorite , Kyanite, Garnet, Talc, Calcite.	COb:2 CO:2	N Chenna Kesavulu , pp. 89-93
	14.	21-01-2022	1	Study of other common economics minerals such as Pyrite, Hematite, Magnetite, Chlorite.	COb:2 CO:2	N Chenna Kesavulu , pp. 89-93
	15.	27-01-2022	1	Study of other common economics minerals such as Galena, Pyrolusite, Graphite.	COb:2 CO:2	N Chenna Kesavulu , pp. 89-93
	16.	27-01-2022	1	Study of other common economics minerals such as Magnesite and Bauxite.	COb:2 CO:2	N Chenna Kesavulu , pp. 89-93
	17	28-01-2022	1	Definition of rock. Geological classification of rocks	COb:2 CO:2	N Chenna Kesavulu, pp.95-96

	18	28-01-2022	1	Igneous, Sedimentary and metamorphic rocks.	COb:2 CO:3	N Chenna Kesavulu, pp.96-99
	19	03-02-2022	1	Dykes and sills	COb:2 CO:3	N Chenna Kesavulu, pp.104-108
	20	03-02-2022	1	Common structures and textures of igneous	COb:2 CO:3	N Chenna Kesavulu, pp.115-122
	21	04-02-2022	1	Sedimentary Rocks	COb:2 CO:3	N Chenna Kesavulu, pp.145-150
	22	04-02-2022	1	Metamorphic rocks	COb:2 CO:3	N Chenna Kesavulu, pp.171-175
	23	10-02-2022	1	Distinguishing features of IR, SR and MR	COb:2 CO:3	N Chenna Kesavulu, pp.101-102
	24	10-02-2022	1	Megascopic study of Granite, Dolerite, Basalt, Pegmatite.	COb:2 CO:3	N Chenna Kesavulu, pp.125-132
	25	11-02-2022	1	Megascopic study of Laterite, Conglomerate, Sand Stone, Shale, Limestone.	COb:2 CO:3	N Chenna Kesavulu, pp.151-160
	26	11-02-2022	1	Megascopic study of Gneiss, Schist, Quartzite, Marble and Slate.	COb:2 CO:3	N Chenna Kesavulu, pp.176-187
III	27	17-02-2022	1	importance of structural geology	COb:1, 3 CO:1, 4	N Chenna Kesavulu, pp.190-191
	28	17-02-2022	1	Out crop, strike and dip study of common geological structures associating with the rocks such as Folds	COb:1, 3 CO:1, 4	N Chenna Kesavulu, pp.192-204
	29	18-02-2022	1	common geological structures associating with the rocks such as Faults	COb:1, 3 CO:1, 4	N Chenna Kesavulu, pp. 205- 215
	30	18-02-2022	1	common geological structures associating with the rocks such as Uncomformities	COb:1, 3 CO:1, 4	N Chenna Kesavulu, pp.222-226
	31	24-02-2022	1	common geological structures associating with the rocks such as joints - their important types	COb:1, 3 CO:1, 4	N Chenna Kesavulu, pp.219-222

	32	24-02-2022	1	Types of soils	COb:1, 3 CO:1, 4	N Chenna Kesavulu, pp.137-138
	33	25-02-2022	1	Their origin and occurrence in India	COb:1, 3 CO:1, 4	N Chenna Kesavulu, pp.137-138
	34	25-02-2022	1	Stabilisation of soils	COb:1, 3 CO:1, 4	N Chenna Kesavulu, pp.362
IV	35	03-03-2022	1	Ground water, Water table	COb:4, 5 CO:5	N Chenna Kesavulu, pp.240-241
	36	03-03-2022	1	Common types of ground water	COb:4, 5 CO:6	N Chenna Kesavulu, pp.250-253
	37	09-03-2022	1	Springs, cone of depression	COb:4, 5 CO:5	N Chenna Kesavulu, pp.254-255
	38	09-03-2022	1	Geological controls of ground water movement.	COb:4, 5 CO:5	N Chenna Kesavulu, pp.257-260
	39	10-03-2022	1	ground water exploration.	COb:4, 5 CO:5	N Chenna Kesavulu, pp.257-260
	40	10-03-2022	1	Earth quakes, their causes and effects, shield areas and seismic belts.	COb:4, 5 CO:5	N Chenna Kesavulu, pp.285-288
	41	16-03-2022	1	Seismic waves, Richter scale	COb:4, 5 CO:5	N Chenna Kesavulu, pp.285-288
	42	16-03-2022	1	Precautions to be taken for building construction in seismic areas	COb:4, 5 CO:5	N Chenna Kesavulu, pp.295-298
	43	17-03-2022	1	Land slides, their causes and effects	COb:4, 5 CO:5	N Chenna Kesavulu, pp.300-306
	44	17-03-2022	1	Measures to be taken to prevent their occurrence.	COb:4, 5 CO:5	N Chenna Kesavulu, pp.306-307
	45	23-03-2022	1	Importance of study of ground water.	COb:4, 5 CO:5	N Chenna Kesavulu, pp. 240,285,300
	46	23-03-2022	1	Earth quakes and landslides.	COb:4, 5 CO:5	N Chenna Kesavulu, pp. 240,285,300
	47	24-03-2022	1	**Geology of Dams and Reservoirs:** Types of dams	COb:4, 5 CO: 5	N Chenna Kesavulu, pp.377, 411, 381

	48	24-03-2022	1	Bearing of Geology of site in their selection	COb:4, 5 CO: 5	N Chenna Kesavulu, pp.381-383
	49	30-03-2022	1	Geological Considerations in the selection of a dam site.	COb:4, 5 CO:4, 5	N Chenna Kesavulu, pp.384-396
	50	30-03-2022	1	Analysis of dam failures of the past.	COb:4, 5 CO:4, 5	N Chenna Kesavulu, pp.378-379
	51	31-03-2022	1	Factor's Contributing to the success of a reservoir	COb:4, 5 CO:4, 5	N Chenna Kesavulu, pp.412
	52	31-03-2022	1	Geological factors influencing water tightness	COb:4, 5 CO:4, 5	N Chenna Kesavulu, pp.412
	53	06-04-2022	1	Life of reservoir	COb:4, 5 CO:5	N Chenna Kesavulu, pp.420-424
	54	06-04-2022	1	Water tightness	COb:4, 5 CO:5	N Chenna Kesavulu, pp.413-420
V	55	07-04-2022	1	Purposes of tunneling	COb: 5 CO:5	N Chenna Kesavulu, pp.428
	56	07-04-2022	1	Effects of Tunneling on the ground	COb: 5 CO:5	N Chenna Kesavulu, pp.429
	57	13-04-2022	1	Geological Considerations	COb: 5 CO:5	N Chenna Kesavulu, pp.430-439
	58	13-04-2022	1	Lithological considerations	COb: 5 CO:5	N Chenna Kesavulu, pp.430-432
	59	20-04-2022	1	structural and ground water	COb: 5 CO:4,5	N Chenna Kesavulu, pp.437-439
	60	20-04-2022	1	Tunneling over break	COb: 5 CO:5	N Chenna Kesavulu, pp.440-441
	61	21-04-2022	1	Lining in tunnels	COb: 5 CO:5	N Chenna Kesavulu, pp.429-430
	62	21-04-2022	1	Lining in tunnels	COb: 5 CO:5	N Chenna Kesavulu, pp.429-430

Signature of HOD

Signature of faculty

Date:

Date:

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SCHEDULE OF INSTRUCTIONS
UNIT PLAN

Academic **Y**ear : 2021-22

Semester : I UNIT NO.: I

Name of the Program: B.Tech Civil Engineering Year: II Section: A

Course/Subject: Engineering Geology Course Code: GR20A2010:

Name of the Faculty: Y Kamala Raju Dept.: Civil Engineering

Designation: ASSISTANT PROFESSOR.

Lesson No.	Date	No. of Periods	Topics / Sub - Topics	Objectives & Outcomes Nos.	Knowledge Level	References (Text Book, Journal…) Page Nos.: ___to __
1.	30-12-2021	1	Importance of geology from Civil Engineering point of view	COb:1, 2 CO:1,2	K2	N Chenna Kesavulu, pp.5-7
2.	30-12-2021	1	Brief study of case histories of failure of some Civil Engineering constructions due to geological draw backs	COb:1, 2 CO:1,2	K2	N Chenna Kesavulu, pp.6-7
3.	31-12-2021	1	Importance of Physical geology, Petrology and Structural geology	COb:1,2 CO:1,2	K2	N Chenna Kesavulu, pp.2-5
4.	31-12-2021	1	Weathering of Rocks	COb:1,2 CO:1,2	K2	N Chenna Kesavulu, pp.14-15
5.	06-01-2022	1	Effect over the properties of rocks	COb:1,2 CO:1,2	K2	N Chenna Kesavulu, pp.15-21
6.	06-01-2022	1	Importance of weathering with reference to dams, reservoirs and tunnels	COb:1,2 CO:1,2	K2	N Chenna Kesavulu, pp.23
7.	07-01-2022	1	Weathering of common rock like “Granite”	COb:1,2 CO:1,2	K2	N Chenna Kesavulu, pp.25-26

Signature of HOD
Date:

Signature of faculty
Date:

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LESSON PLAN

Academic **Y**ear : 2021-22 Date: 31-12-2021

Semester : I

Name of the Program: B.Tech Civil Engineering Year: II Section: A

Course/Subject: Engineering Geology Course Code: GR20A2010:

Name of the Faculty: Y Kamala Raju Dept.: Civil Engineering

Designation: Assoc.Professor

Lesson No: 1 Duration of Lesson: 2hr
Lesson Title: Importance of geology from Civil Engineering point of view

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

1. Discuss about importance of geology
2. Express the importance of geology from civil engineering point of view

TEACHING AIDS : White board, marker
TEACHING POINTS :

- Engineering geology
- With reference to Dams
- With reference to Reservoirs
- With reference to Tunnels

Assignment / Questions:

Signature of faculty

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LESSON PLAN

Academic **Y**ear : 2021-22 Date: 30-12-2021

Semester : I

Name of the Program: B.Tech Civil Engineering Year: II Section: A

Course/Subject: Engineering Geology Course Code: GR20A2010:

Name of the Faculty: Y Kamala Raju Dept.: Civil Engineering

Designation: Assoc.Professor

Lesson No: 2 Duration of Lesson: 2hr

Lesson Title: Brief study of case histories of failure of some Civil Engineering constructions due to geological draw backs

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

1. Discuss about failures of civil engineering constructions
2. Identify the geological draw backs

TEACHING AIDS : White board, marker

TEACHING POINTS :

- Engineering geology
- With reference to Dams
- With reference to Reservoirs
- With reference to Tunnels

Assignment / Questions:

Signature of faculty

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LESSON PLAN

Academic **Y**ear : 2021-22 Date: 31-12-2021

Semester : I

Name of the Program: B.Tech Civil Engineering Year: II Section: A

Course/Subject: Engineering Geology Course Code: GR20A2010:

Name of the Faculty: Y Kamala Raju Dept.: Civil Engineering

Designation: Assoc.Professor

Lesson No: 3 Duration of Lesson: 2hr
Lesson Title: Importance of Physical geology, Petrology and Structural geology

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

1. Differentiate between various branches of geology
2. Identify the importance of various branches of geology

TEACHING AIDS : White board, marker
TEACHING POINTS :

- Branches of geology
- Physical geology
- Petrology
- Structural geology

Assignment / Questions:

Signature of faculty

Gokaraju Rangaraju Institute of Engineering and Technology (Autonomous)

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STUDENT ROLL LIST

1	20241A0101	AADHI SRIKAR RAO
2	20241A0102	ABHIRAM SAI YADAV JANGITI
3	20241A0103	BACCHUGUDAM RITHVIK REDDY
4	20241A0104	BANDLA NAVEEN
5	20241A0105	B.PRANAV SAI
6	20241A0106	BHATTU SUPREETH CHAKRAVARTHY
7	20241A0107	BHUPATHIRAJU HIMANTHAVARMA
8	20241A0108	BOINI HEMANTH
9	20241A0109	CHALLA AJAY KUMAR
10	20241A0110	DONABOINA SRI HARI
11	20241A0111	EPPA ARNAV
12	20241A0112	G L N RAGHURAMAN
13	20241A0113	GANDLA HARSHITH KUMAR
14	20241A0114	GUGGILLA SHASHANK
15	20241A0115	GUNDA SRIKANTH
16	20241A0116	JANGILI SRAVAN KUMAR
17	20241A0117	JANJIRALA SRUTHI
18	20241A0118	JARAPULA JAYANTH
19	20241A0119	K NIKHITHA
20	20241A0120	K SANJEEV KUMAR
21	20241A0121	K.KONDAL
22	20241A0122	KAMMAMPATI UDAYKIRAN
23	20241A0123	KARNE SRITHAN
24	20241A0124	KUNCHALA VARUN KUMAR
25	20241A0125	KUNTA NITHIN REDDY
26	20241A0126	M PAVAN KALYAN
27	20241A0127	MERE MAHESH
28	20241A0128	MOHAMMED AHMED
29	20241A0129	MOTHUKURI LAXMAN
30	20241A0130	MOTTADI ADITYA TEJA
31	20241A0131	MULA SUSHMA SRI
32	20241A0132	NAYINI SWETHA

33	20241A0133	PAIDIPALLY BHARATH
34	20241A0134	P.SAI KIRAN REDDY
35	20241A0135	PASNOOR PAVAN PRATHAP REDDY
36	20241A0136	PATHLAVATH SHIVA NAYAK
37	20241A0137	PEDDIBOINA ANUSHA
38	20241A0138	POREDDY ABHINAV REDDY
39	20241A0139	PULLAGURA SANTHOSH
40	20241A0140	RACHALA BHARATH
41	20241A0141	RADHARAPU SHAJI KUMAR
42	20241A0142	RAMAVATH ROJA
43	20241A0143	RATHLAVATH SAIRAM NAYAK
44	20241A0144	RAVI TEJA PASUNUTHI
45	20241A0146	SADDI SHRIANK REDDY
46	20241A0147	SATHVIKA NARLA
47	20241A0148	SOKKULA KOUSHIKREDDY
48	20241A0149	SRIRAM PANDAVULA
49	20241A0150	T.BHARGAVI
50	20241A0151	T.BHUVANESHWARI
51	20241A0152	S.TEJA RETIESH REDDY
52	20241A0153	TEJAVATH KALYANI
53	20241A0154	TELLAPURAM PRUDHVI RAJ
54	20241A0155	THADEM ROHITH
55	20241A0156	THUMMALA RAJASHEKAR
56	20241A0157	UVSGR KAMESWARA SAI KARTHIK
57	20241A0158	SREERAM VATTEM
58	20241A0159	V VIKESH
59	20241A0160	VENNAM SRIKAR
60	21245A0101	GUMADAVELLI ARUN KUMAR
61	21245A0102	KADIRABAD SRIRAM
62	21245A0103	MANIKONDA NIKITHA
63	21245A0104	PARIDULA PRATHYUSHA
64	21245A0105	PATERU MOUNA

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GUIDELINES TO STUDY THE COURSE/SUBJECT

Academic **Y**ear : 2021-22 Year: II Semester : II

Name of the Program: B.Tech Section: A

Course/Subject: Engineering Geology Course Code: GR20A2010

Name of the Faculty: Mr Y kamala Raju Dept.: Civil Engineering

Designation: Assistant Professor

Guidelines to students

Guidelines to study the Course: Engineering Geology

The course helps the students to learn and understand about various properties of minerals and rocks. One can learn to analyse the structural geology of rocks. This course makes the students to understand about folds, faults, joints, unconformities, etc of various geological structures.

So the students should have the prerequisites

- knowledge of various building materials
- knowledge of formation of soils

To become expertise in this course, students need to be perfect with the basic concepts of minerals, rocks and geological structures

Where will this subject help?

- Useful in dams, reservoirs, tunnels for various folds, faults, joints, unconformities.
- This course let the students to work with various types of rocks and minerals.
- This course let the students to determine the physical properties of minerals and rocks.
- This course let the students to analyse various geological structures.

Books / Material

Text Books

1. Engineering Geology by N. Chennkesavulu, Mc-Millan, India Ltd. 2005.
2. Principals of Engineering Geology by K.V.G.K. Gokhale, B.S publications

Reference books

1. F.G. Bell, Fundamental of Engineering Geology, Butterworths Publications, New Delhi, 1992.
2. Krynine & Judd, Principles of Engineering Geology & Geotechnics, CBS Publishers & Distribution.

Websites:
www.nptel.ac.in/courses/civilengineering/engineeringgeology/105105106/
www.google.com

Course Design and Delivery System (CDD):

- The Course syllabus is written into number of learning objectives and outcomes.
- These learning objectives and outcomes will be achieved through lectures, assessments, assignments, experiments in the laboratory, seminars, presentations, etc.
- Every student will be given an assessment plan, criteria for assessment, scheme of evaluation and grading method.
- The Learning Process will be carried out through assessments of Knowledge, Skills and Attitude by various methods and the students will be given guidance to refer to the text books, reference books, journals, etc.

The faculty be able to –

- Understand the principles of Learning
- Understand the psychology of students
- Develop instructional objectives for a given topic
- Prepare course, unit and lesson plans
- Understand different methods of teaching and learning
- Use appropriate teaching and learning aids
- Plan and deliver lectures effectively
- Provide feedback to students using various methods of Assessments and tools of Evaluation
- Act as a guide, advisor, counselor, facilitator, motivator and not just as a teacher alone

Signature of HOD
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Signature of faculty
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COURSE SCHEDULE

Academic **Y**ear : 2021-22 Year: II Semester : II

Name of the Program: B.Tech Section: A

Course/Subject: Engineering Geology Course Code: GR20A2010

Name of the Faculty: Mr Y kamala Raju Dept.: Civil Engineering

Designation: Assistant Professor

The Schedule for the whole Course / Subject is:

S. No.	Description	Duration (Date)		Total No. Of Periods
		From	To	
1.	**UNIT I:** Introduction Physical Geology	16-10-2021	31-10-2021	11
2.	**UNIT II:** Mineralogy	01-11-2021	30-11-2021	11
3.	**UNIT III:** Petrology	01-12-2021	31-12-2021	13
4.	**UNIT IV:** Structural Geology Dams & Reservoirs	01-1-2022	14-01-2022	11
5.	**UNIT V:** Ground Water, Earthquakes, Landslides	18-01-2022	29-02-2022	11

Total No. of Instructional periods available for the course: 56 Hours/Periods

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SCHEDULE OF INSTRUCTIONS
COURSE PLAN

Academic **Y**ear : 2021-22 Year: II Semester : II

Name of the Program: B.Tech Section: A

Course/Subject: Engineering Geology Course Code: GR20A2010

Name of the Faculty: Mr Y kamala Raju Dept.: Civil Engineering

Designation: Assistant Professor

S. No	Unit No	Date	Topics
1	1	16-10-2021	**Introduction:** Importance of geology from Civil Engineering point of view,
2		19-10-2021	Brief study of case histories of failure of some Civil Engineering constructions due to geological draw backs
3		21-10-2021	Main and allied branches of geology
4		23-10-2021	Importance of Physical geology, Petrology and Structural geology
5		26-10-2021	**Weathering of rocks**, its effect over the properties of rocks
6		27-10-2021	Different types of weathering
7		28-10-2021	Importance of weathering with reference to dams, reservoirs and tunnels
6	2	30-10-2021	**Mineralogy:** Definition of mineral, Importance of study of minerals
7		02-11-2021	Different methods of study of minerals, Advantages of study of minerals by physical properties
8		03-11-2021	Role of study of physical properties of minerals in the identification of minerals.
9		06-11-2021	Study of physical properties of following common rock forming minerals: Feldspar, Quartz, Flint, Jasper.

10		08-11-2021	Study of physical properties of following common rock forming minerals: Olivine, Augite, Hornblende, Muscovite
		09-11-2021	Study of physical properties of following common rock forming minerals: Biotite, Asbestos, Chlorite, Kyanite, Garnet, Talc, Calcite.
11		12-11-2021	Study of other common economics minerals such as Pyrite, Hematite, Magnetite, Chromite.,
12		14-11-2021	Study of other common economics minerals such as Galena, Pyrolusite, Graphite, Magnesite and Bauxite.
13		16-11-2021	**Petrology:** Definition of rock, Geological classification of rocks
14		18-11-2021	Classification of igneous Rocks
15		19-11-2021	Dykes and sills
16		21-11-2021	Common structures and textures of igneous
17		27-11-2021	Dykes and sills
18		29-11-2021	Common structures and textures of igneous
19		03-12-2021	Sedimentary rocks and its classifications
20		06-12-2021	Common structures and textures of Sedimentary Rocks
21		08-12-2021	Metamorphic rocks and its classifications
22		09-12-2021	Common structures and textures of Metamorphic rocks
23		12-12-2021	Distinguishing features of Igneous Rocks
24		14-12-2021	Distinguishing features of Sedimentary Rocks
25		16-12-2021	Distinguishing features of Metamorphic rocks
26		18-12-2021	Megascopic study of Granite, Dolerite, Basalt,
27		19-12-2021	Megascopic study of Pegmatite, Laterite, Conglomerate
28		21-12-2021	Megascopic study of, Sand Stone, Shale, Limestone
29		27-12-2021	Megascopic study of Gneiss, Schist, Quartzite, Marble and Slate.
30	3	30-12-2021	**Structural Geology:** Their importance Insitu and drift soils
31		01-01-2022	Out crop, strike and dip study of common geological structures
32		03-01-2022	

33			common geological structures associating with the rocks such as joints - their important types
34			
35			
36		08-01-2022	Important types of folds and faults
37			Types of soils, their origin and occurrence in India
38		11-01-2022	Importance of folds, faults and Unconformities
39	4	17-01-2022	**Ground Water, Earthquakes and landslides:** Introduction about Ground water, Water table
40		18-01-2022	Common types of ground water, Springs, cone of depression
41			Geological controls of ground water movement, ground water exploration.
42			Earth quakes, their causes and effects, shield areas and seismic belts.
43			Shield areas and seismic belts
44			Seismic waves, Richter scale, Precautions to be taken for building construction in seismic areas
45			Precautions to be taken for building construction in seismic areas
46			Landslides, their causes and effects
47		19-01-2022	Measures to be taken to prevent their occurrence.
48			Importance of study of ground water, earth quakes and landslides
49	5	23-01-2022	**Geology of Dams and Reservoirs:** Types of dams, Bearing of Geology of site in their selection,
50		24-01-2022	Geological Considerations in the selection of a dam site
51			
52		25-01-2022	Analysis of dam failures of the past
53			
54		27-01-2022	Factors Contributing to the success of a reservoir, Life of reservoir,
55			Geological factors influencing water tightness, life of reservoirs
56			

57		29-01-2022	**Tunnels:** Purposes of tunneling, Effects of Tunneling on the ground,
58		02-02-2022	Effects of Tunneling on the ground
59		03-02-2022	Geological Considerations of tunneling Role of geological considerations(lithological) in tunneling Role of geological considerations(structural) in tunneling Role of geological considerations(ground) in tunneling Over breaks and lining in tunnels Geological Considerations of tunneling Role of geological considerations(lithological) in tunneling

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SCHEDULE OF INSTRUCTIONS
UNIT PLAN

Academic **Y**ear : 2021-22 Year: II Semester : II

Name of the Program: B.Tech Section: A

Course/Subject: Engineering Geology Course Code: GR20A2010

Name of the Faculty: Mr Y kamala Raju Dept.: Civil Engineering

Designation: Assistant Professor

S. No.	Description	Duration (Date)		Total No. Of Periods
		From	To	
1.	**UNIT I:** Introduction	16-10-2021	31-10-2021	7
2.	**UNIT II:** Mineralogy & Petrology	01-11-2021	30-11-2021	25
3.	**UNIT III:** Structural Geology	01-12-2021	31-12-2021	9
4.	**UNIT IV:** Ground Water, Earthquakes,Landslides	01-1-2022	14-01-2022	10
5.	**UNIT V:** Dams & Reservoirs,Tunnels	18-01-2022	29-02-2022	17

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LESSON PLAN

Academic **Y**ear : 2021-22 Year: II Semester : I.

Name of the Program: B.Tech Section: A

Course/Subject: Engineering Geology Course Code: GR20A2010

Name of the Faculty: Mr Y kamala Raju Dept.: Civil Engineering

Designation: Assistant Professor
Lesson No: 1 Duration of Lesson: 2hr
Lesson Title: Importance of geology from Civil Engineering point of view

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

1. Discuss about importance of geology
2. Express the importance of geology from civil engineering point of view

TEACHING AIDS : White board, marker, Google Class room
TEACHING POINTS : geology

- Engineering geology
- With reference to Dams
- With reference to Reservoirs
- With reference to Tunnels

Assignment / Questions:

Signature of faculty

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LESSON PLAN

Academic **Y**ear : 2021-22 Year: II Semester : I.

Name of the Program: B.Tech Section: A

Course/Subject: Engineering Geology Course Code: GR20A2010

Name of the Faculty: Mr Y kamala Raju Dept.: Civil Engineering

Designation: Assistant Professor

Lesson No: 2 Duration of Lesson: 2hr
Lesson Title: Brief study of case histories of failure of some Civil Engineering constructions due to geological draw backs

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

3. Discuss about failures of civil engineering constructions
4. Identify the geological draw backs

TEACHING AIDS : White board, marker, Google Class room
TEACHING POINTS : geology

- Engineering geology
- With reference to Dams
- With reference to Reservoirs
- With reference to Tunnels

Assignment / Questions:

Signature of faculty

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LESSON PLAN

Academic **Y**ear : 2021-22 Year: II Semester : I.

Name of the Program: B.Tech Section: A

Course/Subject: Engineering Geology Course Code: GR20A2010

Name of the Faculty: Mr Y kamala Raju Dept.: Civil Engineering

Designation: Assistant Professor

Lesson No: 3 Duration of Lesson: 50min

Lesson Title: Importance of Physical geology, Petrology and Structural geology

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

3. Differentiate between various branches of geology
4. Identify the importance of various branches of geology

TEACHING AIDS : White board, marker, Google Class room

TEACHING POINTS : geology

- Branches of geology
- Physical geology
- Petrology
- Structural geology

Assignment / Questions:

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LESSON PLAN

Academic **Y**ear : 2021-22 Year: II Semester : I.

Name of the Program: B.Tech Section: A

Course/Subject: Engineering Geology Course Code: GR20A2010

Name of the Faculty: Mr Y kamala Raju Dept.: Civil Engineering

Designation: Assistant Professor

Lesson No: 4 Duration of Lesson: 50 min
Lesson Title: Weathering of Rocks

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

1. Express the concept of weathering
2. Identify the various factors that effect weathering
3. Distinguish between physical, chemical and biological factors of weathering

TEACHING AIDS : White board, marker, Google Class room
TEACHING POINTS : geology

- Weathering of rocks
- Erosion
- Denudation
- Weathering process

Assignment / Questions:

Signature of faculty

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LESSON PLAN

Academic **Y**ear : 2021-22 Year: II Semester : I.

Name of the Program: B.Tech Section: A

Course/Subject: Engineering Geology Course Code: GR20A2010

Name of the Faculty: Mr Y kamala Raju Dept.: Civil Engineering

Designation: Assistant Professor

Lesson No: 5 Duration of Lesson: 50 min
Lesson Title: Weathering of Rocks

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

4. Express the concept of weathering
5. Identify the various factors that effect weathering
6. Distinguish between physical, chemical and biological factors of weathering

TEACHING AIDS : White board, marker, Google Class room

- TEACHING POINTS : Erosion

- Weathering of rocks
- Erosion
- Denudation
- Weathering process

Assignment / Questions:

Signature of faculty

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LESSON PLAN

Academic **Y**ear : 2021-22 Year: II Semester : I.

Name of the Program: B.Tech Section: A

Course/Subject: Engineering Geology Course Code: GR20A2010

Name of the Faculty: Mr Y kamala Raju Dept.: Civil Engineering

Designation: Assistant Professor

Lesson No: 7 Duration of Lesson: 50min
Lesson Title: Effect over the properties of rocks

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

1. Discuss about effect over the properties of rocks
2. Identify the geological draw backs

TEACHING AIDS : White board, marker, Google Class room

- TEACHING POINTS : Erosion

- Weathering process
- Physical factors
- Chemical factors
- Biological factors
- Mutual effects of disintegration and decomposition

Assignment / Questions:

Signature of faculty

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LESSON PLAN

Academic **Y**ear : 2021-22 Year: II Semester : I.

Name of the Program: B.Tech Section: A

Course/Subject: Engineering Geology Course Code: GR20A2010

Name of the Faculty: Mr Y kamala Raju Dept.: Civil Engineering

Designation: Assistant Professor

Lesson No: 8 Duration of Lesson: 2hr
Lesson Title: Importance of weathering with reference to dams, reservoirs and tunnels

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

1. Discuss about importance of weathering with reference to civil engineering constructions
2. Identify the geological draw backs due to weathering

TEACHING AIDS : White board, marker, Google Class room

- TEACHING POINTS : With reference to Reservoirs

With reference to Tunnels

- Engineering geology
- With reference to Dams
- With reference to Reservoirs
- With reference to Tunnels

Assignment / Questions:

Signature of faculty

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LESSON PLAN

Academic **Y**ear : 2021-22 Year: II Semester : I.

Name of the Program: B.Tech Section: A

Course/Subject: Engineering Geology Course Code: GR20A2010

Name of the Faculty: Mr Y kamala Raju Dept.: Civil Engineering

Designation: Assistant Professor

Lesson No: 9 Duration of Lesson: 2hr
Lesson Title: Weathering of common rock like "Granite"

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

1. Discuss about recognition of weathering with reference to minerals or rocks
2. Explain the importance of weathering

TEACHING AIDS : White board, marker, Google Class room

- TEACHING POINTS : With reference to Reservoirs

With reference to Tunnels

- Weathering
- Effects of weathering
- Granite
- Products of weathering

Assignment / Questions:

Signature of faculty

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LESSON PLAN

Academic **Y**ear : 2021-22 Year: II Semester : I.

Name of the Program: B.Tech Section: A

Course/Subject: Engineering Geology Course Code: GR20A2010

Name of the Faculty: Mr Y kamala Raju Dept.: Civil Engineering

Designation: Assistant Professor

Lesson No: 9 Duration of Lesson: 2hr
Lesson Title: Definition of mineral, Importance of study of minerals

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

1. Assess the importance of study of minerals from civil engineering point of view
2. Find the definition of a mineral.

TEACHING AIDS : White board, marker, Google Class room

- TEACHING POINTS : With reference to Reservoirs

With reference to Tunnels

- Mineral
- Exceptions of a mineral
- Importance of study of mineral

Assignment / Questions:

Signature of faculty

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LESSON PLAN

Academic **Y**ear : 2021-22 Year: II Semester : I.

Name of the Program: B.Tech Section: A

Course/Subject: Engineering Geology Course Code: GR20A2010

Name of the Faculty: Mr Y kamala Raju Dept.: Civil Engineering

Designation: Assistant Professor

Lesson No: 10 Duration of Lesson: 2hr
Lesson Title: Different methods of study of minerals. Advantages of study of minerals by physical properties

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

5. Interpret different methods of study of minerals
6. Select the method of study of minerals by their merits and demerits
7. Relate the advantages of study of minerals by physical properties

TEACHING AIDS : White board, marker, Google Class room

- TEACHING POINTS : Mineral

- Mineral
- Study of physical properties
- Study of chemical composition
- Study of optical properties
- X-ray analysis
- Merits and demerits

Assignment / Questions:

Signature of faculty

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LESSON PLAN

Academic **Y**ear : 2021-22 Year: II Semester : I.

Name of the Program: B.Tech Section: A

Course/Subject: Engineering Geology Course Code: GR20A2010

Name of the Faculty: Mr Y kamala Raju Dept.: Civil Engineering

Designation: Assistant Professor

Lesson No: 10 Duration of Lesson: 2hr
Lesson Title: Role of study of physical properties of minerals in the identification of minerals.

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

5. Examine various physical properties of minerals
6. Select and find the importance of identification by various properties

TEACHING AIDS : White board, marker, Google Class room

- TEACHING POINTS : Mineral

- Mineral
- Physical properties of minerals
- Importance of identification
- Special properties

Assignment / Questions:

Signature of faculty

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LESSON PLAN

Academic **Y**ear : 2021-22 Year: II Semester : I.

Name of the Program: B.Tech Section: A

Course/Subject: Engineering Geology Course Code: GR20A2010

Name of the Faculty: Mr Y kamala Raju Dept.: Civil Engineering

Designation: Assistant Professor

Lesson No: 11 Duration of Lesson: 2hr
Lesson Title: Study of physical properties of following common rock forming minerals: Feldspar, Quartz, Flint.

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

7. Illustrate various physical properties of minerals.
8. Find the physical properties of Feldspar, Quartz, Flint.

TEACHING AIDS : White board, marker, Google Class room

- TEACHING POINTS : Feldspar

- Physical properties of minerals
- Feldspar
- Quartz
- Flint

Assignment / Questions:

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LESSON PLAN

Academic **Y**ear : 2021-22 Year: II Semester : I.

Name of the Program: B.Tech Section: A

Course/Subject: Engineering Geology Course Code: GR20A2010

Name of the Faculty: Mr Y kamala Raju Dept.: Civil Engineering

Designation: Assistant Professor

Lesson No: 12 Duration of Lesson: 1hr
Lesson Title: Study of physical properties of following common rock forming minerals: Jasper, Olivine, Augite, Hornblende, Muscovite.

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

1. Illustrate various physical properties of minerals.
2. Find the physical properties of Jasper, Olivine, Augite, Hornblende, Muscovite.

TEACHING AIDS : White board, marker, Google Class room

- TEACHING POINTS : Feldspar

- Physical properties of minerals
- Jasper
- Olivine
- Augite
- Hornblende
- Muscovite

Assignment / Questions:

Signature of faculty

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LESSON PLAN

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Academic **Y**ear : 2021-22 Year: II Semester : I.

Name of the Program: B.Tech Section: A

Course/Subject: Engineering Geology Course Code: GR20A2010

Name of the Faculty: Mr Y kamala Raju Dept.: Civil Engineering

Designation: Assistant Professor

Lesson No: 13 Duration of Lesson: 2hr

Lesson Title: Study of physical properties of following common rock forming minerals: Biotite, Asbestos, Chlorite , Kyanite, Garnet, Talc, Calcite.

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

1. Illustrate various physical properties of minerals.
2. Find the physical properties of Biotite, Asbestos, Chlorite, Kyanite, Garnet, Talc, Calcite.

TEACHING AIDS : White board, marker, Google Class room

TEACHING POINTS : Asbestos

- Physical properties of minerals
- Biotite
- Asbestos
- Chlorite
- Kyanite
- Garnet
- Talc
- Calcite

Assignment / Questions:

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LESSON PLAN

Academic **Y**ear : 2021-22 Year: II Semester : I.

Name of the Program: B.Tech Section: A

Course/Subject: Engineering Geology Course Code: GR20A2010

Name of the Faculty: Mr Y kamala Raju Dept.: Civil Engineering

Designation: Assistant Professor

Lesson No: 14 Duration of Lesson: 2hr
Lesson Title: Study of other common economics minerals such as Pyrite, Hematite, Magnetite, Chlorite.

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

1. Illustrate various physical properties of minerals.
2. Find the physical properties of Pyrite, Hematite, Magnetite, Chlorite.

TEACHING AIDS : White board, marker, Google Class room

- TEACHING POINTS : Asbestos

- Physical properties of minerals
- Pyrite
- Hematite
- Magnetite
- Chlorite

Assignment / Questions:

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LESSON PLAN

Academic **Y**ear : 2021-22 Year: II Semester : I.

Name of the Program: B.Tech Section: A

Course/Subject: Engineering Geology Course Code: GR20A2010

Name of the Faculty: Mr Y kamala Raju Dept.: Civil Engineering

Designation: Assistant Professor

Lesson No: 15 Duration of Lesson: 50 min
Lesson Title: Study of other common economics minerals such as Galena, Pyrolusite, Graphite, Magnesite and Bauxite.

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

1. Illustrate various physical properties of minerals.
2. Find the physical properties of Galena, Pyrolusite, Graphite.

TEACHING AIDS : White board, marker, Google Class room

- TEACHING POINTS : Pyrolusite

- Physical properties of minerals
- Galena
- Pyrolusite
- Graphite
- Magnesite
- Bauxite

Assignment / Questions:

Signature of faculty

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LESSON PLAN

Academic **Y**ear : 2021-22 Year: II Semester : I.

Name of the Program: B.Tech Section: A

Course/Subject: Engineering Geology Course Code: GR20A2010

Name of the Faculty: Mr Y kamala Raju Dept.: Civil Engineering

Designation: Assistant Professor

Lesson No: 16 Duration of Lesson: 2hr
Lesson Title: Definition of rock. Geological classification of rocks

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

3. Interpret the definition of rock.
4. Explain geological classification of rocks

TEACHING AIDS : White board, marker, Google Class room

- TEACHING POINTS : Sedimentary rocks

- Rocks
- Igneous rocks
- Sedimentary rocks
- Metamorphic rocks
- Rock cycle

Assignment / Questions:

Signature of faculty

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LESSON PLAN

Academic **Y**ear : 2021-22 Year: II Semester : I.

Name of the Program: B.Tech Section: A

Course/Subject: Engineering Geology Course Code: GR20A2010

Name of the Faculty: Mr Y kamala Raju Dept.: Civil Engineering

Designation: Assistant Professor

Lesson No: 17 Duration of Lesson: 2hr
Lesson Title: Igneous, Sedimentary and metamorphic rocks.

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

1. Discover various classification of rocks
2. Explain Rock cycle

TEACHING AIDS : White board, marker, Google Class room

- TEACHING POINTS : Igneous rocks

- Rocks
- Igneous rocks
- Sedimentary rocks
- Metamorphic rocks
- Rock cycle

Assignment / Questions:

Signature of faculty

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LESSON PLAN

Academic **Y**ear : 2021-22 Year: II Semester : I.

Name of the Program: B.Tech Section: A

Course/Subject: Engineering Geology Course Code: GR20A2010

Name of the Faculty: Mr Y kamala Raju Dept.: Civil Engineering

Designation: Assistant Professor

Lesson No: 18 Duration of Lesson: 2hr
Lesson Title: Dykes and sills

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

1. Interpret various forms of intrusive igneous rocks
2. Relate various forms of intrusive igneous rocks

TEACHING AIDS : White board, marker, Google Class room

- TEACHING POINTS : Dykes

- Forms of intrusive igneous rocks
- Dykes
- Sills
- Laccolith
- Lopolith
- Bysmalith
- Phacolith
- Batholith

Assignment / Questions:

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LESSON PLAN

Academic **Y**ear : 2021-22 Year: II Semester : I.

Name of the Program: B.Tech Section: A

Course/Subject: Engineering Geology Course Code: GR20A2010

Name of the Faculty: Mr Y kamala Raju Dept.: Civil Engineering

Designation: Assistant Professor

Lesson No: 19 Duration of Lesson: 50 min
Lesson Title: Common structures and textures of igneous

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

1. Assess various structures of igneous rocks
2. Assess various textures of igneous rocks

TEACHING AIDS : White board, marker, Google Class room

- TEACHING POINTS : Columnar structure
  - Amygdaloidal structure
  - Vesicular structure
  - Columnar structure
  - Sheet structure
  - Flow structure
  - Pillow structure
  - Texture based on granularity, crystallinity and shapes of crystal

Assignment / Questions:

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LESSON PLAN

Academic **Y**ear : 2021-22 Year: II Semester : I.

Name of the Program: B.Tech Section: A

Course/Subject: Engineering Geology Course Code: GR20A2010

Name of the Faculty: Mr Y kamala Raju Dept.: Civil Engineering

Designation: Assistant Professor

Lesson No: 20 Duration of Lesson: 2hr
Lesson Title: Sedimentary Rocks

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

1. Interpret various structures of sedimentary rocks
2. Interpret various textures of sedimentary rocks

TEACHING AIDS : White board, marker, Google Class room

- TEACHING POINTS : Fossil

- Stratification
- Fossil
- Ripple marks
- Mud cracks & rain prints
- Tracks & trails

Assignment / Questions:

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LESSON PLAN

Academic **Y**ear : 2021-22 Year: II Semester : I.

Name of the Program: B.Tech Section: A

Course/Subject: Engineering Geology Course Code: GR20A2010

Name of the Faculty: Mr Y kamala Raju Dept.: Civil Engineering

Designation: Assistant Professor

Lesson No: 21 Duration of Lesson: 2hr
Lesson Title: Metamorphic rocks

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

1. Interpret various structures of metamorphic rocks
2. Interpret various textures of metamorphic rocks

TEACHING AIDS : White board, marker, Google Class room

- TEACHING POINTS : Textures

- Metamorphic agents
- Foliation & Lineation
- Gneissose structure
- Schistose structure
- Granulose structure
- Cataclastic structure
- Textures

Assignment / Questions:

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LESSON PLAN

Academic **Y**ear : 2021-22 Year: II Semester : I.

Name of the Program: B.Tech Section: A

Course/Subject: Engineering Geology Course Code: GR20A2010

Name of the Faculty: Mr Y kamala Raju Dept.: Civil Engineering

Designation: Assistant Professor

Lesson No: 22 Duration of Lesson: 2hr
Lesson Title: Distinguishing features of IR, SR and MR

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

1. Illustrate various features of Igneous rocks
2. Illustrate various features of Sedimentary rocks
3. Illustrate various features of Metamorphic rocks

TEACHING AIDS : White board, marker, Google Class room
TEACHING POINTS : Rock cycle

- Structures and textures
- Igneous rocks
- Sedimentary rocks
- Metamorphic rocks
- Rock cycle

Assignment / Questions:

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LESSON PLAN

Academic **Y**ear : 2021-22 Year: II Semester : I.

Name of the Program: B.Tech Section: A

Course/Subject: Engineering Geology Course Code: GR20A2010

Name of the Faculty: Mr Y kamala Raju Dept.: Civil Engineering

Designation: Assistant Professor

Lesson No: 23 Duration of Lesson: 2hr

Lesson Title: Megascopic study of Granite, Dolerite, Basalt, Pegmatite.

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

1. Illustrate various properties of igneous rocks.
2. Find the occurrence and uses of civil engineering importance.

TEACHING AIDS : White board, marker, Google Class room

- TEACHING POINTS : Granite

- Properties of igneous rocks
- Granite
- Dolerite
- Basalt
- Pegmatite

Assignment / Questions:

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LESSON PLAN

Academic **Y**ear : 2021-22 Year: II Semester : I.

Name of the Program: B.Tech Section: A

Course/Subject: Engineering Geology Course Code: GR20A2010

Name of the Faculty: Mr Y kamala Raju Dept.: Civil Engineering

Designation: Assistant Professor

Lesson No: 24 Duration of Lesson: 2hr
Lesson Title: Megascopic study of Laterite, Conglomerate, Sand Stone, Shale, Limestone.

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

1. Illustrate various properties of sedimentary rocks.
2. Find the occurrence and uses of civil engineering importance.

TEACHING AIDS : White board, marker, Google Class room

- TEACHING POINTS : Granite

- Properties of sedimentary rocks
- Laterite
- Conglomerate
- Sand Stone
- Shale
- Limestone

Assignment / Questions:

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LESSON PLAN

Academic **Y**ear : 2021-22 Year: II Semester : I.

Name of the Program: B.Tech Section: A

Course/Subject: Engineering Geology Course Code: GR20A2010

Name of the Faculty: Mr Y kamala Raju Dept.: Civil Engineering

Designation: Assistant Professor

Lesson No: 25 Duration of Lesson: 1hr
Lesson Title: Megascopic study of Gneiss, Schist, Quartzite, Marble and Slate.

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

1. Illustrate various properties of metamorphic rocks.
2. Find the occurrence and uses of civil engineering importance.

TEACHING AIDS : White board, marker, Google Class room

- TEACHING POINTS : Granite

- Properties of metamorphic rocks
- Gneiss
- Schist
- Quartzite
- Marble
- Slate

Assignment / Questions:

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LESSON PLAN

Academic **Y**ear : 2021-22 Year: II Semester : I.

Name of the Program: B.Tech Section: A

Course/Subject: Engineering Geology Course Code: GR20A2010

Name of the Faculty: Mr Y kamala Raju Dept.: Civil Engineering

Designation: Assistant Professor

Lesson No: 26 Duration of Lesson: 2hr
Lesson Title: Megascopic study of Gneiss, Schist, Quartzite, Marble and Slate.

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

3. Illustrate various properties of metamorphic rocks.
4. Find the occurrence and uses of civil engineering importance.

TEACHING AIDS : White board, marker, Google Class room

- TEACHING POINTS : Quartzite

- Properties of metamorphic rocks
- Gneiss
- Schist
- Quartzite
- Marble
- Slate

Assignment / Questions:

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LESSON PLAN

Academic **Y**ear : 2021-22 Year: II Semester : I.

Name of the Program: B.Tech Section: A

Course/Subject: Engineering Geology Course Code: GR20A2010

Name of the Faculty: Mr Y kamala Raju Dept.: Civil Engineering

Designation: Assistant Professor

Lesson No: 27 Duration of Lesson: 2hr
Lesson Title: Importance of structural geology

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

1. Infer the importance of study of structural geology
2. Outline various terms related to structural geology

TEACHING AIDS : White board, marker, Google Class room

- TEACHING POINTS : Quartzite

- Structural Geology
- Outcrop
- Strike
- Dip

Assignment / Questions:

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LESSON PLAN

Academic **Y**ear : 2021-22 Year: II Semester : I.

Name of the Program: B.Tech Section: A

Course/Subject: Engineering Geology Course Code: GR20A2010

Name of the Faculty: Mr Y kamala Raju Dept.: Civil Engineering

Designation: Assistant Professor
Lesson No: 28-30 Duration of Lesson: 2hr
Lesson Title: Out crop, strike and dip study of common geological structures associating with the rocks such as Folds

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

1. Identify various types of folR.
2. Infer about causes and effects of folds

TEACHING AIDS : White board, marker, Google Class room

- TEACHING POINTS : Causes of fold

- Parts of fold
- Types of fold
- Causes of fold
- Effects of fold

Assignment / Questions:

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LESSON PLAN

Academic **Y**ear : 2021-22 Year: II Semester : I.

Name of the Program: B.Tech Section: A

Course/Subject: Engineering Geology Course Code: GR20A2010

Name of the Faculty: Mr Y kamala Raju Dept.: Civil Engineering

Designation: Assistant Professor

Lesson No: 31 Duration of Lesson: 2hr

Lesson Title: common geological structures associating with the rocks such as Faults

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

1. Identify various types of fault.
2. Infer about causes and effects of fault.

TEACHING AIDS : White board, marker, Google Class room

- TEACHING POINTS : Types of fault

- Parts of fault
- Types of fault
- Causes of fault
- Effects of fault

Assignment / Questions:

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LESSON PLAN

Academic **Y**ear : 2021-22 Year: II Semester : I.

Name of the Program: B.Tech Section: A

Course/Subject: Engineering Geology Course Code: GR20A2010

Name of the Faculty: Mr Y kamala Raju Dept.: Civil Engineering

Designation: Assistant Professor

Lesson No: 32 Duration of Lesson: 2hr

Lesson Title: common geological structures associating with the rocks such as Unconformities

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

1. Identify various types of Unconformities.
2. Infer about recognition of Unconformities.

TEACHING AIDS : White board, marker, Google Class room

TEACHING POINTS : Unconformities

- Parts of Unconformities
- Types of Unconformities
- Recognition of Unconformities

Assignment / Questions:

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LESSON PLAN

Academic **Y**ear : 2021-22 Year: II Semester : I.

Name of the Program: B.Tech Section: A

Course/Subject: Engineering Geology Course Code: GR20A2010

Name of the Faculty: Mr Y kamala Raju Dept.: Civil Engineering

Designation: Assistant Professor

Lesson No: 34 Duration of Lesson: 2hr
Lesson Title: common geological structures associating with the rocks such as joints - their important types

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

1. Identify various types of Joints.
2. Infer about effects of Joints.

TEACHING AIDS : White board, marker, Google Class room
TEACHING POINTS : Joints

- Parts of Joints
- Types of Joints
- Effects of Joints

Assignment / Questions:

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LESSON PLAN

Academic **Y**ear : 2021-22 Year: II Semester : I.

Name of the Program: B.Tech Section: A

Course/Subject: Engineering Geology Course Code: GR20A2010

Name of the Faculty: Mr Y kamala Raju Dept.: Civil Engineering

Designation: Assistant Professor

Lesson No: 36 Duration of Lesson: 2hr
Lesson Title: Ground water, Water table

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

3. Recognize the importance of ground water and water table
4. Generalize the sources of ground water supply

TEACHING AIDS : White board, marker, Google Class room

- TEACHING POINTS : Water table

- Ground water
- Water table
- Sources
- Importance

Assignment / Questions:

Signature of faculty

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LESSON PLAN

Academic **Y**ear : 2021-22 Year: II Semester : I.

Name of the Program: B.Tech Section: A

Course/Subject: Engineering Geology Course Code: GR20A2010

Name of the Faculty: Mr Y kamala Raju Dept.: Civil Engineering

Designation: Assistant Professor
Lesson No: 37 Duration of Lesson: 2hr
Lesson Title: Common types of ground water

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

8. Describe various types of ground water
9. Identify the types of aquifers

TEACHING AIDS : White board, marker, Google Class room

- TEACHING POINTS : Unconfined water

- Confined water
- Unconfined water
- Fixed ground water
- Connate water
- Internal water
- Juvenile water

Assignment / Questions:

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LESSON PLAN

Academic **Y**ear : 2021-22 Year: II Semester : I.

Name of the Program: B.Tech Section: A

Course/Subject: Engineering Geology Course Code: GR20A2010

Name of the Faculty: Mr Y kamala Raju Dept.: Civil Engineering

Designation: Assistant Professor

Lesson No: 38 Duration of Lesson: 2hr
Lesson Title: Spri8ngs, cone of depression

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

3. Identify springs and cone of depression.
4. Discuss about fluctuation of water table.

TEACHING AIDS : White board, marker, Google Class room

- TEACHING POINTS : Cone of depression

- Springs
- Cone of depression
- Draw down water table
- Pumping wells
- Aquifers

Assignment / Questions:

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LESSON PLAN

Academic **Y**ear : 2021-22 Year: II Semester : I.

Name of the Program: B.Tech Section: A

Course/Subject: Engineering Geology Course Code: GR20A2010

Name of the Faculty: Mr Y kamala Raju Dept.: Civil Engineering

Designation: Assistant Professor

Lesson No: 39 Duration of Lesson: 2hr

Lesson Title: Geological controls of ground water movement, ground water exploration.

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

3. Identify various methods of ground water exploration
4. Infer about ground water movement

TEACHING AIDS : White board, marker, Google Class room

- TEACHING POINTS : Geological investigation

- Geological investigation
- Geophysical investigation
- Hydrological investigation
- Ground water movement

Assignment / Questions:

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LESSON PLAN

Academic **Y**ear : 2021-22 Year: II Semester : I.

Name of the Program: B.Tech Section: A

Course/Subject: Engineering Geology Course Code: GR20A2010

Name of the Faculty: Mr Y kamala Raju Dept.: Civil Engineering

Designation: Assistant Professor

Lesson No: 40 Duration of Lesson: 2hr
Lesson Title: Earth quakes, their causes and effects, shield areas and seismic belts. Seismic waves, Richter scale

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

3. Explain about causes and effects of earth quakes.
4. Discuss various types of seismic waves.

TEACHING AIDS : White board, marker, Google Class room

- TEACHING POINTS : Causes and effects

- Earth quakes
- Causes and effects
- Shield areas
- Shied belts
- Seismic waves

Assignment / Questions:

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LESSON PLAN

Academic **Y**ear : 2021-22 Year: II Semester : I.

Name of the Program: B.Tech Section: A

Course/Subject: Engineering Geology Course Code: GR20A2010

Name of the Faculty: Mr Y kamala Raju Dept.: Civil Engineering

Designation: Assistant Professor

Lesson No: 41 Duration of Lesson: 2hr
Lesson Title: Precautions to be taken for building construction in seismic areas

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

3. Express the precautionary measures to be taken in seismic areas.
4. Infer the importance of civil engineering considerations in seismic areas

TEACHING AIDS : White board, marker, Google Class room
TEACHING POINTS : Seismic areas

- Seismic areas
- Precautionary measures in construction of buildings
- Precautionary measures in construction of dams
- Precautionary measures in construction of reservoirs

Assignment / Questions:

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LESSON PLAN

Academic **Y**ear : 2021-22 Year: II Semester : I.

Name of the Program: B.Tech Section: A

Course/Subject: Engineering Geology Course Code: GR20A2010

Name of the Faculty: Mr Y kamala Raju Dept.: Civil Engineering

Designation: Assistant Professor

Lesson No: 42 Duration of Lesson: 2hr
Lesson Title: Land slides, their causes and effects

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

3. Discuss about landslides and its types
4. Express the causes and effects of landslides

TEACHING AIDS : White board, marker, Google Class room

- TEACHING POINTS : Landslide

- Landslide
- Earth flow
- Subsidence
- Internal causes
- Immediate causes
- Effects of landslides

Assignment / Questions:

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LESSON PLAN

Academic **Y**ear : 2021-22 Year: II Semester : I.

Name of the Program: B.Tech Section: A

Course/Subject: Engineering Geology Course Code: GR20A2010

Name of the Faculty: Mr Y kamala Raju Dept.: Civil Engineering

Designation: Assistant Professor

Lesson No: 43 Duration of Lesson: 2hr
Lesson Title: Measures to be taken to prevent their occurrence.

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

3. Generalize the importance of landslides
4. Recognize the measures to be taken to prevent landslides

TEACHING AIDS : White board, marker, Google Class room

- TEACHING POINTS : Landslide

- Preventive measures
- Effect of slope
- Effect of water
- Structural defects
- Stability of slopes
- Nature of overburden

Assignment / Questions:

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LESSON PLAN

Academic **Y**ear : 2021-22 Year: II Semester : I.

Name of the Program: B.Tech Section: A

Course/Subject: Engineering Geology Course Code: GR20A2010

Name of the Faculty: Mr Y kamala Raju Dept.: Civil Engineering

Designation: Assistant Professor
Lesson No: 44 Duration of Lesson: 2hr
Lesson Title: Importance of study of ground water, earth quakes and landslides.

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

1. Indicate the importance of study of ground water, earth quakes and landslides.
2. Express the importance from geological consideration.

TEACHING AIDS : White board, marker, Google Class room

- TEACHING POINTS : Landslide

• Importance of earth quakes • Importance of landslides

Assignment / Questions:

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LESSON PLAN

Academic **Y**ear : 2021-22 Year: II Semester : I.

Name of the Program: B.Tech Section: A

Course/Subject: Engineering Geology Course Code: GR20A2010

Name of the Faculty: Mr Y kamala Raju Dept.: Civil Engineering

Designation: Assistant Professor

Lesson No: 45 Duration of Lesson: 2hr
Lesson Title: Geology of Dams and Reservoirs: Types of dams

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

5. Differentiate between types of dams
6. Indicate the geology of dams and reservoirs

TEACHING AIDS : White board, marker, Google Class room
TEACHING POINTS : dams

- Types of dams
- Geology of dams
- Geology of Reservoirs
- Geological advantage and disadvantage

Assignment / Questions:

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LESSON PLAN

Academic **Y**ear : 2021-22 Year: II Semester : I.

Name of the Program: B.Tech Section: A

Course/Subject: Engineering Geology Course Code: GR20A2010

Name of the Faculty: Mr Y kamala Raju Dept.: Civil Engineering

Designation: Assistant Professor

Lesson No: 46 Duration of Lesson: 2hr
Lesson Title: Bearing of Geology of site in their selection

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

3. Identify the advantage of geology for the site selection
4. Predict the purposes of dams

TEACHING AIDS : White board, marker, Google Class room
TEACHING POINTS : dams

- Geology of dams
- Purpose of dams
- Types of dams

Assignment / Questions:

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LESSON PLAN

Academic **Y**ear : 2021-22 Year: II Semester : I.

Name of the Program: B.Tech Section: A

Course/Subject: Engineering Geology Course Code: GR20A2010

Name of the Faculty: Mr Y kamala Raju Dept.: Civil Engineering

Designation: Assistant Professor

Lesson No: 47 Duration of Lesson: 2hr

Lesson Title: Geological Considerations in the selection of a dam site.

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

3. Express the geological considerations in the selection of dam site
4. Identify the geological structures at the dam site

TEACHING AIDS : White board, marker, Google Class room

TEACHING POINTS : dams

- Geological structures
- Narrow river valley
- Bedrock at depth
- Stable foundation

Assignment / Questions:

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Gokaraju Rangaraju Institute of Engineering and Technology
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Bachupally, Kukatpally, Hyderabad – 500 090. (040) 6686 4440

LESSON PLAN

Academic **Y**ear : 2021-22 Year: II Semester : I.

Name of the Program: B.Tech Section: A

Course/Subject: Engineering Geology Course Code: GR20A2010

Name of the Faculty: Mr Y kamala Raju Dept.: Civil Engineering

Designation: Assistant Professor

Lesson No: 48 Duration of Lesson: 2hr
Lesson Title: Analysis of dam failures of the past.

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

3. Discuss the various dam failures of the past due to geological reasons.
4. Recognize the type of rocks and structures present at site

TEACHING AIDS : White board, marker, Google Class room
TEACHING POINTS : dams

- Case histories
- Geological reasons
- Geological structures
- Types of rocks at site

Assignment / Questions:

Signature of faculty

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LESSON PLAN

Academic **Y**ear : 2021-22 Year: II Semester : I.

Name of the Program: B.Tech Section: A

Course/Subject: Engineering Geology Course Code: GR20A2010

Name of the Faculty: Mr Y kamala Raju Dept.: Civil Engineering

Designation: Assistant Professor

Lesson No: 49 Duration of Lesson: 2hr
Lesson Title: Factor's contributing to the success of a reservoir

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

3. Explain the factors contributing to the success of reservoirs

TEACHING AIDS : White board, marker, Google Class room
TEACHING POINTS : reservoir

- Reservoirs
- Capacity of reservoir
- Effect of evaporation
- Geological structures at site

Assignment / Questions:

Signature of faculty

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LESSON PLAN

Academic **Y**ear : 2021-22 Year: II Semester : I.

Name of the Program: B.Tech Section: A

Course/Subject: Engineering Geology Course Code: GR20A2010

Name of the Faculty: Mr Y kamala Raju Dept.: Civil Engineering

Designation: Assistant Professor

Lesson No: 50 Duration of Lesson: 2hr
Lesson Title: Life of reservoir

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

3. Express the life of reservoir.
4. Identify the silting process.

TEACHING AIDS : White board, marker, Google Class room
TEACHING POINTS : reservoir

- Life of reservoir
- Process of silting
- Measures to control silting process

Assignment / Questions:

Signature of faculty

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LESSON PLAN

Academic **Y**ear : 2021-22 Year: II Semester : I.

Name of the Program: B.Tech Section: A

Course/Subject: Engineering Geology Course Code: GR20A2010

Name of the Faculty: Mr Y kamala Raju Dept.: Civil Engineering

Designation: Assistant Professor

Lesson No: 51 Duration of Lesson: 2hr

Lesson Title: Geological factors influencing water tightness, life of reservoirs, water tightness

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

4. Indicate the geological factors influencing water tightness.
5. Explain about reservoir silting.

TEACHING AIDS : White board, marker, Google Class room

TEACHING POINTS : reservoir

- Life of reservoir
- Water tightness
- Buried river channels
- Influence of rock types
- Influence of geological structures
- Influence of water table

Assignment / Questions:

Signature of faculty

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LESSON PLAN

Academic **Y**ear : 2021-22 Year: II Semester : I.

Name of the Program: B.Tech Section: A

Course/Subject: Engineering Geology Course Code: GR20A2010

Name of the Faculty: Mr Y kamala Raju Dept.: Civil Engineering

Designation: Assistant Professor

Lesson No: 52 Duration of Lesson: 2hr
Lesson Title: Purposes of tunneling

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

1. Identify the importance of tunneling
2. Outline various purposes of tunneling

TEACHING AIDS : White board, marker, Google Class room
TEACHING POINTS : tunnels

- Tunneling
- Traffic tunnels
- Diversion tunnels
- Pressure tunnels
- Discharge tunnels
- Public utility tunnels

Assignment / Questions:

Signature of faculty

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LESSON PLAN

Academic **Y**ear : 2021-22 Year: II Semester : I.

Name of the Program: B.Tech Section: A

Course/Subject: Engineering Geology Course Code: GR20A2010

Name of the Faculty: Mr Y kamala Raju Dept.: Civil Engineering

Designation: Assistant Professor

Lesson No: 53 Duration of Lesson: 2hr
Lesson Title: Effects of Tunneling on the ground

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

1. Identify the effects of tunneling on ground

TEACHING AIDS : White board, marker, Google Class room
TEACHING POINTS : tunnels

- Consequences of underground tunneling
- Physical conditions of ground
- Unstable conditions
- Greater depth and temperatures
- Fault and shear zones

Assignment / Questions:

Signature of faculty

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LESSON PLAN

Academic **Y**ear : 2021-22 Year: II Semester : I.

Name of the Program: B.Tech Section: A

Course/Subject: Engineering Geology Course Code: GR20A2010

Name of the Faculty: Mr Y kamala Raju Dept.: Civil Engineering

Designation: Assistant Professor

Lesson No: 54 Duration of Lesson: 2hr
Lesson Title: Geological Considerations

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

5. Identify the importance of geological structures in tunneling
6. Infer about types of rocks and ground water in tunneling

TEACHING AIDS : White board, marker, Google Class room
TEACHING POINTS : tunnels

- Importance of rock types
- Importance of geological structures
- Importance of ground water

Assignment / Questions:

Signature of faculty

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LESSON PLAN

Academic **Y**ear : 2021-22 Year: II Semester : I.

Name of the Program: B.Tech Section: A

Course/Subject: Engineering Geology Course Code: GR20A2010

Name of the Faculty: Mr Y kamala Raju Dept.: Civil Engineering

Designation: Assistant Professor

Lesson No: 55 Duration of Lesson: 2hr
Lesson Title: Lithological considerations

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

5. Identify the importance of lithological consideration in tunneling
6. Infer about types of rocks in tunneling

TEACHING AIDS : White board, marker, Google Class room
TEACHING POINTS : igneous rocks

- Suitability of igneous rocks
- Suitability of sedimentary rocks
- Suitability of metamorphic rocks

Assignment / Questions:

Signature of faculty

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LESSON PLAN

Academic **Y**ear : 2021-22 Year: II Semester : I.

Name of the Program: B.Tech Section: A

Course/Subject: Engineering Geology Course Code: GR20A2010

Name of the Faculty: Mr Y kamala Raju Dept.: Civil Engineering

Designation: Assistant Professor

Lesson No: 56 Duration of Lesson: 2hr
Lesson Title: structural and ground water

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

5. Outline the importance of ground water
6. Infer the ground water problems at tunnel site

TEACHING AIDS : White board, marker, Google Class room
TEACHING POINTS : tunnel site

- Type of rocks at tunnel site
- Geological structure at tunnel site
- Position of ground water table

Assignment / Questions:

Signature of faculty

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LESSON PLAN

Academic **Y**ear : 2021-22 Year: II Semester : I.

Name of the Program: B.Tech Section: A

Course/Subject: Engineering Geology Course Code: GR20A2010

Name of the Faculty: Mr Y kamala Raju Dept.: Civil Engineering

Designation: Assistant Professor

Lesson No: 56 Duration of Lesson: 2hr
Lesson Title: Tunneling over break

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

1. Outline overbreak in tunnels

TEACHING AIDS : White board, marker, Google Class room
TEACHING POINTS : rocks at overbreak

- Overbreak
- Alignment of tunnels
- Types of rocks at overbreak

Assignment / Questions:

Signature of faculty

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LESSON PLAN

Academic **Y**ear : 2021-22 Year: II Semester : I.

Name of the Program: B.Tech Section: A

Course/Subject: Engineering Geology Course Code: GR20A2010

Name of the Faculty: Mr Y kamala Raju Dept.: Civil Engineering

Designation: Assistant Professor

Lesson No: 57 Duration of Lesson: 2hr
Lesson Title: Lining in tunnels

INSTRUCTIONAL/LESSON OBJECTIVES:

On completion of this lesson the student shall be able to:

1. Outline lining in tunnels
2. Infer the importance of effective measures in lining of tunnels

TEACHING AIDS : White board, marker, Google Class room
TEACHING POINTS : tunnels

- Lining
- Overbreak
- Thickness of lining
- Material for lining

Assignment / Questions:

Signature of faculty

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EVALUATION STRATEGY

Academic **Y**ear : 2021-22 Year: II Semester : I.

Name of the Program: B.Tech Section: A

Course/Subject: Engineering Geology Course Code: GR20A2010

Name of the Faculty: Mr Y kamala Raju Dept.: Civil Engineering

Designation: Assistant Professor

1. TARGET:

A) Percentage for pass: 90%

b) Percentage of class:

Total Strength: 131

S. No.	Class / Division	No. of Students
1	First Class with distinction	64
2	First Class	55
3	Pass Class	9

2. COURSE PLAN & CONTENT DELIVERY

S.No	Plan	Brief Description
1	Practice classes	65 Theory classes for Section A
2	Demonstration	Demonstration of experiments in the lab
3	Assignments	Assignments for the related concepts

3. METHOD OF EVALUATION

3.1 **Continuous Assessment Examinations**

- Assignments: Assignments to assess the knowledge of the student on the basics and concepts in Engineering Geology, physical properties of minerals, types of rocks, properties of rocks, structural geology like folds, faults, joints, unconformities. Also causes and effects of earth quakes, landslides and purposes of tunneling.
- Seminars: To assess the knowledge of the student in Engineering geology.
- Quiz: To assess the knowledge of the student in various concepts and basics of Engineering Geology.
- Internal Examination: Internal Examinations to assess their overall knowledge in Engineering Geology.

3.2. Semester/End Examination

To test their abilities in the course Engineering Geology and to approve their abilities learnt during the same.

4. List out any new topic(s) or any innovation you would like to introduce in teaching the subjects in this Semester.

Introduce some more case studies / models in the practical's / laboratory exercises.

Signature of HOD

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Signature of faculty

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MAPPING

P-Outcomes / C-Outcomes	A	B	C	D	E	F	G	H	I	J	K	L	PSO1	PSO2
1	H	M	M			M	H	M	H		M	M	M	
2	H	M	M	M		M			M	M		M		H
3	H	M	M	M		M				M		M	M	
4		M		M		M	H	M	H		M		M	
5	H			M		M			H	M	H	M		M

P-Outcomes / C-Outcomes	A	B	C	D	E	F	G	H	I	J	K	L	PSO1	PSO2
CO1	3	2	2			2	3	2	3		2	2	2	
CO2	3	2	2	2		2			2	2		2		3
CO3	3	2	2	2		2				2		2	2	
CO4		2		2		2	3	2	3		2		2	
CO5	3		2	2		2			3	2	3	2		2
Expected Attainment	3.00	2.00	2.00	2.00	0.00	2.00	3.00	2.00	2.75	2.00	2.33	2.00	2.00	2.50

Course	Program Outcomes												Pso1	Pso2
	a	b	c	d	e	f	g	h	i	J	k	l		
Engineering Geology	X	X	X	X		X	X			X		X		

GR20A2010/ Engineering Geology	Program Outcomes													
Course Outcomes	**a**	**b**	**c**	**d**	**e**	**f**	**g**	**h**	**i**	**J**	**k**	**l**		
Ability to recognize the causes of failures of Civil Engineering structures due to Geological reasons and can assess this knowledge when they take up any civil engineering constructions.	H	M	M			M	H	M	H		M	M	M	M
Ability to relate how various rocks and minerals form in the earth's crust and how to utilize them for various Engineering constructions.	H	M	M	M		M			M	M		M		M
Ability to find and analyse various geological structures like faults, folds, effect on civil engineering structures and precautions to be taken.	H	M	M	M		M				M		M		M
Ability to indicate the importance of subsurface flows, water tables, ground water. Discuss about the rocks, minerals and geological structures from Civil Engineering point of view.		M		M		M	H	M	H		M		M	
Ability to analyse the failures of tunnels, dams and reservoirs due to geological reasons. Indicate importance of ground water, earthquakes and landslides.	H			M		M			H	M	H	M	H	M

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RUBRIC TEMPLATE

Academic **Y**ear : 2021-22 Year: II Semester : I.

Name of the Program: B.Tech Section: A

Course/Subject: Engineering Geology Course Code: GR20A2010

Name of the Faculty: Mr Y kamala Raju Dept.: Civil Engineering

Designation: Assistant Professor

Objective: To learn basics and concepts of Engineering geology.
Student Outcome: Learn physical properties of minerals and rocks and geological structures like folds, faults, joints and unconformities, geological reference with respect to dams, reservoirs, and tunnels.

			Beginning	**Developing**	**Reflecting Development**	**Accomplished**	**Exemplary**	**Score**
S.No	**Name of the Student**	**Performance Criteria**	**1**	**2**	**3**	**4**	**5**	
1	20241A0142	The level of knowledge on basic properties of minerals	Low level of knowledge on basic properties of minerals	Able to discuss the basic properties of minerals	Ability to explain the basic properties of minerals	Full knowledge on basic properties of minerals	Analysing and implementing the knowledge of properties of minerals	5
		The level of knowledge on types of rocks and their importance in civil engineering constructions	Low level of knowledge on types of rocks and their importance in civil engineering constructions	Able to discuss types of rocks and their importance in civil engineering constructions	Ability to explain types of rocks and their importance in civil engineering constructions	Full knowledge on types of rocks and their importance in civil engineering constructions	Analysing and application of knowledge on types of rocks and their importance in civil engineering constructions	4
		The level of knowledgeon HVAC systems.	Low level of knowledge to analyse various geological structures.	Ability to discuss and to study the various geological structures.	Ability to explain various geological structures.	Full knowledge on various geological structures.	Analysing and implementing the knowledge of various geological structures.	3
							Average Score	4

Gokaraju Rangaraju Institute of Engineering and Technology
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Department of Civil Engineering

II B.Tech. I Semester (AY2021-22)

I - Mid-Term Examinations Time: ½ hour

Subject Code: GR20A2010 **Engineering Geology** . 16/12/2021

PART-B

(Answer any two questions)

Marks: 2X5=10M

1. Describe the various Branches of Engineering Geology? (CO1) [5M]
2. Define rock cycle? Explain with the help of neat diagrammatic sketches? (Co2) [5M]
3. Define Denudation and Explain Mass moment in weathering process? (Co2) [5M]

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Gokaraju Rangaraju Institute of Engineering and Technology

Department of Civil Engineering

B.Tech II Year-I Sem **I-Mid Term Examination (Objective)**

Sub: Engineering Geology

Time: 10 Min **Max. Marks: 10M**

PART-A

Answer all questions. All questions carry equal marks.

1. What do scientists use to record the waves of an earthquake? [ ]
   A. Scale B. Ruler C. Seismograph D. Balance
2. In a dip-slip fault, if the hanging wall block moved up relative to the footwall block, then the fault is classified as a _____ . [ ]
   A. Reverse fault B. Normal Fault C. Shear fault D. None
3. In a dip-slip fault, if the hanging wall block moved down relative to the footwall block, then the fault is classified as a _____ . [ ]
   A. Reverse fault B. Normal Fault C. Shear fault D. None
4. Landslides are classified on the basis of the type of material that existed prior to the landslide and the type of movement that dominates during the landslide. Select from the following list the types of material that might exist prior to a landslide. [ ]
   a. Rock b. Soil c. Earth d. All
5. Select from the following list the type of movement that might occur during a landslide.
   a. Falling b. Sliding c. Spreading d. All [ ]
6. Which of the following classes represent earthquakes with magnitudes between 6 and 6.9? [ ]
   (a)moderate (b) great (c) strong (d) light
7. Earth materials weather at different rates. The previous statement refers to the process of [ ]
   a. Wethering b. Differential wethering c. Physical Weathering d. None
8. An impermeable formation that neither contains nor transmit water is called [ ]
   a) Aquifer b) Aquiclude c) Aquifuge d) Aquitard
9. In general, fine-grained rocks have [ ]
   a) High porosity b) High permeability c) High porosity and permeability d) High porosity and low permeability
10. Which of the following materials has the highest porosity? [ ]
    a) Clay b) Silt c) Gravels d) Sandstones

Gokaraju Rangaraju Institute of Engineering and Technology

Department of Civil Engineering

Mid I Marks

Roll No	Student name	Total Marks (20)
20241A0101	AADHI SRIKAR RAO	13
20241A0102	ABHIRAM SAI YADAV JANGITI	7
20241A0103	BACCHUGUDAM RITHVIK REDDY	12
20241A0104	BANDLA NAVEEN	18
20241A0105	B.PRANAV SAI	12
20241A0106	BHATTU SUPREETH CHAKRAVARTHY	14
20241A0107	BHUPATHIRAJU HIMANTHAVARMA	8
20241A0108	BOINI HEMANTH	AB
20241A0109	CHALLA AJAY KUMAR	17
20241A0110	DONABOINA SRI HARI	6
20241A0111	EPPA ARNAV	12
20241A0112	G L N RAGHURAMAN	17
20241A0113	GANDLA HARSHITH KUMAR	16
20241A0114	GUGGILLA SHASHANK	5
20241A0115	GUNDA SRIKANTH	18
20241A0116	JANGILI SRAVAN KUMAR	17
20241A0117	JANJIRALA SRUTHI	17
20241A0118	JARAPULA JAYANTH	18
20241A0119	K NIKHITHA	19
20241A0120	K SANJEEV KUMAR	AB
20241A0121	K.KONDAL	AB
20241A0122	KAMMAMPATI UDAYKIRAN	18
20241A0123	KARNE SRITHAN	18
20241A0124	KUNCHALA VARUN KUMAR	AB
20241A0125	KUNTA NITHIN REDDY	17
20241A0126	M PAVAN KALYAN	18
20241A0127	MERE MAHESH	18
20241A0128	MOHAMMED AHMED	13
20241A0129	MOTHUKURI LAXMAN	18
20241A0130	MOTTADI ADITYA TEJA	13
20241A0131	MULA SUSHMA SRI	17
20241A0132	NAYINI SWETHA	19
20241A0133	PAIDIPALLY BHARATH	6
20241A0134	P.SAI KIRAN REDDY	17
20241A0135	PASNOOR PAVAN PRATHAP REDDY	15
20241A0136	PATHLAVATH SHIVA NAYAK	20
20241A0137	PEDDIBOINA ANUSHA	17
20241A0138	PO'REDDY ABHINAV REDDY	11
20241A0139	PULLAGURA SANTHOSH	7
20241A0140	RACHALA BHARATH	AB
20241A0141	RADHARAPU SHAJI KUMAR	8
20241A0142	RAMAVATH ROJA	20
20241A0143	RATHLAVATH SAIRAM NAYAK	18
20241A0144	RAVI TEJA PASUNUTHI	19
20241A0146	SADDI SHRIANK REDDY	18

20241A0147	SATHVIKA NARLA	11
20241A0148	SOKKULA KOUSHIKREDDY	7
20241A0149	SRIRAM PANDAVULA	18
20241A0150	T.BHARGAVI	19
20241A0151	T.BHUVANESHWARI	17
20241A0152	S.TEJA RETIESH REDDY	15
20241A0153	TEJAVATH KALYANI	16
20241A0154	TELLAPURAM PRUDHVI RAJ	18
20241A0155	THADEM ROHITH	18
20241A0156	THUMMALA RAJASHEKAR	15
20241A0157	UVSGR KAMESWARA SAI KARTHIK	15
20241A0158	SREERAM VATTEM	18
20241A0159	V VIKESH	17
20241A0160	VENNAM SRIKAR	17
21245A0101	GUMADAVELLI ARUN KUMAR	17
21245A0102	KADIRABAD SRIRAM	18
21245A0103	MANIKONDA NIKITHA	20
21245A0104	PARIDULA PRATHYUSHA	18
21245A0105	PATERU MOUNA	20

B.Tech II Year-I Sem **II-Mid Term Examination (Objective)**

Sub: Engineering Geology-GR20A2010 **Date of Exam: 5/2/2022**

Time: 10 Min **Max. Marks: 10M**

PART-A

Answer all questions. All questions carry equal marks.

5. What do scientists use to record the waves of an earthquake? [ ]

A. Scale B. Ruler C. Seismograph D. Balance

6. In a dip-slip fault, if the hanging wall block moved up relative to the footwall block, then the fault is classified as a _____ . [ ]

A. Reverse fault B. Normal Fault C. Shear fault D. None

7. In a dip-slip fault, if the hanging wall block moved down relative to the footwall block, then the fault is classified as a _____ . [ ]

A. Reverse fault B. Normal Fault C. Shear fault D. None

8. Landslides are classified on the basis of the type of material that existed prior to the landslide and the type of movement that dominates during the landslide. Select from the following list the types of material that might exist prior to a landslide. [ ]

a. Rock b. Soil c. Earth d. All

5. Select from the following list the type of movement that might occur during a landslide.

a. Falling b. Sliding c. Spreading d. All [ ]

7. Which of the following classes represent earthquakes with magnitudes between 6 and 6.9? [ ]

(a)moderate (b) great (c) strong (d) light

7. Earth materials weather at different rates. The previous statement refers to the process of [ ]

a. Wethering b. Differential wethering c. Physical Weathering d. None

8.An impermeable formation that neither contains nor transmit water is called [ ]

a) Aquifer b) Aquiclude c) Aquifuge d) Aquitard

9. In general, fine-grained rocks have [ ]

a) High porosity b) High permeability c) High porosity and permeability d) High porosity and low permeability

10. Which of the following materials has the highest porosity? [ ]

a) Clay b) Silt c) Gravels d) Sandstones

Gokaraju Rangaraju Institute of Engineering and Technology
(Autonomous)
Department of Civil Engineering

II B.Tech. I Semester (AY2021-22)

II - Mid-Term Examinations Time: ½ hour

Subject Code: GR20A2010 **Engineering Geology** . 5/**2**/202**2**

PART-B

(Answer any **two** questions**)**

Marks: 2X5=10M

4. Write an account on the importance of physical geology in Civil Engineering constructions? Co3 [5M]

5. Write notes on the following:
   a. Favourable conditions for the reservoir construction.
   b. Types of Dams? Co4 [5M]

6. Differentiate between the earthquake and landslides? Co5 [5M]

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ASSIGNMENT-1

Academic **Y**ear : 2021-22 Year: II Semester : I.

Name of the Program: B.Tech Section: A

Course/Subject: Engineering Geology Course Code: GR20A2010

Name of the Faculty: Mr Y kamala Raju Dept.: Civil Engineering

Designation: Assistant Professor

This Assignment corresponds to Unit No. - I

Q1. What are the reasons for the geological failure of Ram ganga diversion tunnel? Co4

Q2. Write the reasons for the failures of following tunnels Co4

a) Bassein creek tunnel b) Umiam -Barapani stage-1 tunnel

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Signature of HOD Signature of faculty

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ASSIGNMENT– 2

Academic **Y**ear : 2021-22 Year: II Semester : I.

Name of the Program: B.Tech Section: A

Course/Subject: Engineering Geology Course Code: GR20A2010

Name of the Faculty: Mr Y kamala Raju Dept.: Civil Engineering

Designation: Assistant Professor

This Assignment corresponds to Unit No. - II

Q1. What are the different types of minerals available in the states of Andhra Pradesh and Telangana and mention the places where they are available? Co2

Q2.What are the different types of rocks available in the states of Andhra Pradesh and Telangana and mention the places where they are available?

Co2

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Signature of HOD Signature of faculty

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ASSIGNMENT-3

Academic **Y**ear : 2020-21 Year: II Semester : I

Name of the Program: B.Tech Section: A

Course/Subject: Engineering Geology Course Code: GR20A2010

Name of the Faculty: Mr Y kamala Raju Dept.: Civil Engineering

Designation: Assistant Professor

This Assignment corresponds to Unit No. - III

Q1. What are the reasons for the geological failure of Ram ganga diversion tunnel and where is it located? Co4

Q2. Write the reasons for the failures of following tunnels

a) Bassein creek tunnel b) Umiam -Barapani stage-1 tunnel Co4

.

Signature of HOD Signature of faculty

Date: Date:

Gokaraju Rangaraju Institute of Engineering and Technology (Autonomous)

Bachupally, Kukatpally, Hyderabad – 500 090, (040) 6686 4440

ASSIGNMENT– 4

Academic **Y**ear : 2020-21 Year: II Semester : IDate:

Name of the Program: B.Tech Section: A

Course/Subject: Engineering Geology Course Code: GR20A2010

Name of the Faculty: Mr Y kamala Raju Dept.: Civil Engineering

Designation: Assistant Professor

This Assignment corresponds to Unit No. - II

Q1. What are the different types of minerals available in the states of Andhra Pradesh and Telangana and mention the places where they are available? Co2

Q2.What are the different types of rocks available in the states of Andhra Pradesh and Telangana and mention the places where they are available? Co2

.

Signature of HOD Signature of faculty

Date: Date:

Gokaraju Rangaraju Institute of Engineering and Technology (Autonomous)

Bachupally, Kukatpally, Hyderabad – 500 090, (040) 6686 4440

ASSIGNMENT SHEET – 5

Academic **Y**ear : 2020-21 Year: II Semester : IDate:

Name of the Program: B.Tech Section: A

Course/Subject: Engineering Geology Course Code: GR20A2010

Name of the Faculty: Mr Y kamala Raju Dept.: Civil Engineering

Designation: Assistant Professor
Designation: Assistant Professor

This Assignment corresponds to Unit No. - V & Lesson

Q1. Identify the importance of alignment in tunneling. Co4

Q2. Outline various purposes of tunneling. Co4

Q3. Compare overbreak and lining of tunneling. Co4

Objective Nos.:
Outcome Nos.:

Signature of HOD Signature of faculty

Date: Date:

Gokaraju Rangaraju Institute of Engineering and Technology (Autonomous)

Bachupally, Kukatpally, Hyderabad – 500 090. (040) 6686 4440

TUTORIAL SHEET - 1

Academic **Y**ear : 2020-21 Year: II Semester : IDate:

Name of the Program: B.Tech Section: A

Course/Subject: Engineering Geology Course Code: GR20A2010

Name of the Faculty: Mr Y kamala Raju Dept.: Civil Engineering

Designation: Assistant Professor
Designation: Assistant Professor

This Tutorial corresponds Lesson

Q1. Identify the effect of ground water table for tunneling. Co5

Q2. Outline about effects of tunneling on the ground. Co5

Q3. Compare Geological Considerations and Lithological considerations for tunneling. Co5

Objective Nos.:
Outcome Nos.:

Gokaraju Rangaraju Institute of Engineering and Technology (Autonomous)

Bachupally, Kukatpally, Hyderabad – 500 090, (040) 6686 4440

TUTORIAL SHEET - 2

Academic **Y**ear : 2020-21 Year: II Semester : IDate:

Name of the Program: B.Tech Section: A

Course/Subject: Engineering Geology Course Code: GR20A2010

Name of the Faculty: Mr Y kamala Raju Dept.: Civil Engineering

Designation: Assistant Professor

This Assignment corresponds to Unit No. - I

Q1. What are the reasons for the geological failure of Ram ganga diversion tunnel and where is it located? Co4

Q2. Write the reasons for the failures of following tunnels Co4

a) Bassein creek tunnel b) Umiam -Barapani stage-1 tunnel Co4

.

Signature of HOD Signature of faculty

Date: Date:

Gokaraju Rangaraju Institute of Engineering and Technology (Autonomous)

Bachupally, Kukatpally, Hyderabad – 500 090, (040) 6686 4440

TUTORIAL SHEET - 3

Academic **Y**ear : 2020-21 Year: II Semester : I

Name of the Program: B.Tech Section: A

Course/Subject: Engineering Geology Course Code: GR20A2010

Name of the Faculty: Mr Y kamala Raju Dept.: Civil Engineering

Designation: Assistant Professor

This Assignment corresponds to Unit No. - II

Q1. What are the different types of minerals available in the states of Andhra Pradesh and Telangana and mention the places where they are available? Co2

Q2.What are the different types of rocks available in the states of Andhra Pradesh and Telangana and mention the places where they are available? Co2

.

Signature of HOD Signature of faculty

Date: Date:

Gokaraju Rangaraju Institute of Engineering and Technology (Autonomous)

Bachupally, Kukatpally, Hyderabad – 500 090, (040) 6686 4440

TUTORIAL SHEET - 4

Academic **Y**ear : 2020-21 Year: II Semester : I

Name of the Program: B.Tech Section: A

Course/Subject: Engineering Geology Course Code: GR20A2010

Name of the Faculty: Mr Y kamala Raju Dept.: Civil Engineering

Designation: Assistant Professor

This Assignment corresponds to Unit No. - III

This Tutorial corresponds to Unit No. - II & Lesson

Q1. Relate the common structures and textures of sedimentary rocks. Co2

Q2. Examine the various physical properties of common rock forming minerals like Feldspar and Kyanite Co2

Q3. Examine the various properties of Basalt and its importance in civil engineering. Co2

Objective Nos.:
Outcome Nos.:

Gokaraju Rangaraju Institute of Engineering and Technology (Autonomous)

Bachupally, Kukatpally, Hyderabad – 500 090, (040) 6686 4440

TUTORIAL SHEET - 5

Academic **Y**ear : 2020-21 Year: II Semester : IDate:

Name of the Program: B.Tech Section: A

Course/Subject: Engineering Geology Course Code: GR20A2010

Name of the Faculty: Mr Y kamala Raju Dept.: Civil Engineering

Designation: Assistant Professor

This Assignment corresponds to Unit No. - I

Q1. Relate the role of study of physical properties of minerals in the identification of minerals.

Q2. Examine the various physical properties of common rock forming minerals like Quartz and Biotite.

Q3. Examine the various properties of Limestone and its importance in civil engineering.

Objective Nos.:
Outcome Nos.:

GR20 2021-22 B.Tech CE 210, Section: A GR20A2010 Engineering Geology Sessional I

S.No	Roll No	MID-I Marks	MID-II Marks	Tutorial Marks	Assessment Marks
1	20241A0101	13	18	5	5
2	20241A0102	7	17	3	3
3	20241A0103	12	17	3	3
4	20241A0104	15	18	5	5
5	20241A0105	12	14	3	5
6	20241A0106	14	19	3	5
7	20241A0107	8	12	3	5
8	20241A0108	16	13	5	5
9	20241A0109	17	19	3	3
10	20241A0110	6	14	3	5
11	20241A0111	12	19	3	5
12	20241A0112	17	18	5	5
13	20241A0113	16	17	5	5
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64	21245A0105	20	19	5	5

Engineering Geology
MID-II EXAMINATION

Name : Tejhaagavi
Roll No: 20241A0150
Branch: Civil

1) a 2) b 3) b 4) b 5) c 6) b 7) c 8) c 9) a 10) c

11A) a) Types of joints

1) primary joints

The joints developed in igneous rocks due to cooling and contraction of magma mass are called primary joints.

2) Master joint

A very large joint that can be traced over an extensive area is called a master joint

3) Strike joint

A strike joint strikes parallel to strike of the country rocks

4) Dip joint

A Dip joint necessarily strikes parallel to the direction of dip of the beds forming the country rocks

5) Oblique joints or diagonal joints

An oblique joint strikes neither parallel to the strike direction nor parallel to dip direction of the country rocks ie it is strike direction lies in between the Dip as well as strike.

6) columnar joint conjugate joints

Where two intersecting joint sets are oriented at right angles to each other they are called conjugate joints.

7) columnar joints

columnar joints are developed due to tensile

forces in lava forces flows

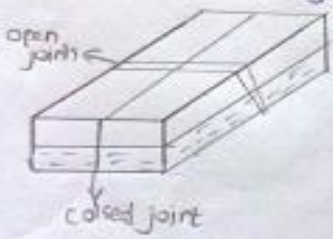
They are developed due to intersection of two or more vertical joint sets within the affected rock mass.

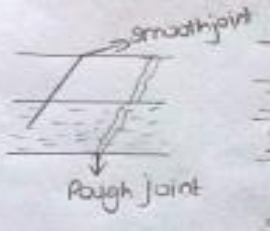
6) sheet joint

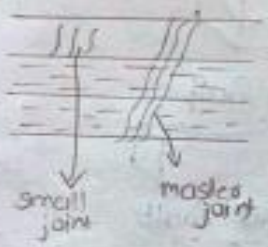
A numbers of closely spaced parallel joints which are horizontal in altitude are called sheet joints

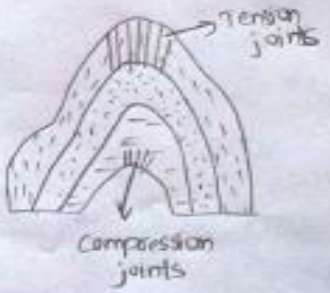
9) Musal joints

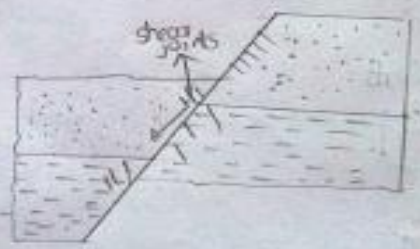
When three sets of joints are developed with equal spacing between them, they split up the rock masses into cubical blocks such joint pattern are called musal joints.





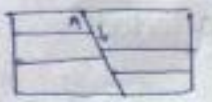




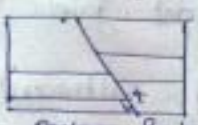


1B)

1) Normal fault



2) Reverse fault



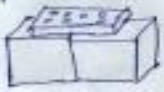
Reverse fault

3) Thrust fault

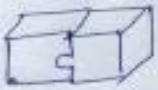
4) Taffy fault

5) Transiset fault

6) Splinted fault

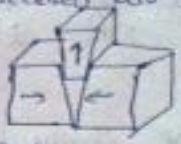


7) Bolo fault



8) Apple pacer cable fault

9) squeezed bars of soap fault



10) Radial fault

11) Bedding fault

12) Ring fault

13) Synthetic fault

14) Antithetic fault

3. a) An earth quake is a sudden shaking (or trembling) of the earth which lasts for a very short time.

Earth quakes are caused by a sudden release of stress along faults in the earths crust. The continuous motion of tectonic plates causes a steady build up of pressure in the rock strata on both sides of a fault until the stress is sufficiently great that it is released in a sudden jerky movement. The resulting waves of seismic energy propagate through the ground and over its surface, causing the shaking we perceive as earth quake

Types of seismic waves

1) p-waves
2) s-waves
3) surface waves

b) Causes of land slides:

- Increase in pore water pressure
- Reduction in cohesive strength caused by progressive fat erization.
- Hair cracks due to alternate swelling and shrinkage from tension

Effects of landslide

- loss of life
- destruction of infrastructure
- damage to land and loss of natural resources

Gokaraju Rangaraju Institute of Technology

Name :- Hemanth . B Roll No :- 2024 1A0108

Subj :- Environmental Science Branch :- Civil (A)

Section - A

1) d
2) b
3) b
4) b
5) c
6) a
7) d
8) a
9) c
10) a

Major threats to Biodiversity :-

1) Biodiversity is threatened by anthropogenic activities in many ways to eliminate millions of species. Habitat loss is the major cause of species extinction. Habitat loss may be qualitative and quantitative losses :-

Qualitative losses involve a change in the structure, function or composition of the habitat. Eg :- If a paper industry discharging chemicals into a waterway system and polluting / poisoning the water, thus there has been a qualitative loss. Quantitative losses is measured by looking at a precisely mapped area and determining how much of the habitat area is no longer present. Eg :- If a wet land is paved over, then there has been a quantitative loss of wet land.

Diseases ; The spread of non-native species threatens many local species with extinction (Eg : Dodo); Climate changes etc disturb and cause the elimination of species.

3) Importance of Environmental Education

→ Environment belongs to all - Should be Environment literate

→ Our lifestyles becomes self-oriented. To change the mindset of modern society for an Earth-Centric approach.

→ need Environmental education about serious health impacts of pollution and to know their right to live in clean and healthy Environment

→ To follow sustainability principles.