I Year II Semester		L	T	P	C
		3	0	0	3
INTRODUCTION TO MINING GEOLOGY					

COURSE OBJECTIVES:

1) To analyse the importance of geology to mining engineering.
2) To classify the minerals based on properties.
3) To classify types of mineral deposits.
4) To compare the properties of different types of rocks.
5) To identify different geological structures.

UNIT - I

Definition of Geology: Branches of Geology, Importance of Geology in Mining, Structure of earth; Mineral, rock, and ore; Weathering and Erosion.

UNIT – II

Definition of mineral – Classification of minerals – Physical properties of minerals –color, lusture, texture, grain size, hardness.

UNIT – III

Classification of Mineral deposits**:** Mineral resources, reserve classification, mineral distribution of India and World. Grade of ore and coal.

UNIT – IV

Petrology: Classification of rocks – igneous, sedimentary, and metamorphic origin, formation, structures, textures; Study of different types of igneous, sedimentary, and metamorphic rocks.

UNIT – V

Structural Geology: Folds, faults, dykes/sills, joints, unconformity – types, characteristics, and their significance; Strike, dip, thickness of bedded deposits.

TEXT BOOKS:

1. Engineering Geology – Parbin Singh, 3rd Edition.
2. Principles of Engineering Geology – K.M.Bangar, 6th Edition.
3. A text book of Geology – G.B.Mahapathra, 2nd Edition.

REFERENCE BOOKS:

1. P.B. Marland, Structural Geology, prentice Hall of India Pvt.Ltd.,3rd Edition ,1990.
2. P.K. Mukherjee, A Text Book of Geology, The World Press Pvt.Ltd.,9thEdition ,1993.

Web Links:

1. https://pubs.usgs.gov/of/2003/ofr-03-210/IV_Geology.pdf
2. https://profiles.uonbi.ac.ke/cnyamai/files/lecture_1_mineralogy_and_crystallography-_review.pdf
3. http://www.d.umn.edu/~jgoodge/geol2312-1/Ch%2001.pdf,

COURSE OUTCOMES:

At the end of the course student will be able to:	
CO 1:	Analyse the importance of geology to mining engineering.
CO 2:	Classify the minerals based on properties
CO 3:	Classify types of mineral deposits.
CO 4:	Compare the properties of different types of rocks.
CO 5:	Identify different geological structures.

I Year II Semester		L	T	P	C
		0	0	0	1.5
GEOLOGY LAB					

COURSE OBJECTIVES:

1) To apply the knowledge of geology in the field of Mining engineering.
2) To determine the megascopic identification of physical properties of various minerals and rocks.
3) To interpret with Geological, topographical and satellite maps.
4) To identify various geological formations.
5) To distinguish various landforms and rock formations in constructional areas.

List of Experiments:

1) To study different Physical properties of minerals and their identification.
2) To determine hardness of minerals using Mohr's scale of hardness.
3) To study different Physical properties of igneous rocks.
4) To study different Physical properties of sedimentary rocks.
5) To study different Physical properties of metamorphic rocks.
6) To identify folds, faults in geological maps.
7) To measure strike and dip of various outcrops in the field.
8) To draw the strike lines, measure the dip of the beds.
9) To prepare a geological map and its profile.
10) To study crystallographic models of different minerals.

List of Augmented Experiments:

11) To identify unconformity in geological maps.
12) To calculate true Thickness of the beds.

REFERENCE BOOKS:

1. 'Applied Engineering Geology Practical's by M T Mauthesha Reddy, New Age International Publishers, 2nd Edition.
2. 'Foundations of Engineering Geology' by Tony Waltham, Spon Press, 3rd Edition, 2009

Web Links:

1. https://www.imwa.info/docs/imwa_1988/IMWA1988_Cripps_077.pdf.

COURSE OUTCOMES:

CO 1:	Apply the knowledge of geology in the field of Mining engineering.
CO 2:	Determine the megascopic identification of physical properties of various minerals and rocks.
CO 3:	Interpret with Geological, topographical and satellite maps.
CO 4:	Identify various geological formations.
CO 5:	Distinguish various landforms and rock formations in constructional areas.