

GUJARAT TECHNOLOGICAL UNIVERSITY
B. E. SEMESTER: VI
Mining Engineering

Subject Name: **Economic Geology – I**
 Subject Code: **162201**

Teaching Scheme				Evaluation Scheme		
Theory	Tutorial	Practical	Total	University Exam (Theory) (E)	Mid Sem Exam (Theory) (M)	Practical (I)
3	0	2	5	70	30	50

Sr. No	Course Content	Total Hrs.
1.	Brief history and uses of minerals and development of Economic Geology. Minerals and their economic classification. Rock forming and economic minerals. Metallic, non metallic and Metallic minerals, non metallic (Industrial) minerals and mineral fuels (Petroleum, Coal and Nuclear minerals). Ore and gangue minerals. Importance of minerals in national economy –	8
2.	Classification of economic minerals deposit forming processes. Economic minerals deposit forming processes of Igneous association and Magmatic concentration : early and late magmatic concentration processes. Economic deposits associated with acidic, basic and ultrabasic rocks -	8
3.	Pegmatites : As a rock and economic deposit forming process, Simple and complex pegmatites, Indian Pegmatite belts -	4
4.	Contract Metasomatism : Skarns as a process of formation of economic deposit. Role of intrusive and invaded rocks. Characteristics of the deposits. Metamorphism as ore forming process -	6
5.	Hydrothermal : Process and deposits. Origin and nature of hydrothermal solutions. Wall rock alteration. Crustification and comb structures, cavity filling and metasomatic replacement type deposits. Hypo-, meso-, epi-, tele-, and Xenothermal deposits –	6

6.	Volcanogenic Process and deposits, Characteristics, mode of occurrence and genesis of important Indian deposits of the following metallic deposits golds, copper, lead and zinc, chromium and tungsten -	4
7.	Mode of occurrence, genesis, Indian deposits and economic uses of Industrial minerals with special reference to following industries, Refractory, Abrasive, Glass and ceramic, fertilizer, cement, paint and pigment, and Gem stones -	6

Reference Books:

1. Economic Geology – Sen & Ghua
2. Indian Mineral Resources – D.K.Banerjee
3. Textbook of Geology – G.B.Mahapatra
4. General & Engg. Geology- Prabin Singh