



GUJARAT TECHNOLOGICAL UNIVERSITY

Bachelor of Engineering

Subject Code: 3162213

Semester – VI

Subject Name: Environment Management

Type of course: Open Elective (Mining)

Prerequisite: Before learning this course students must know about the surface mining operations.

Rationale: The course is designed to help the student in understanding the different approaches to manage over all environments of mining area and the surroundings. They can predict the environmental impacts due to mining activity and take suitable preventive measures. This course is helpful in grasping process of environmental study, its importance, impacts due to mining and systematic approach for mitigation measures.

Teaching and Examination Scheme:

Teaching Scheme			Credits C	Examination Marks				Total Marks
L	T	P		Theory Marks		Practical Marks		
				ESE (E)	PA (M)	ESE (V)	PA (I)	
3	0	0	3	70	30	0	0	100

Content:

Sr. No.	Content	Total Hrs
1.	Introduction: Sustainable development, environmental carrying capacity - concepts & principles; Environmental impacts of mining and associated activities.	5
2.	Ecology: Introduction to ecology, ecosystem structures and functions.	5
3.	Air pollution: Atmospheric composition and meteorology; Sources of air pollution – point and non-point; Emission factors; Control measures – extraction, suppression and consolidation of dust.	5
4.	Noise and vibration: Basic concepts, sources, monitoring and control measures.	4
5.	Water pollution: Global hydrological cycle; Self purification mechanism, sources of water pollution, important parameters–pH, turbidity, oil & grease, nitrates, DO, BOD, COD; Eutrophication, deoxygenation, acid mine drainage and heavy metal pollution–preventive and control measures.	5
6.	Land environment: Land degradation due to mining; Physical and biological reclamation.	4
7.	Environmental administration: Laws related to mining environment; EIA of mining projects	5
8.	Land Acquisition & Revenue: Concepts: Related laws and regulations.	4



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9.	Corporate Social Responsibility (CSR): Concepts and principles.	4
10.	Mine closure: Concepts and principles.	4

Suggested Specification table with Marks (Theory):

Distribution of Theory Marks					
R Level	U Level	A Level	N Level	E Level	C Level
20%	30%	30%	10%	10%	0%

Legends: R: Remembrance; U: Understanding; A: Application, N: Analyze and E: Evaluate C: Create and above Levels (Revised Bloom's Taxonomy)

Note: This specification table shall be treated as a general guideline for students and teachers. The actual distribution of marks in the question paper may vary slightly from above table.

Reference Books:

Sr. No.	Author	Title of Books	Publication
1	D.J.Deshmukh	Elements of Mining Technology Vol.2	Denett & Co. Nagpur
2	KL Tiwari and Jadhav	Paryavaran Addhyan	I K International Pvt Ltd- New Delhi
3	Dr. N C Saxena	Environent Management in Mining Area	Lovely Prakashan
4	G.B. Mishra	Mine Ventilation & Environment	Lovely Prakashan
5	S.K.Maiti	Hand book of methods iesin environment stud	Lovely Prakashan
6	T V Ramchandra and Vijay Kullkarni	Environmental Management	TERI Press New Delhi



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Course Outcomes:

Sr. No.	CO statement	Marks % weightage
CO-1	Identify different mining activities resulting in environment pollution which are increasing environmental health problems.	20%
CO-2	Illustrate and familiarize the basic concepts of scope of environmental safety.	20%
CO-3	Prepare Environmental Impact Assessment (EIA) and Environmental Management Plans (EMP).	20%
CO-4	Correlate EIA and EMP to legal aspects.	20%
CO-5	Plan the methodology for monitoring and reviewing the relief and rehabilitation works.	20%