GUJARAT TECHNOLOGICAL UNIVERSITY

MINING ENGINEERING
MINE SAFETY ENGINEERING
SUBJECT CODE: 2182204
B.E. 8th SEMESTER

Type of course: Undergraduate Level

Prerequisite: Zeal to learn Subject

Rationale: The course is designed to help the student in understanding the different accidents occurs in mines and how can increase the safety of workers and machineries and also to give knowledge about safety engineering and safety education and training.

Teaching and Examination Scheme:

Teaching Scheme			Credits	Examination Marks						Total Marks
				Theory Marks			Practical Marks			
L	T	P	C	ESE (E)	PA (M)		ESE (V)		PA (I)	
					PA	ALA	ESE	OEP		
3	0	0	3	70	20	10	0	0	0	100

Content:

Sr. No.	Content	Total Hrs	% Weightage
1	Development of industrial safety movement with special reference to mining; Accident costs, safety and productivity, safety standards, accident compensation and insurance.	**4**	**8**
2	Accident cause concept of causes; unsafe conditions; unsafe acts, purpose and procedure of investigation. Accidents reports. Corrective action; personal protective equipment, emergency organization.	**5**	**10**
3	Accident proneness; age experience; physical fitness; effect of environment. Accidents classifications Different bases.	**4**	**8**
4	Accidents rates; frequency and severity rates; inter-industry and international comparisons, accidents record and statistics. Accident and incident analysis.	**6**	**12**
5	Safety organization, role of Management, supervisors and workers; pit safety committee; workmen's inspection, Role of safety officers.	**4**	**8**
6	Arousing and maintaining safety, interest, publicity and propaganda for safety, development of safe behavior, safety instruction, audiovisual aids, safety drives and campaigns; appraisal of safety program.	**6**	**12**
7	Safety engineering: layout and safety; maintenance and safety; job safety analysis. Safety education and training.	**5**	**10**
8	Vocational training as an aid of safety and productivity; techniques of training; lesson plan; training aids; training games, discussion method, motivation of workers.	**7**	**16**
9	Mine vocational training scheme, staff and institution facilities; training records and reports; appraisal of trainees; assessment and evaluation of training schemes.	**7**	**16**

Suggested Specification table with Marks (Theory):

Distribution of Theory Marks					
R Level	U Level	A Level	N Level	E Level	C Level
64%	**18%**	**12%**	**2%**	**2%**	**2%**

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:

1. Safety in Mines by Prof. B. K. Khejriwal.
2. N. J. Bahr, System Safety engineering and risk assessment: A practical approach, Taylor and Francis, 1997.
3. H. E. Roland and B. Moriarty, System Safety engineering and management, Wiley Interscience., 1990.

Course Outcome: After learning the course the students should be able to help the student in understanding the different accidents occurs in mines and how can increase the safety of workers and machineries and also to give knowledge about safety engineering and safety education and training.

List of Open Source Software/learning website:

1. Wikipedia.com

ACTIVE LEARNING ASSIGNMENTS: Preparation of power-point slides, which include videos, animations, pictures, graphics for better understanding theory and practical work – The faculty will allocate chapters/ parts of chapters to groups of students so that the entire syllabus to be covered. The power-point slides should be put up on the web-site of the College/ Institute, along with the names of the students of the group, the name of the faculty, Department and College on the first slide. The best three works should submit to GTU.