

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

Subject Name: **Mine Hazards**
 Subject Code: **162204**

Teaching Scheme				Evaluation Scheme		
Theory	Tutorial	Practical	Total	University Exam (Theory) (E)	Mid Sem Exam (Theory) (M)	Practical (I)
4	0	2	6	70	30	50

Sr. No	Course Content	Total Hrs.
1.	<p>Mine fires and spontaneous combustion:</p> <p>Surface fires, its effects; causes and prevention; underground fires:</p> <p>(a) spontaneous combustion; its causes, detection and preventive measures;</p> <p>(b) accidental fires causes and prevention. Physical and chemical characteristics of coal liable to spontaneous heating, Detection by practical and scientific method, preventive measures and dealing with underground fires.</p>	10
2.	<p>Study of atmosphere behind sealed off area, factors of conditions for reopening:</p> <p>different method of reopening, difficulties, dangers and safety measures various mean for fires fighting. Fire fighting organization.</p>	10
3.	<p>Dust in mines:</p> <p>dangers, formation, prevention and suppression. Dust sampling apparatus, their construction and applications.</p>	6

4.	<p>Explosion:</p> <p>methane layering. Types, causes of explosions and preventive measures. Fire damp explosion limits of explosibility of fire damp, factor affecting the limit of explosibility, sources of initiation of fire damp explosion. Coal dust explosion, relative inflammability of coal dust, its measurements. Factors affecting relative inflammability; safeguards against coal dust explosion, watertreatment, stone dust and dusting; stone dust and water barriers, water gas explosion causes and safety measures.</p>	10
5.	Problems of radiation in atomic mineral mines.	2
6.	<p>Mine rescue and recovery work:</p> <p>different type of rescue equipments; test on rescue apparatus. Rescue station, recovery and first aid appliances. Training of personnel and organization of rescue station; rescue and recovery work in connection with mine fire, explosion and other conditions.</p>	10
7.	<p>Mine inundations:</p> <p>causes; precautionary measures; precautions to be taken while approaching old workings. Burnside boring apparatus. Design and construction of water dams; recovery of flooded mines. Dewatering of old working. Water blast dangers and precautions.</p>	8

Reference Books:

1. Elements of Mining Technology – Vol. II
2. Mine Ventilation – G.B.Mishra
3. U.M.S.
4. Mine Rescue & Disaster – A.Ramlu