

DEPARTMENT OF MINING ENGINEERING
LECTURE PLAN

Course: VII Semester B.Tech (Mining Engineering) Session: 2025-2026 Semester: Monsoon

Subject: Mine Environmental Engineering (MND406)

Subject Teacher: Dr Patitapaban Sahu L– T – P: 3 – 0 – 0

Topic	Lecture Hours +Tutorials
Unit-1 Mine fires: Causes and classification of mine fires; Spontaneous combustion of coal- mechanism, stages of spontaneous combustion, susceptibility indices, factors affecting spontaneous combustion; Detection and prevention of spontaneous heating and accidental fires; Dealing with mine fires- direct and indirect methods; Fire stoppings; Re-opening of sealed-off fire areas; Fires in quarries, coal stacks and waste dumps.	12
Unit-2 Mine explosions: Firedamp and coal dust explosions- causes and prevention, explosive limits; Explosion barriers; Explosion in quarries over developed pillars; Investigation after occurrence of explosion.	9
Unit-3 Inundation: Causes and prevention; Design and construction of water dams; Precautions and techniques for approaching old workings; Dewatering of waterlogged workings- pattern of holes, safety boring apparatus.	5
Unit-4 Rescue and recovery: Rescue equipment and their uses, classification of rescue apparatus; Resuscitation; Rescue stations and rescue rooms; Organisation of rescue work; Emergency preparedness and response system.	5
Unit-5 Airborne respirable dust: Dust generation and dispersion in mines; Physiological effects of dust, dust-related diseases; Maximum allowable respirable dust concentration; Sampling of respirable dust; Dust suppression and control.	7
Unit-6 Illumination: Cap lamps; Layout and organisation of lamp rooms; Standards of illumination; Photometry and illumination survey in mines.	4
Total	42

LIST OF REFERENCE BOOKS

1. Mine Disasters and Mine Rescue by M.A. Ramlu
2. Mine Environment and Ventilation by G.B. Misra
3. Mine Ventilation by S.P. Banerjee
4. Mine Environmental Engineering, Vol. 1 & Vol. 2 : Mritunjoy Sengupta
5. Environmental Engineering in Mines : V. S. Vutkuri and R. D. Lama
6. Advanced mine ventilation: Pramod Thakur
7. Prevention and combating mine fires: S.C. Banerjee

***Note:** The question paper would comprise of 50% of average level, 30% of moderate level and 20% of high difficulty level. Evaluation schemes are as follows: (i) 30% weightage in mid-semester and 50% in end-semester examinations. (ii) 20% weightage in Quiz, viva-voce and/or assignment.*



(P Sahu)

Associate Professor/Mining Engg.