

[Lecture 1 - State of the Environment](#)

[Lecture 2 - Environmental Movement](#)

[Lecture 3 - Definitions of Environmental Terms](#)

[Lecture 4 - Water Pollutants](#)

[Lecture 5 - Water Pollutants \(Continued...\)](#)

[Lecture 6 - Water Pollution Modelling-Surface Water](#)

[Lecture 7 - Water Pollution Modelling-Surface Water\(Continued...\)](#)

[Lecture 8 - BOD Modelling - Part 1](#)

[Lecture 9 - BOD Modelling - Part 2](#)

[Lecture 10 - Oxygen Demanding Waste in Streams - Part 1](#)

[Lecture 11 - Oxygen Demanding Waste in Streams - Part 2](#)

[Lecture 12 - Ground Water and its Contamination](#)

[Lecture 13 - Ground Water and its Contamination \(Continued...\)](#)

[Lecture 14 - Ground Water and its Contamination \(Continued...\)](#)

[Lecture 15 - Waste Water Treatment](#)

[Lecture 16 - Wastewater Treatment \(Continued...\)](#)

[Lecture 17 - Wastewater Treatment \(Continued...\)](#)

[Lecture 18 - Chemical Treatment](#)

[Lecture 19 - Wetland Treatment and Bio-Technology Applications](#)

[Lecture 20 - Introduction to Soil](#)

[Lecture 21 - Parameters to Soil for Vegetative Growth](#)

[Lecture 22 - Parameters to Soil for Vegetative Growth \(Continued...\)](#)

[Lecture 23 - Soil Acidity](#)

[Lecture 24 - Soil Erosion](#)

[Lecture 25 - Mechanical Soil Erosion Control](#)

[Lecture 26 - Soil Erosion Prediction](#)

[Lecture 27 - Universal Soil Loss Equation](#)

[Lecture 28 - Air Pollutants](#)

[Lecture 29 - Health Effects of Air Pollutants - Part 1](#)

[Lecture 30 - Health Effects of Air Pollutants - Part 2](#)

[Lecture 31 - Air Pollutants and Meteorology - Part 1](#)

[Lecture 32 - Air Pollutants and Meteorology - Part 2](#)

[Lecture 33 - The Point-Source Gaussian Plume Model](#)

[Lecture 34 - Ground Level Concentration](#)

[Lecture 35 - Emission Control](#)

[Lecture 36 - EIA, EMP & EA](#)

[Lecture 1 - Introduction to Drilling Technology](#)

[Lecture 2 - Introduction to Blasting Technology](#)

[Lecture 3 - Rock Formation](#)

[Lecture 4 - Rock Formation \(Continued...\)](#)

[Lecture 5 - Rock Formation \(Continued...\)](#)

[Lecture 6 - Rock Properties and Testing - 1](#)

[Lecture 7 - Rock Properties and Testing - 2](#)

[Lecture 8 - Drilling Mechanism](#)

[Lecture 9 - Drillability of Rock](#)

[Lecture 10 - Drilling Machines - 1](#)

[Lecture 11 - Drilling Machines - 2](#)

[Lecture 12 - Drilling Pattern - 1](#)

[Lecture 13 - Drilling Pattern - 2](#)

[Lecture 14 - Special Drilling Methods - I](#)

[Lecture 15 - Special Drilling Methods - II](#)

[Lecture 16 - Explosives - 1](#)

[Lecture 17 - Explosives - 2](#)

[Lecture 18 - Explosives accessories - 1](#)

[Lecture 19 - Explosives accessories - 2](#)

[Lecture 20 - Explosives accessories - 3](#)

[Lecture 21 - Explosives properties - 1](#)

[Lecture 22 - Explosives properties - 2](#)

[Lecture 23 - Explosives properties - 3](#)

[Lecture 24 - Basics of blasting - 1](#)

[Lecture 25 - Basics of blasting - 2](#)

[Lecture 26 - Explosive storage and transportation - 1](#)

[Lecture 27 - Explosive storage and transportation - 2](#)

[Lecture 28 - Surface blasting - 1](#)

[Lecture 29 - Surface blasting - 2](#)

[Lecture 30 - Surface blast design](#)

[Lecture 31 - Underground blast design - 1](#)

[Lecture 32 - Underground blast design - 2](#)

[Lecture 33 - Blasting results - 1](#)

[Lecture 34 - Blasting results - 2](#)

[Lecture 35 - Blasting results - 3](#)

[Lecture 36 - Blasting results - 4](#)

[Lecture 37 - Problems - 1](#)

[Lecture 38 - Problems - 2](#)

[Lecture 39 - Problems - 3](#)

[Lecture 40 - Problems - 4](#)

Lecture 1 - Introduction to Network Analysis

Lecture 2 - Introduction to network and some terminology

Lecture 3 - Construction of network

Lecture 4 - Introduction to activity on node diagram and comparison with arrow diagram

Lecture 5 - Rules of dummy job, redundancy and cycles

Lecture 6 - Critical path and its calculation

Lecture 7 - Algorithm for critical path early start and early finish times

Lecture 8 - Late start and late finish times algorithm

Lecture 9 - Understanding the slack

Lecture 10 - Examples of slacks and calculation of AON network

Lecture 11 - Project due dates and earliest completion time examples

Lecture 12 - CPM model and cost modelling

Lecture 13 - Lowest cost schedule and optimum schedule

Lecture 14 - Crashing and stretching of jobs

Lecture 15 - Crashing and stretching of jobs (Continued...)

Lecture 16 - Introduction to PERT

Lecture 17 - Expected length of critical path calculation with examples

Lecture 18 - Probability of completion of a project

Lecture 19 - Event oriented project management

Lecture 20 - Algorithm and computer program

Lecture 1 - Introduction to Mining Machinery - Part A

Lecture 2 - Introduction to Mining Machinery - Part B

Lecture 3 - Introduction to Machine Elements

Lecture 4 - Mechanical Transmission of Power

Lecture 5 - Shafts, Pulleys, Gears, and Geartrains Bearing and Brakes

Lecture 6 - Belt Drives, Chain Drives

Lecture 7 - Prime Movers

Lecture 8 - Fluid Power for Mining Machinery

Lecture 9 - Pneumatic Power for Mining Machinery

Lecture 10 - Steel Wire Rope : Types and Basic Calculation

Lecture 11 - Steel Wire Rope Maintenance

Lecture 12 - Principle of Rock - Tool Interaction

Lecture 13 - Site and Rock Preparation Equipment : Dozer Ripper

Lecture 14 - Site and Rock Preparation Equipment : Ripper

Lecture 15 - Drilling Machines for Mining

Lecture 16 - Site and Rock Preparation Equipment : Scraper

Lecture 17 - Site and Rock Preparation Equipment : Motor Grader

Lecture 18 - Surface Mining Machinery : Machinery for Cyclic Excavation : Electric Rope Shovel

Lecture 19 - Surface Mining Machinery : Machinery for Cyclic Excavation : Hydraulic Excavators and Back Hoe

Lecture 20 - Surface Mining Machinery : Machinery for Cyclic Excavation : Front End Loader

Lecture 21 - Surface Mining Machinery : Machinery for Cyclic Excavation : Dragline

Lecture 22 - Surface Mining Machinery : Machinery for Continuous Excavation : Bucket Wheel Excavator

Lecture 23 - Surface Mining Machinery : Machinery for Continuous Excavation : Bucket Chain Excavators

Lecture 24 - Surface Mining Machinery : Machinery for Continuous Excavation : Continuous Surface Miner

Lecture 25 - Surface Mining Machinery : Machinery for Continuous Excavation : Dredger

Lecture 26 - Underground Mining Machinery Loaders : Gathering Arm Loader

Lecture 27 - Underground Mining Machinery Loaders : Rocker Shovel and Side Discharge Loader

Lecture 28 - Underground Mining Machinery Loaders : Load Haul Dump (LHD) Loader

Lecture 29 - Underground Mining Machinery : Road Header

Lecture 30 - Underground Mining Machinery Underground Drills and Roof Bolter

Lecture 31 - Underground Mining Machinery Continuous Miner

[Lecture 32 - Underground Mining Machinery Shuttle Car](#)

[Lecture 33 - Longwall Mining Machinery Shearer](#)

[Lecture 34 - Longwall Mining Machinery Armored Face Conveyor](#)

[Lecture 35 - Longwall Mining Machinery Power Support](#)

[Lecture 36 - Mine Pumps](#)

[Lecture 37 - Mine Pumps : Special Pumps](#)

[Lecture 38 - Basic Pumping Theory](#)

[Lecture 39 - Air Compressor](#)

[Lecture 40 - Fans for Mining](#)

[Lecture 41 - Transportation Machinery for Surface Mines](#)

[Lecture 42 - Automobiles in Mines and Mining Truck](#)

[Lecture 43 - Off-highway Trucks](#)

[Lecture 44 - Off-highway Trucks : Rimpull Curves and Tires](#)

[Lecture 45 - Off-highway Trucks : Performance](#)

[Lecture 46 - Belt Conveyor](#)

[Lecture 47 - Belt Conveyor Design Criteria](#)

[Lecture 48 - Power Requirements for Belt Conveyor](#)

[Lecture 49 - Belt Conveyor Maintenance](#)

[Lecture 50 - Aerial Rope Ways](#)

[Lecture 51 - Machinery for Underground Mine Transport](#)

[Lecture 52 - Endless Rope Haulage](#)

[Lecture 53 - Rope Haulage in Underground Mines](#)

[Lecture 54 - Locomotive](#)

[Lecture 55 - Equipment for Shaft : Winding Machines](#)

[Lecture 56 - Mechanics of Hoisting](#)

[Lecture 57 - Low Profile Dumper](#)

[Lecture 58 - Maintenance of Mining Machinery](#)

[Lecture 59 - Maintenance Management Information System](#)

[Lecture 60 - Non Destructive Testing](#)

Lecture 1 - Metals and Civilisation

Lecture 2 - Mine Life Cycle

Lecture 3 - Present Status of Mineral Deposits

Lecture 4 - Present Status of Underground Mining

Lecture 5 - Terminology - I

Lecture 6 - Terminology - II

Lecture 7 - Determination of Cut Off Grade - I

Lecture 8 - Determination of Cut Off Grade - II

Lecture 9 - Determination of Cut Off Grade - III

Lecture 10 - Dilution

Lecture 11 - Recovery

Lecture 12 - Adit - I

Lecture 13 - Adit - II

Lecture 14 - Incline Shaft

Lecture 15 - Shaft - I

Lecture 16 - Shaft - II

Lecture 17 - Shaft - III

Lecture 18 - Horizontal Drivages - I

Lecture 19 - Horizontal Drivages - II

Lecture 20 - Horizontal Drivages - III

Lecture 21 - Horizontal Drivages - IV

Lecture 22 - Raising and Winzing - I

Lecture 23 - Raising and Winzing - II

Lecture 24 - Raising and Winzing - III

Lecture 25 - Raising and Winzing - IV

Lecture 26 - Selection of Mining Methods - I

Lecture 27 - Selection of Mining Methods - II

Lecture 28 - Selection of Mining Methods - III

Lecture 29 - Selection of Mining Methods - IV

Lecture 30 - Selection of Mining Methods - V

Lecture 31 - Breast Stopping



[Lecture 32 - Sampling Practices](#)

[Lecture 33 - Stope and Pillar - I](#)

[Lecture 34 - Stope and Pillar - II](#)

[Lecture 35 - Room and Pillar Mining - I](#)

[Lecture 36 - Room and Pillar Mining - II](#)

[Lecture 37 - Tributary area method](#)

[Lecture 38 - Pillar Failure](#)

[Lecture 39 - Shrinkage Stopping - I](#)

[Lecture 40 - Shrinkage Stopping - II](#)

[Lecture 41 - Cut and Fill stoping - I](#)

[Lecture 42 - Cut and Fill stoping - II](#)

[Lecture 43 - Cut and Fill stoping - III \[Post Pillar Method\]](#)

[Lecture 44 - Backfill Materials](#)

[Lecture 45 - Backfill Materials - II](#)

[Lecture 46 - Rock Bolting - I](#)

[Lecture 47 - Rock Bolting - II](#)

[Lecture 48 - Cable Bolting](#)

[Lecture 49 - Sublevel Stopping](#)

[Lecture 50 - Long Hole Stopping](#)

[Lecture 51 - Resuing Method of Stopping](#)

[Lecture 52 - Square Set Stopping](#)

[Lecture 53 - Vertical Crater Retreat Method - I](#)

[Lecture 54 - Vertical Crater Retreat Method - II](#)

[Lecture 55 - Sublevel Caving - I](#)

[Lecture 56 - Sublevel Caving - II](#)

[Lecture 57 - Block Caving - I](#)

[Lecture 58 - Block Caving - II](#)

[Lecture 59 - Safety in U/G Metal Mines - I](#)

[Lecture 60 - Safety in U/G Metal Mines - II](#)

Lecture 1 - Rocks Mineral and Ore

Lecture 2 - Current Status of Surface Mining

Lecture 3 - Stripping Ratios and Pit Layouts - I

Lecture 4 - Stripping Ratios and Pit Layouts - II

Lecture 5 - Stripping Ratios and Pit Layouts - III

Lecture 6 - Phases of Surface Mining - I

Lecture 7 - Phases of Surface Mining - II

Lecture 8 - Phases of Surface Mining - III

Lecture 9 - Opening Through Box Cut - I

Lecture 10 - Opening Through Box Cut - II

Lecture 11 - Drilling Technology for Surface Blasting - I

Lecture 12 - Drilling Technology for Surface Blasting - II

Lecture 13 - Drilling Technology for Surface Blasting - III

Lecture 14 - Drilling Technology for Surface Blasting - IV

Lecture 15 - Technology for Surface Blasting - I

Lecture 16 - Technology for Surface Blasting - II

Lecture 17 - Technology for Surface Blasting - III

Lecture 18 - Technology for Surface Blasting - IV

Lecture 19 - Technology for Surface Blasting - V

Lecture 20 - Technology for Surface Blasting - VI

Lecture 21 - Excavation by Ripper - I

Lecture 22 - Excavation by Ripper - II

Lecture 23 - Excavation by Ripper - III

Lecture 24 - Excavation with Shovel - I

Lecture 25 - Excavation with Shovel - II

Lecture 26 - Excavation with Shovel - III

Lecture 27 - Excavation with Shovel - IV

Lecture 28 - Transportation in Surface Mines - I

Lecture 29 - Transportation in Surface Mines - II

Lecture 30 - Transportation in Surface Mines - III

Lecture 31 - Excavation with Surface Miner - I

[Lecture 32 - Excavation with Surface Miner - II](#)

[Lecture 33 - Excavation with Surface Miner - III](#)

[Lecture 34 - Excavation with Surface Miner - IV](#)

[Lecture 35 - Excavation with Surface Miner - V](#)

[Lecture 36 - Excavation with Dragline - I](#)

[Lecture 37 - Excavation with Dragline - II](#)

[Lecture 38 - Excavation with Dragline - III](#)

[Lecture 39 - Highwall Mining - I](#)

[Lecture 40 - Highwall Mining - II](#)

[Lecture 41 - Highwall Mining - III](#)

[Lecture 42 - Excavation with Bucket Wheel Excavator - I](#)

[Lecture 43 - Excavation with Bucket Wheel Excavator - II](#)

[Lecture 44 - Excavation with Bucket Wheel Excavator - III](#)

[Lecture 45 - Some Auxiliary Operations](#)

[Lecture 46 - Haul Road - I](#)

[Lecture 47 - Haul Road - II](#)

[Lecture 48 - Haul Road - III](#)

[Lecture 49 - Inland Transportation System - I](#)

[Lecture 50 - Inland Transportation System - II](#)

[Lecture 51 - Dimensional Stone Mining - I](#)

[Lecture 52 - Dimensional Stone Mining - II](#)

[Lecture 53 - Dimensional Stone Mining - III](#)

[Lecture 54 - Seabed Mining -I](#)

[Lecture 55 - Seabed Mining - II](#)

[Lecture 56 - Stability Of Bench Slopes - I](#)

[Lecture 57 - Stability Of Bench Slopes - II](#)

[Lecture 58 - Stability Of Bench Slopes - III](#)

[Lecture 59 - Closure Of Surface Mines - I](#)

[Lecture 60 - Closure Of Surface Mines - II](#)

Lecture 1 - Introduction to Automation

Lecture 2 - Principle of Automation and Strategies

Lecture 3 - Elements of Automated System

Lecture 4 - Elements of Automated System (Continued...)

Lecture 5 - Autonomous Haulage System

Lecture 6 - Autonomous Haulage System (Continued...)

Lecture 7 - Automated Drilling System

Lecture 8 - Automated Drilling System (Continued...)

Lecture 9 - Fleet Management System

Lecture 10 - Fleet Management System (Continued...)

Lecture 11 - Introduction to CMMS

Lecture 12 - Enterprise resource planning (ERP) system

Lecture 13 - Remote operation and control center

Lecture 14 - Remote operation and control center

Lecture 15 - Proximity Sensors

Lecture 16 - Proximity Sensors and Control System

Lecture 17 - Sensing System: Radar Technology

Lecture 18 - RFID in Mining Engineering

Lecture 19 - Introduction to Geo-fencing

Lecture 20 - CCD camera in Mine safety and management

Lecture 21 - GNSS in Mining

Lecture 22 - GNSS Case Studies - Part I

Lecture 23 - GNSS Case Studies - Part II

Lecture 24 - Image Processing and Analysis in Remote Sensing

Lecture 25 - Basics of Digital Image Processing

Lecture 26 - Automated communication and tracking technologies: Image processing

Lecture 27 - Automated Communication and Tracking Technologies: SCADA

Lecture 28 - SCADA and its Application in Mining

Lecture 29 - Introduction to VR Systems

Lecture 30 - Virtual Reality Application in Mining

Lecture 31 - Introduction to Augmented Reality (AR)

[Lecture 32 - Augmented Reality Application in Mining](#)

[Lecture 33 - Introduction - I](#)

[Lecture 34 - Introduction - II](#)

[Lecture 35 - Introduction to Probability and its associated terms](#)

[Lecture 36 - Introduction to Probability and its associated terms](#)

[Lecture 37 - Discrete Random Variable - Part I](#)

[Lecture 38 - Discrete Random Variable - Part II](#)

[Lecture 39 - Continuous Random Variable - Part I](#)

[Lecture 40 - Continuous Random Variable - Part II](#)

[Lecture 41 - Hypothesis Testing - I](#)

[Lecture 42 - Hypothesis Testing - II](#)

[Lecture 43 - t-test](#)

[Lecture 44 - Chi-Squared Test](#)

[Lecture 45 - Introduction to Machine Learning](#)

[Lecture 46 - Regression](#)

[Lecture 47 - Logistic Regression](#)

[Lecture 48 - K Nearest Neighbor](#)

[Lecture 49 - Support Vector Machine](#)

[Lecture 50 - Naïve Bayes Classifier](#)

[Lecture 51 - Artificial Neural Networks](#)

[Lecture 52 - K Means Clustering](#)

[Lecture 53 - DBSCAN](#)

[Lecture 54 - Principal Component Analysis \(PCA\)](#)

[Lecture 55 - Application of Big Data Analytics in Mining](#)

[Lecture 56 - Big Data and AI Used Cases](#)

[Lecture 57 - Cognitive Maintenance in Mining](#)

[Lecture 58 - Cognitive Maintenance Case Studies](#)

[Lecture 59 - Introduction to Orebody Modelling and Mine Design](#)

[Lecture 60 - Case studies on Orebody Modeling and Mine Design](#)

Lecture 1 - Introduction

Lecture 2 - Globalization and FDI

Lecture 3 - Mining enterprises

Lecture 4 - Acts and Regulations - I

Lecture 5 - Acts and Regulations - II

Lecture 6 - Reserve reporting practices

Lecture 7 - Reserve reporting practices (Continued...)

Lecture 8 - Ore Reserve Estimation - 1

Lecture 9 - Ore Reserve Estimation - 2

Lecture 10 - Mining Plan, Sustainable Mining and Mine Closure Plan

Lecture 11 - Mineral Auction Rules, 2015

Lecture 12 - Cutoff Grade - 1

Lecture 13 - Cutoff Grade - 2

Lecture 14 - Cutoff Grade - 3

Lecture 15 - Demand and Supply of Minerals

Lecture 16 - Feasibility study and Hypothetical project financing

Lecture 17 - Capital Expenditure and Operating Expenditure

Lecture 18 - Greenfield projects and Surface mine cost models

Lecture 19 - Underground mine cost models

Lecture 20 - Beneficiation Cost, Environmental Impact and Cost

Lecture 21 - Purpose and Types of Valuation studies

Lecture 22 - Time Value of Money - 1

Lecture 23 - Time Value of Money - 2

Lecture 24 - Time Value of Money - 3

Lecture 25 - Valuation models and Evaluation techniques

Lecture 26 - Introduction to mining finance

Lecture 27 - Cost of Capital - I

Lecture 28 - Cost of Capital - II

Lecture 29 - Determining Appropriate Discount Rate - 1

Lecture 30 - Determining Appropriate Discount Rate - 2

Lecture 31 - Problems and solutions - I

[Lecture 32 - Problems and solutions - II](#)

[Lecture 33 - Inflation - 1](#)

[Lecture 34 - Inflation - 2](#)

[Lecture 35 - Inflation - 3](#)

[Lecture 36 - Net Present Value \(NPV\)](#)

[Lecture 37 - Internal Rate of Return \(IRR\)](#)

[Lecture 38 - Modified Internal Rate of Return \(MIRR\)](#)

[Lecture 39 - Benefit Cost Ratio \(BCR\) and Discounted Payback Period](#)

[Lecture 40 - Problems and Solutions - III](#)

[Lecture 41 - Cost accounting in mining](#)

[Lecture 42 - Cost Volume Profit analysis - I](#)

[Lecture 43 - Cost Volume Profit analysis - II](#)

[Lecture 44 - Depreciation - I](#)

[Lecture 45 - Depreciation - II](#)

[Lecture 46 - Problems and Solutions - IV](#)

[Lecture 47 - Problems and Solutions - V](#)

[Lecture 48 - Mining and Minerals – other sources of finance](#)

[Lecture 49 - Business risk and Mining](#)

[Lecture 50 - Management and Quantification of mining investment risk](#)

[Lecture 51 - Coal Grade and Prices](#)

[Lecture 52 - Average sale price \(ASP\)](#)

[Lecture 53 - Royalty and Taxes - I](#)

[Lecture 54 - Royalty and Taxes - II](#)

[Lecture 55 - Critical minerals](#)

[Lecture 56 - Problems Solving](#)

[Lecture 57 - National Mineral Policy - I](#)

[Lecture 58 - National Mineral Policy - II](#)

[Lecture 59 - Current strategies in mining business](#)

[Lecture 60 - International trade in minerals and coal](#)