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NPTEL Video Course - Mining Engineering - Fundamentals of Environmental Pollution and Control
Subject Co-ordinator - Prof. J. Bhattacharyya
Co-ordinating Institute - IIT - Kharagpur
Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable
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
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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
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NPTEL Video Course - Mining Engineering - NOC: Drilling and Blasting Technology
Subject Co-ordinator - Prof. Kaushik Dey
Co-ordinating Institute - IIT - Kharagpur
Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable
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
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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
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NPTEL Video Course - Mining Engineering - NOC: Network Analysis for Mines and Mineral Engineering
Subject Co-ordinator - Prof. Kaushik Dey
Co-ordinating Institute - IIT - Kharagpur
Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable
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
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NPTEL Video Course - Mining Engineering - NOC: Mining Machinery
Subject Co-ordinator - Prof. Khanindra Pathak
Co-ordinating Institute - IIT - Kharagpur
Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable
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
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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

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NPTEL Video Course - Mining Engineering - NOC: Underground Mining of Metalliferous Deposits
Subject Co-ordinator - Prof. Bibhuti Bhusan Mandal
Co-ordinating Institute - IIT - Kharagpur
Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable
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
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Lecture 30 - Selection of Mining Methods - V
Lecture 31 - Breast Stoping
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 Stoping - I
Lecture 40 - Shrinkage Stoping - 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 Stoping
Lecture 50 - Long Hole Stoping
Lecture 51 - Resuing Method of Stoping
Lecture 52 - Square Set Stoping
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
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NPTEL Video Course - Mining Engineering - NOC: Surface Mining Technology
Subject Co-ordinator - Prof. Kaushik Dey
Co-ordinating Institute - IIT - Kharagpur
Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable
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
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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 Minimg - 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
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NPTEL Video Course - Mining Engineering - NOC: Mine Automation and Data Analytics
Subject Co-ordinator - Prof. Radhakanta Koner
Co-ordinating Institute - IIT-ISM Dhanbad
Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable
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 andtracking 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
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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 - Naà Â-ve 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
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NPTEL Video Course - Mining Engineering - NOC: Mineral Economics and Business
Subject Co-ordinator - Prof. Bibhuti Bhusan Mandal, Prof. Shantanu Kumar Patel
Co-ordinating Institute - IIT - Kharagpur
Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable
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
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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 â 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
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