

NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Civil Engineering - NOC:Rock Engineering

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Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction
Lecture 2 - Minerals and Rock Classes
Lecture 3 - Mineral Identification Procedure
Lecture 4 - Rock Identification Procedure
Lecture 5 - Geological Structures and Discontinuities
Lecture 6 - Spherical Representation of Geological Data - 1
Lecture 7 - Spherical Representation of Geological Data - 2
Lecture 8 - Spherical Representation of Geological Data - 3
Lecture 9 - Application of Graphical Representation of Geological Data
Lecture 10 - Laboratory Testing of Rocks - Sampling
Lecture 11 - Laboratory testing of Rocks - Preparations and UCS
Lecture 12 - Factors Influencing UCS and Modes of Failure in Compression
Lecture 13 - Failure Mechanism and Post-Failure Behaviour in Compression, Indirect Method for UCS
Lecture 14 - Indirect Method for UCS, Brazilian Test, Schmidt Rebound Hardness Test
Lecture 15 - Sound Velocity Test, Slake Durability Test, Swelling Pressure and Free Swell Test and Void Index
Lecture 16 - Shear Tests - 1
Lecture 17 - Shear Tests - 2
Lecture 18 - Engineering Classification of Intact Rocks, Concept of Rock Mass, RQD
Lecture 19 - Concept of Rock Mass, Factors Affecting Discontinuities
Lecture 20 - Factors Affecting Discontinuities
Lecture 21 - Classification of Rock Mass: Rock Mass Rating (RMR) - 1
Lecture 22 - Classification of Rock Mass: Rock Mass Rating (RMR) - 2
Lecture 23 - Classification of Rock Mass: Rock Mass Quality (Q-system) - 1
Lecture 24 - Classification of Rock Mass: Rock Mass Quality (Q-system) - 2
Lecture 25 - Classification of Rock Mass: Geological Strength Index (GSI)
Lecture 26 - Strength Criteria for Isotropic and Anisotropic Rock - 1
Lecture 27 - Strength Criteria for Isotropic and Anisotropic Rocks -2, Mohr's Failure Theory
Lecture 28 - Mohr-Coulomb Failure Criterion
Lecture 29 - Mohr-Coulomb Failure Criterion, Coulomb Navier Failure Criterion

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- Lecture 30 - Concept of Instantaneous c and $\dot{\epsilon}$: Balmer Approach
- Lecture 31 - Empirical Failure Criteria: Basics of Regression Analysis
- Lecture 32 - Hoek and Brown Criterion (1980)
- Lecture 33 - Parameters of Failure Criteria
- Lecture 34 - Failure Criteria for Rock Mass
- Lecture 35 - Tunneling: Underground Excavations
- Lecture 36 - Tunneling: Ground Conditions
- Lecture 37 - Elastic Stress Distribution Around Circular Tunnels - 1
- Lecture 38 - Elastic Stress Distribution Around Circular Tunnels - 2
- Lecture 39 - Elastic Analysis of Circular Tunnels - Displacements
- Lecture 40 - Thick Wall Cylinder in Biaxial Stress Field
- Lecture 41 - Elasto-Plastic Stress Distribution Around Circular Tunnel
- Lecture 42 - Underground Excavation Failure Mechanisms
- Lecture 43 - Structurally Controlled Failure: Roof Failure
- Lecture 44 - Structurally Controlled Failure: Sidewall Failures - 1
- Lecture 45 - Structurally Controlled Failure: Sidewall Failures - 2
- Lecture 46 - Rock Mass Support Interaction Analysis - 1
- Lecture 47 - Rock Mass Support Interaction Analysis - 2
- Lecture 48 - Rock Slope Stability
- Lecture 49 - Rock Slope Stability - Plane Failure
- Lecture 50 - Rock Slope Stability - Wedge Failure
- Lecture 51 - Rock Slope Stability - Circular Failure
- Lecture 52 - Rock Slope Stability - Toppling Failure - 1
- Lecture 53 - Rock Slope Stability - Toppling Failure - 2
- Lecture 54 - Rock Slope Stability - Toppling Failure - 3
- Lecture 55 - Rock Slope Stabilization
- Lecture 56 - Foundations on Weak Rocks
- Lecture 57 - Ultimate Bearing Capacity Using Bell's Approach
- Lecture 58 - Bearing Capacity from Classification Approaches and Based on UCS
- Lecture 59 - Bearing Capacity Based on Plate Load test; Treatment of Foundations
- Lecture 60 - Dam Foundation Problems