

INTRODUCTION TO NUMERICAL MODELING IN GEOTECHNICAL ENGINEERING WITH EMPHASIS ON FLAC MODELING

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DAY 1, MORNING SESSION

Introduction to Computational Geotechnics

- Numerical modeling approach
- Idealized field conditions to numerical modeling
- Algorithm of numerical modeling

Commercial Geotechnical Programs

- Programs developed by Itasca, Inc.
- Programs developed by PLAXIS
- Programs developed by Geo-Slope International Ltd.
- Other products

Theoretical Considerations

- Numerical methods
- Finite difference vs finite element methodologies
- Strength of material
- Constitutive models

DAY 1, AFTERNOON SESSION

Numerical Modeling in FLAC

- Introductory of modeling in FLAC
- Grid generation
- Geometry changes
- Material models and properties
- Boundary conditions
- Analyzing numerical model
- Response monitoring

Practical Application: Shallow Foundations

- Modeling and analysis of shallow foundations
- Monitoring results

DAY 2, MORNING SESSION

Practical Application: Retaining Wall Systems

- Soil nailing systems
- Anchor modeling
- Cantilever and gravity retaining wall modeling

Practical Application: Tunnel Modeling

- Modeling circular cross-section tunnels
- Liner modeling

DAY 2, AFTERNOON SESSION

Earthquake Modeling Using Fully Dynamic Analysis

- Constitutive models for dynamic analysis
- Dynamic analysis boundary conditions
- Material damping
- Earthquake loading
- Analyzing and report monitoring