

23CE502 : GEOTECHNICAL ENGINEERING

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NARSIMHA REDDY ENGINEERING COLLEGE
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Soil Formation

- • Definition, weathering processes, residual and transported soils.
- • Important definitions, formulas and engineering applications.
- • Suitable examples and field relevance for B.Tech students.

Soil Structure

- • Single grained, honeycomb, flocculated and dispersed structures.
- • Important definitions, formulas and engineering applications.
- • Suitable examples and field relevance for B.Tech students.

Moisture Content

- • Water content concept, significance and determination.
- • Important definitions, formulas and engineering applications.
- • Suitable examples and field relevance for B.Tech students.

Mass-Volume Relationships

- • Phase relationships among solids, water and air.
- • Important definitions, formulas and engineering applications.
- • Suitable examples and field relevance for B.Tech students.

Void Ratio & Porosity

- • Definitions, formulas and engineering significance.
- • Important definitions, formulas and engineering applications.
- • Suitable examples and field relevance for B.Tech students.

Degree of Saturation

- • Relation between water and void spaces.
- • Important definitions, formulas and engineering applications.
- • Suitable examples and field relevance for B.Tech students.

Unit Weights

- • Bulk, dry, saturated and submerged unit weights.
- • Important definitions, formulas and engineering applications.
- • Suitable examples and field relevance for B.Tech students.

Specific Gravity of Soil Solids

- • Definition, test procedure and applications.
- • Important definitions, formulas and engineering applications.
- • Suitable examples and field relevance for B.Tech students.

Field Density

- • Importance of in-situ density determination.
- • Important definitions, formulas and engineering applications.
- • Suitable examples and field relevance for B.Tech students.

Core Cutter Method

- • Principle, apparatus, procedure, merits and limitations.
- • Important definitions, formulas and engineering applications.
- • Suitable examples and field relevance for B.Tech students.

Sand Replacement Method

- • Principle, procedure and applications.
- • Important definitions, formulas and engineering applications.
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Relative Density

- • Concept for cohesionless soils and significance.
- • Important definitions, formulas and engineering applications.
- • Suitable examples and field relevance for B.Tech students.

Index Properties of Soils

- • Overview and role in soil identification.
- • Important definitions, formulas and engineering applications.
- • Suitable examples and field relevance for B.Tech students.

Grain Size Analysis

- • Sieve analysis and particle-size distribution.
- • Important definitions, formulas and engineering applications.
- • Suitable examples and field relevance for B.Tech students.

Grain Size Distribution Curve

- • Interpretation and coefficients.
- • Important definitions, formulas and engineering applications.
- • Suitable examples and field relevance for B.Tech students.

Consistency Limits

- • Liquid limit, plastic limit and shrinkage limit.
- • Important definitions, formulas and engineering applications.
- • Suitable examples and field relevance for B.Tech students.

Consistency Indices

- • Plasticity index, liquidity index and consistency index.
- • Important definitions, formulas and engineering applications.
- • Suitable examples and field relevance for B.Tech students.

I.S. Soil Classification System

- • Major groups and classification procedure.
- • Important definitions, formulas and engineering applications.
- • Suitable examples and field relevance for B.Tech students.

Engineering Uses of Classification

- • Selection of foundation and earthwork materials.
- • Important definitions, formulas and engineering applications.
- • Suitable examples and field relevance for B.Tech students.

Summary

- • Key concepts and practical importance in geotechnical engineering.
- • Important definitions, formulas and engineering applications.
- • Suitable examples and field relevance for B.Tech students.