23CE502 : GEOTECHNICAL ENGINEERING

Mr. L. Santhosh

Assistant Professor, Civil Engineering
Narsimha Reddy Engineering College (Autonomous)
Secunderabad, Telangana, India- 500100.

Permeability of Soils

- • Definition, importance and engineering significance.
- • Important theory, formulas and engineering applications.
- • Suitable explanations for B.Tech Geotechnical Engineering students.

Soil Water

- • Types of soil water: gravitational, capillary and hygroscopic.
- • Important theory, formulas and engineering applications.
- • Suitable explanations for B.Tech Geotechnical Engineering students.

Capillary Rise

- • Mechanism, factors affecting capillary rise and applications.
- • Important theory, formulas and engineering applications.
- • Suitable explanations for B.Tech Geotechnical Engineering students.

Flow of Water Through Soils

- • Laminar flow concept and seepage phenomena.
- • Important theory, formulas and engineering applications.
- • Suitable explanations for B.Tech Geotechnical Engineering students.

Darcy’s Law

- • Statement, assumptions, equation and limitations.
- • Important theory, formulas and engineering applications.
- • Suitable explanations for B.Tech Geotechnical Engineering students.

Coefficient of Permeability

- • Definition, units and significance.
- • Important theory, formulas and engineering applications.
- • Suitable explanations for B.Tech Geotechnical Engineering students.

Factors Affecting Permeability

- • Grain size, void ratio, soil structure and fluid properties.
- • Important theory, formulas and engineering applications.
- • Suitable explanations for B.Tech Geotechnical Engineering students.

Constant Head Permeability Test

- • Principle, apparatus, procedure and calculations.
- • Important theory, formulas and engineering applications.
- • Suitable explanations for B.Tech Geotechnical Engineering students.

Falling Head Permeability Test

- • Principle, procedure and suitability.
- • Important theory, formulas and engineering applications.
- • Suitable explanations for B.Tech Geotechnical Engineering students.

Permeability of Layered Soils

- • Horizontal and vertical permeability calculations.
- • Important theory, formulas and engineering applications.
- • Suitable explanations for B.Tech Geotechnical Engineering students.

Total Stress

- • Definition and computation in soil masses.
- • Important theory, formulas and engineering applications.
- • Suitable explanations for B.Tech Geotechnical Engineering students.

Neutral Stress (Pore Water Pressure)

- • Concept and importance.
- • Important theory, formulas and engineering applications.
- • Suitable explanations for B.Tech Geotechnical Engineering students.

Effective Stress

- • Definition and engineering significance.
- • Important theory, formulas and engineering applications.
- • Suitable explanations for B.Tech Geotechnical Engineering students.

Principle of Effective Stress

- • Terzaghi’s effective stress principle.
- • Important theory, formulas and engineering applications.
- • Suitable explanations for B.Tech Geotechnical Engineering students.

Seepage Through Soils

- • Seepage pressure and hydraulic gradient.
- • Important theory, formulas and engineering applications.
- • Suitable explanations for B.Tech Geotechnical Engineering students.

Quick Sand Condition

- • Critical hydraulic gradient and prevention.
- • Important theory, formulas and engineering applications.
- • Suitable explanations for B.Tech Geotechnical Engineering students.

Flow Nets

- • Introduction and graphical representation.
- • Important theory, formulas and engineering applications.
- • Suitable explanations for B.Tech Geotechnical Engineering students.

Stream Lines and Equipotential Lines

- • Definitions and characteristics.
- • Important theory, formulas and engineering applications.
- • Suitable explanations for B.Tech Geotechnical Engineering students.

Characteristics and Uses of Flow Nets

- • Seepage quantity, uplift pressure and exit gradient.
- • Important theory, formulas and engineering applications.
- • Suitable explanations for B.Tech Geotechnical Engineering students.

Summary

- • Key concepts of permeability, effective stress and flow nets.
- • Important theory, formulas and engineering applications.
- • Suitable explanations for B.Tech Geotechnical Engineering students.