

23CE502 : GEOTECHNICAL ENGINEERING

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NARSIMHA REDDY ENGINEERING COLLEGE
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UGC - Autonomous Institute
Accredited by **NBA** & **NAAC** with '**A**' Grade
Approved by **AICTE**
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Consolidation of Soils

- • Introduction, definition and engineering significance.
- • Includes theory, equations, derivations and engineering applications.
- • Suitable for B.Tech Geotechnical Engineering classroom presentation.

Compressibility of Soils

- • Concept of volume change under applied loads.
- • Includes theory, equations, derivations and engineering applications.
- • Suitable for B.Tech Geotechnical Engineering classroom presentation.

Types of Compressibility

- • Immediate, primary and secondary consolidation.
- • Includes theory, equations, derivations and engineering applications.
- • Suitable for B.Tech Geotechnical Engineering classroom presentation.

Immediate Settlement

- Mechanism, characteristics and applications.
- Includes theory, equations, derivations and engineering applications.
- Suitable for B.Tech Geotechnical Engineering classroom presentation.

Primary Consolidation

- • Expulsion of pore water and settlement process.
- • Includes theory, equations, derivations and engineering applications.
- • Suitable for B.Tech Geotechnical Engineering classroom presentation.

Secondary Consolidation

- • Creep settlement after primary consolidation.
- • Includes theory, equations, derivations and engineering applications.
- • Suitable for B.Tech Geotechnical Engineering classroom presentation.

Stress History of Clay

- • Importance of loading and unloading history.
- • Includes theory, equations, derivations and engineering applications.
- • Suitable for B.Tech Geotechnical Engineering classroom presentation.

Void Ratio–Pressure (e-p) Curve

- • Interpretation and engineering applications.
- • Includes theory, equations, derivations and engineering applications.
- • Suitable for B.Tech Geotechnical Engineering classroom presentation.

Void Ratio–Log Pressure (e-log p) Curve

- • Characteristics and significance.
- • Includes theory, equations, derivations and engineering applications.
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Normally Consolidated Soil

- • Definition and engineering behavior.
- • Includes theory, equations, derivations and engineering applications.
- • Suitable for B.Tech Geotechnical Engineering classroom presentation.

Over Consolidated Soil

- • Definition, OCR and characteristics.
- • Includes theory, equations, derivations and engineering applications.
- • Suitable for B.Tech Geotechnical Engineering classroom presentation.

Under Consolidated Soil

- • Definition and field conditions.
- • Includes theory, equations, derivations and engineering applications.
- • Suitable for B.Tech Geotechnical Engineering classroom presentation.

Pre-Consolidation Pressure

- • Concept and engineering significance.
- • Includes theory, equations, derivations and engineering applications.
- • Suitable for B.Tech Geotechnical Engineering classroom presentation.

Determination of Pre-Consolidation Pressure

- • Casagrande graphical method.
- • Includes theory, equations, derivations and engineering applications.
- • Suitable for B.Tech Geotechnical Engineering classroom presentation.

Terzaghi's One-Dimensional Consolidation Theory

- • Assumptions and governing principles.
- • Includes theory, equations, derivations and engineering applications.
- • Suitable for B.Tech Geotechnical Engineering classroom presentation.

Coefficient of Consolidation (C_v)

- • Definition and significance.
- • Includes theory, equations, derivations and engineering applications.
- • Suitable for B.Tech Geotechnical Engineering classroom presentation.

Square Root of Time Fitting Method

- • Procedure for determination of C_v .
- • Includes theory, equations, derivations and engineering applications.
- • Suitable for B.Tech Geotechnical Engineering classroom presentation.

Logarithm of Time Fitting Method

- • Procedure and interpretation.
- • Includes theory, equations, derivations and engineering applications.
- • Suitable for B.Tech Geotechnical Engineering classroom presentation.

Computation of Settlement

- • Calculation of total consolidation settlement.
- • Includes theory, equations, derivations and engineering applications.
- • Suitable for B.Tech Geotechnical Engineering classroom presentation.

Time Rate of Settlement

- Degree of consolidation and settlement prediction.
- Includes theory, equations, derivations and engineering applications.
- Suitable for B.Tech Geotechnical Engineering classroom presentation.