

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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Stress Distribution in Soils

- • Introduction to stress distribution beneath loaded areas.
- • Important theory, equations and engineering applications.
- • Suitable for B.Tech Geotechnical Engineering classroom teaching.

Boussinesq's Theory

- • Assumptions, equation and application for point loads.
- • Important theory, equations and engineering applications.
- • Suitable for B.Tech Geotechnical Engineering classroom teaching.

Vertical Stress Under Point Load

- • Stress variation along vertical plane.
- • Important theory, equations and engineering applications.
- • Suitable for B.Tech Geotechnical Engineering classroom teaching.

Horizontal Stress Distribution

- • Variation of stress along horizontal plane.
- • Important theory, equations and engineering applications.
- • Suitable for B.Tech Geotechnical Engineering classroom teaching.

Pressure Bulb

- • Concept, significance and interpretation.
- • Important theory, equations and engineering applications.
- • Suitable for B.Tech Geotechnical Engineering classroom teaching.

Westergaard's Theory

- • Assumptions and comparison with Boussinesq theory.
- • Important theory, equations and engineering applications.
- • Suitable for B.Tech Geotechnical Engineering classroom teaching.

Boussinesq vs Westergaard

- • Differences, limitations and applications.
- • Important theory, equations and engineering applications.
- • Suitable for B.Tech Geotechnical Engineering classroom teaching.

Uniformly Loaded Circular Area

- • Stress distribution beneath circular foundations.
- • Important theory, equations and engineering applications.
- • Suitable for B.Tech Geotechnical Engineering classroom teaching.

Stress Beneath Circular Loaded Area

- • Equations and influence factors.
- • Important theory, equations and engineering applications.
- • Suitable for B.Tech Geotechnical Engineering classroom teaching.

Uniformly Loaded Rectangular Area

- • Stress estimation beneath rectangular foundations.
- • Important theory, equations and engineering applications.
- • Suitable for B.Tech Geotechnical Engineering classroom teaching.

Influence Factors for Rectangular Areas

- • Use of charts and equations.
- • Important theory, equations and engineering applications.
- • Suitable for B.Tech Geotechnical Engineering classroom teaching.

Newmark's Influence Chart

- • Principle, construction and applications.
- • Important theory, equations and engineering applications.
- • Suitable for B.Tech Geotechnical Engineering classroom teaching.

Stress Calculation Using Newmark's Chart

- • Procedure and worked example.
- • Important theory, equations and engineering applications.
- • Suitable for B.Tech Geotechnical Engineering classroom teaching.

Compaction of Soils

- • Definition and objectives of compaction.
- • Important theory, equations and engineering applications.
- • Suitable for B.Tech Geotechnical Engineering classroom teaching.

Mechanism of Compaction

- • Reduction of air voids and densification process.
- • Important theory, equations and engineering applications.
- • Suitable for B.Tech Geotechnical Engineering classroom teaching.

Factors Affecting Compaction

- • Moisture content, energy, soil type and additives.
- • Important theory, equations and engineering applications.
- • Suitable for B.Tech Geotechnical Engineering classroom teaching.

Compaction Curves

- • OMC and MDD concepts from Proctor test.
- • Important theory, equations and engineering applications.
- • Suitable for B.Tech Geotechnical Engineering classroom teaching.

Effects of Compaction on Soil Properties

- • Strength, permeability and compressibility.
- • Important theory, equations and engineering applications.
- • Suitable for B.Tech Geotechnical Engineering classroom teaching.

Field Compaction Equipment

- • Rollers, rammers and vibratory compactors.
- • Important theory, equations and engineering applications.
- • Suitable for B.Tech Geotechnical Engineering classroom teaching.

Compaction Quality Control

- • Field density tests and acceptance criteria.
- • Important theory, equations and engineering applications.
- • Suitable for B.Tech Geotechnical Engineering classroom teaching.