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This book aims to assist in choosing ecological solutions for slopes that are prone to a variety of mass movements e.g. shallow failure or erosion. The book reviews the types of probabilistic models that may occur and describes briefly the nature of mass movements and the causes of these movements. There is focus on the use of ecological solutions on soil on slopes prone to mass movements. The book also introduces new ecological methods, and case studies are discussed.

Numerical Methods in Classification of Slopes

Use of Vegetation to Stabilize Soil on Slopes Prone to Mass Movements

This book offers a unified approach, which is conceptually, practically and philosophically more satisfying.

Slope Engineering - Ali Ihsan Kani - 2021-03-17

The field of slope engineering encompasses slope stability analysis and design, movement monitoring, and slope safety management and maintenance. Engineers in this field are concerned with the slope stability analysis and design for slopes that are exposed to natural and anthropogenic hazards, such as earthquakes, landslides, and erosion. This book addresses these topics and provides a comprehensive overview of the field of slope engineering.

Slope Analysis

Slope Analysis: Summary of the fundamental principles of slope analysis. It explores not only the similarities but also the differences in rock slopes and soil slopes, and it discusses the methods of slope analysis. The book offers a unified approach, which is conceptually, practically and philosophically more satisfying.

Numerical Methods in Geomechanics

Rainfall-Induced Soil Slope Failure

Rainfall-induced landslides are common around the world. With global climate change, their frequency is increasing and the consequences are becoming greater. Previous studies assess them mostly from the perspective of a single discipline—correlating landslides with rainstorms, geomorphology and hydrology in order to establish a threshold prediction value for rainfall-induced landslides; analyzing the slope’s stability using a geomechanical approach; or assessing the risk from field observations. This volume brings together, from a wide range of expertise, such information as may be useful in recognizing, avoiding, controlling, designing for, and correcting risks. Modern techniques and approaches are used to develop methods and tools for analysis and control of soil and rock slopes.

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Slope Stability and Reliability Analysis - Y. M. Cheng - 2018

Slope stability is a very important topic in many developed and highly congested cities, particularly for many cities in China where slope failures have killed many people and caused many injuries. The need for reliable methods of slope stability research and consultancy works in different countries, and has published two books entitled Soil Slope Stability Analysis and Foundation Engineering Handbook. The author is going to write a new book on slope stability analysis and slope reliability analysis, and the new materials will be useful to both students, engineers, as well as researchers. In this book, different methods of slope stability analysis will be discussed in a broad sense. Following that, the limit equilibrium and finite element methods will be discussed in more details, as these two methods are the commonly used for practical works. Detailed procedures for limit equilibrium analysis will be provided to assist the students, while the program SLOPE2000 will be introduced for the solution of more complicated problems. Some interesting engineering cases will be illustrated in this book. The author will also try to introduce the use of distinct element slope stability method, which is a technique still far from practical applications, but it does offer some insights which are not possible with the other methods. Following that, the author will introduce the importance of reliability slope stability analysis, which is an important issue for cities with complicated ground conditions and high water table. Due to the intensive computation required for reliability analysis, the author has implemented many suggested methods in a book, and this book is a work that is a combination of theoretical materials and practical works. In the book, SLOPE 2000 and SLOPE I D for two-dimensional and three-dimensional slope stability analysis as introduced in this book are developed mainly by the author, while the SLOPE2000 and SLOPE I D for three-dimensional slope stability analysis are written by Mr. L. Li and Mr. L. L. Liu for the helps in preparing parts of the works and the preparation of some of the figures in this book.


Flow more than ten years have passed since the first edition was published. During that period there have been a substantial number of changes in geotechnical engineering. As a result, the foundation engineering textbook has been revised previously deemed unsuitable for residential housing or other construction projects are now being used. Such areas include problematic soil regions, mining subsidence areas, and sanitary landfill sites. The procedure for soil deposit analysis or classification is an unsuitable foundation in construction foundation. As society develops and living standards rise, tall buildings, transportation facilities, and industrial complexes are increasingly being built. Because of the heavy design loads and the complicated environments, the traditional design concepts, construction materials, methods, and equipment also need improvement. Further, recent energy and material shortages have caused additional burdens on the engineering profession and brought about the need to develop new analytical procedures for the new design and construction.


This seventh edition of Soil Mechanics, widely praised for its clarity, explanation of deep analysis and extensive coverage, presents the fundamental principles of soil mechanics and illustrates how they are applied in practical situations. Worked examples throughout the book reinforce the explanations and a range of problems for the reader to solve provide further learning opportunities.