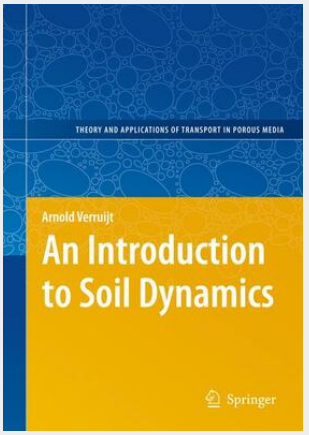
Verruijt

An Introduction to Soil Dynamics



to Soil Dynamics Arnold Verruijt Delft University of Technology, Delft, The Netherlands Arnold Verruijt Delft University of Technology 2628 CN Delft Netherlands a.verruijt@verruijt.net A CD-ROM accompanies this book containing programs for waves in piles, propagation of earthquakes in soils, waves in a half space generated by a line load, a point load, a strip load, or a moving load, and the propagation of a shock wave in a saturated elastic porous material. Computer programs are also available from the website http://geo.verruijt.net ISBN 978-90-481-3440-3 e-ISBN 978-90-481-3441-0 DOI 10.1007/978-90-481-3441-0 Springer Dordrecht Heidelberg London New York Library of Congress Control Number: 2009940507 © Springer Science+Business Media B.V. 2010 No part of this work may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic, mechanical, photocopying, micro?lming, recording or otherwise, without written permission from the Publisher, with the exception of any material supplied speci?cally for the purpose of being entered and executed on a computer system, for exclusive use by the purchaser of the work. Printed on acid-free paper Springer is part of Springer Science+Business Media (www.springer.com) Preface This book gives the material for an introductory course on Soil Dynamics, as given for about 10 years at the Delft University of Technology for students of civil en- neering, and updated continuously since 1994.

This book presents the basic principles of soil dynamics, and a variety of solutions of practical interest for geotechnical engineering, geophysics and earthquake engineering. Emphasis is on analytical solutions, often including the full derivation of the solution, and giving the main parts of computer programs that can be used to calculate numerical data. Reference is also made to a website from which complete computer programs can be downloaded. Soil behaviour is usually assumed to be linear elastic, but in many cases the effect of viscous damping or hysteretic damping, due to plastic deformations, is also considered. Special features are: the analysis of wave propagation in saturated compressible porous media, approximate analysis of the generation of Rayleigh waves, the analysis of the response of soil layers to earthquakes in the deep rock, with a theoretical foundation of such problems by the propagation of Love waves, and the solution of such basic problems as the response of an elastic half space to point loads, line loads, strip loads and moving loads. - Includes detailed derivations of solutions - Includes listings of main parts of computer programs - Computer programs are available from the website http://geo.verruijt.net - Includes dynamics of porous media Audience: Students and staff in soil dynamics at civil engineering, geophysics and earthquake engineering departments.

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