

CONTENTS

FOREWORD	iii
List of Textbooks and Monographs on Finite Element Technology	ix
Chapter 1 - Mathematical Theory of Finite Elements F. Brezzi	1
Chapter 2 - Basis Functions and Evaluation of Element Characteristics E. L. Wachspress	25
Chapter 3 - Principles for Design of Finite Element Meshes R. J. Melosh and S. Utku	57
Chapter 4 - Higher-Order, Special and Singular Finite Elements S. N. Atluri	87
Chapter 5 - Multifield (Mixed and Hybrid) Finite Element Models A. K. Noor	127
Chapter 6 - Solution of Linear Finite Element Equations J. K. Reid	163
Chapter 7 - Solution Techniques for Nonlinear Finite Element Equations W. C. Rheinboldt and E. Riks	183
Chapter 8 - Reanalysis, Modal Synthesis and Dynamic Design B. P. Wang, W. D. Pilkey, and A. B. Palazzolo	225
Chapter 9 - Solution Errors in Finite Element Analysis S. Utku and R. J. Melosh	297
Chapter 10 - Status and Trends in Finite Element Software E. Schrem	325
Chapter 11 - Application of Interactive Graphics and Other Programming Aids I. Griege and H. A. Kamel	341
Chapter 12 - Partial List of Major Finite Element Programs and Description of Some of Their Capabilities B. Fredriksson and J. Mackerle	363
Chapter 13 - Finite Elements in the Time Domain O. C. Zienkiewicz	405
Chapter 14 - Global-Local Finite Element Methods S. B. Dong	451
Chapter 15 - Finite Element and Boundary Element C. A. Brebbia	475
Chapter 16 - Impact of New Computing Systems on Finite Element Computations A. K. Noor, O. O. Storaasli, and R. E. Fulton	499