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Autore	Kaveh A (Ali), <1948->
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3.2.6 Computational Procedure3.2.7 Optimal Force Method; 3.3 Force Method for the Analysis of Frame Structures; 3.3.1 Minimal and Optimal Cycle Bases; 3.3.2 Selection of Minimal and Subminimal Cycle Bases; 3.3.3 Examples; 3.3.4 Optimal and Suboptimal Cycle Bases; 3.3.5 Examples; 3.3.6 An Improved Turn-Back Method for the Formation of Cycle Bases; 3.3.7 Examples; 3.3.8 An Algebraic Graph-Theoretical Method for Cycle Basis Selection; 3.3.9 Examples; 3.4 Conditioning of the Flexibility Matrices; 3.4.1 Condition Number; 3.4.2 Weighted Graph and an Admissible Member
3.4.3 Optimally Conditioned Cycle Bases3.4.4 Formulation of the Conditioning Problem; 3.4.5 Suboptimally Conditioned Cycle Bases; 3.4.6 Examples; 3.4.7 Formation of B0 and B1 matrices; 3.5 Generalised Cycle Bases of a Graph; 3.5.1 Definitions; 3.5.2 Minimal and Optimal Generalized Cycle Bases; 3.6 Force Method for the Analysis of Pin-jointed Planar Trusses; 3.6.1 Associate Graphs for Selection of a Suboptimal GCB; 3.6.2 Minimal GCB of a Graph; 3.6.3 Selection of a Subminimal GCB: Practical Methods; 3.7 Force Method of Analysis for General Structures
3.7.1 Flexibility Matrices of Finite Elements

Sommario/riassunto

This second edition of the highly acclaimed and successful first edition, deals primarily with the analysis of structural engineering systems, with applicable methods to other types of structures. The concepts presented in the book are not only relevant to skeletal structures but can equally be used for the analysis of other systems such as hydraulic and electrical networks. The book has been substantially revised to include recent developments and applications of the algebraic graph theory and matroids.