List of Changes

Fundamentals of Structural Analysis
6th Edition

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Fundamentals of Structural Analysis introduces to engineering and architecture students a range of techniques for analyzing structures, from classical methods to matrix analysis upon which modern computer analysis is based. After an introduction to design loads, a thoughtful review of prerequisite skills in statics for analyzing statically determinate structures is presented. Methods for computing deflections then pave the way for classical methods of analyzing indeterminate structures–the flexibility, slope-deflection, and moment distribution methods. Approximate analysis techniques useful for practical design are then presented. For application to bridge-type structures with moving loads, the concept of influence lines is also covered. Finally, the stiffness method is introduced and extended upon in the direct stiffness method using matrix analysis. Throughout, carefully drawn figures, helpful insights, and practical examples and problems are presented to make this text a useful guide for students (and practitioners) to learn the essential skills for analyzing structures.

SEE LIST OF CHANGES ATTACHED.

Changes to Leet: Fundamentals of Structural Analysis, 6e

Key Changes:

1. In response reviewer comments that **students need better preparation in the prerequisite skills** for learning indeterminate structural analysis, this edition has significant revisions to coverage of the basic topics in determinate structural analysis like drawing moment and shear diagrams. Revisions emphasize the consistent use of sign conventions for internal forces.

2. Over **300 figures have been revised**, sometimes extensively, to provide even more consistency and accuracy in the presentation of important aspects of the analysis methods.

3. **Expanded treatment of design loads.** Material from Chapter 2 on design loads has been incorporated into the "Practical Application" portions of the end-of-chapter problems throughout the text.

4. **New homework problems and a new focus on loadings**. A substantial number of the problems are new or revised for this edition (in both metric and U.S. Customary System units), and many are typical of analysis problems encountered in practice. The many choices enable the instructor to select problems suited for a particular class or for a particular emphasis. Further, many problems have been added which require the student to calculate the applied loading on a structure (using Chapter 2 as a reference) in addition to performing the analysis. These unique problems provide students a more realistic experience as structural engineers are responsible for both critical tasks.

5. **Review topics.** Chapters 3, 4, and 5 provide a useful review of fundamental skills of statics and basic structures like trusses and beams. This edition features many revisions in these chapters aimed at helping students more quickly and effectively refresh their skills in these topics.

6. **Computer problems and applications.** Computer problems, some new to this edition, provide readers with a deeper understanding of the structural behavior of trusses, frames, arches, and other structural systems. These carefully tailored problems illustrate significant aspects of structural behavior that, in the past, experienced designers needed many years of practice to understand and to analyze correctly. The computer problems are identified with a computer screen icon and begin in Chapter 4 of the text. The computer problems can be solved using the Educational Version of the commercial software RISA-2D that is available to users at the textbook website. However, any software that produces shear, moment, and axial load diagrams, and deflected shapes can be used to solve the problems.