
Preface

This course on the nonlinear analysis of solids and structures can be thought of as a continuation of the course on the linear analysis of solids and structures (see *Finite Element Procedures for Solids and Structures—Linear Analysis*) or as a stand-alone course.

The objective in this course is to summarize modern and effective finite element procedures for the nonlinear analysis of static and dynamic problems. The modeling of geometric and material nonlinear problems is discussed. The basic finite element formulations employed are presented, efficient numerical procedures are discussed, and recommendations on the actual use of the methods in engineering practice are given. The course is intended for practicing engineers and scientists who want to solve problems using modern and efficient finite element methods.

In this study guide, brief descriptions of the lectures are presented. The markerboard presentations and viewgraphs used in the lectures are also given. Below the brief description of each lecture, reference is made to the accompanying textbook of the course: *Finite Element Procedures in Engineering Analysis*, by K. J. Bathe, Prentice-Hall, Englewood Cliffs, N.J., 1982. Reference is also sometimes made to one or more journal papers.

The textbook sections and examples, listed below the brief description of each lecture, provide important reading and study material for the course.

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The combined efforts of these people plus the professionalism of the video crew and support staff helped me to present what I believe is a very valuable series of video-based lessons in *Finite Element Procedures for Solids and Structures—Nonlinear Analysis*.

Many thanks to them all!

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Resource: Finite Element Procedures for Solids and Structures
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