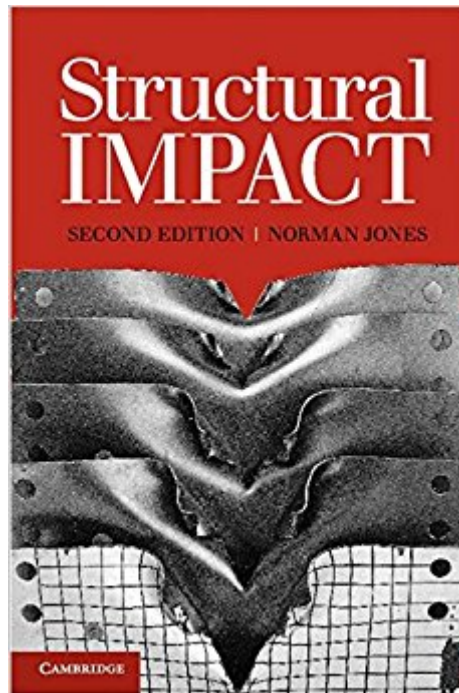




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Structural Impact



Synopsis

Structural Impact is concerned with the behaviour of structures and components subjected to large dynamic, impact and explosive loads which produce inelastic deformations and is of interest for safety calculations, hazard assessments and energy absorbing systems throughout industry. The first five chapters of this book introduce the rigid plastic methods of analysis for the static behaviour and the dynamic response of beams, plates and shells. These chapters develop the key features of the subject from an engineering viewpoint, and are followed by several chapters on various phenomena of importance to structural impact. The influence of transverse shear, rotatory inertia, finite displacements and dynamic material properties are introduced and studied in some detail. Dynamic progressive buckling, which develops in several energy absorbing systems, is then examined, while the phenomenon of dynamic plastic buckling is introduced in the penultimate chapter. The last chapter on the scaling laws is important for relating the response of small-scale experimental tests to the dynamic behaviour of full-scale prototypes. This text is invaluable to undergraduates, graduates, and professionals who want to learn more about the behaviour of structures subjected to large impact, dynamic and blast loadings producing an inelastic response.

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"This book would be a useful resource for a graduate-level course...Recommended." - H. I. Epstein, University of Connecticut

Structural Impact is concerned with the behaviour of structures and components subjected to large dynamic, impact and explosive loads which produce inelastic deformations and is of interest for safety calculations, hazard assessments and energy absorbing systems throughout industry. This book introduces the rigid plastic methods of analysis for the dynamic response of beams, plates and shells, and discusses dynamic material properties, dynamic progressive buckling, which develops in several energy absorbing systems, and the phenomenon of dynamic plastic buckling. The author includes a chapter on the scaling laws because they are important for relating the response of small-scale experimental tests to the dynamic behaviour of full-scale prototypes.

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