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Impact Mechanics



Synopsis

Impact mechanics is concerned with the reaction forces that develop during a collision and the dynamic response of structures to these reaction forces. The subject has a wide range of engineering applications, from designing sports equipment to improving the crashworthiness of automobiles. This book develops several different methodologies for analysing collisions between structures. These range from rigid body theory for structures that are stiff and compact, to vibration and wave analyses for flexible structures. The emphasis is on low-speed impact where damage is local to the small region of contact between the colliding bodies. The analytical methods presented give results that are more robust or less sensitive to initial conditions than have been achieved hitherto. As a text, Impact Mechanics builds upon foundation courses in dynamics and strength of materials. It includes numerous industrially relevant examples and end-of-chapter homework problems drawn from industry and sports. Practising engineers will also find the methods presented in this book useful in calculating the response of a mechanical system to impact.

Book Information

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Customer Reviews

'A delightful book, it is clear and beautifully prepared in a stimulating manner, which will encourage frequent reference and further reading in the several references provided. Practising engineers will also find the methods presented in this book very useful in calculating the response of mechanical systems to impact.' Current Engineering Practice'... the book is unsurpassed in the masterly cogent treatment of intricate problems. We may paraphrase the words of the Spanish poet Garcia Lorca,

when we predict that a considerable period will elapse before a book of comparable excellence will be published on impact theory.' Piero Villaggio, Zentralblatt für Mathematik

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